

# Mansfield Shire

## FLOOD EMERGENCY PLAN

A Sub-Plan of the Municipal Emergency  
Management Plan

For Mansfield Shire  
and  
VicSES Unit Mansfield

Version 2, August 2021



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## Distribution of MFEP

Once endorsed and signed the, MFEP should be distributed to all MFEP committee members, MEMPC Chair, Council, MEMO, Deputy MEMO, Representatives from; CMA, DELWP, Parks Victoria, Ambulance Victoria, VicRoads, DFFH, relevant utilities, MERC, RERC, Police station, VICSES Unit, VICSES Regional office, CFA Brigades, CFA Regional office,

## Document Transmittal Form / Amendment Certificate

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

Suggestions for amendments to this Plan should be forwarded to VICSES Regional Office via [northeast@ses.vic.gov.au](mailto:northeast@ses.vic.gov.au).

Amendments listed below have been included in this Plan and updated as a new version.

Amendment Number	Date of Amendment	Amendment Entered By	Summary of Amendment
<b>Version 2</b>	June 2021	J.Newlands	<b>Updated to new SES format</b>

This Plan will be maintained on the VICSES website at [www.ses.vic.gov.au/get-ready/your-local-flood-information](http://www.ses.vic.gov.au/get-ready/your-local-flood-information) and The Municipality website [www.mansfield.vic.gov.au](http://www.mansfield.vic.gov.au)

## List of Abbreviations & Acronyms

The following abbreviations and acronyms are used in the Plan

<b>AAR</b>	After Action Review	<b>IIA</b>	Initial Impact Assessment
<b>AEP</b>	Annual Exceedance Probability	<b>IEMT</b>	Incident Emergency Management Team
<b>AHD</b>	Australian Height Datum (the height of a location above mean sea level in metres)	<b>JSOP</b>	Joint Standard Operations Procedure
<b>AIDR</b>	Australian Institute of Disaster Resilience	<b>IMS</b>	Incident Management System
<b>AIIMS</b>	Australasian Inter-service Incident Management System	<b>LSIO</b>	Land Subject to Inundation Overlay
<b>AoCC</b>	Area of Operations Control Centre / Command Centre	<b>MEMO</b>	Municipal Emergency Management Officer
<b>ARI</b>	Average Recurrence Interval	<b>MEMP</b>	Municipal Emergency Management Plan
<b>ARMCANZ</b>	Agricultural & Resource Management Council of Australia & New Zealand	<b>MEMPC</b>	Municipal Emergency Management Planning Committee
<b>AV</b>	Ambulance Victoria	<b>MERC</b>	Municipal Emergency Response Coordinator
<b>BoM</b>	Bureau of Meteorology	<b>MEMO</b>	Municipal Emergency Management Officer
<b>CEO</b>	Chief Executive Officer	<b>MFB</b>	Metropolitan Fire Brigade
<b>CERA</b>	Community Emergency Risk Assessment	<b>MFEPCC</b>	Municipal Flood Emergency Planning Committee
<b>CFA</b>	Country Fire Authority	<b>MRM</b>	Municipal Recovery Manager
<b>CMA</b>	Catchment Management Authority	<b>PMF</b>	Probable Maximum Flood
<b>EMO</b>	Emergency Management Officer	<b>RAC</b>	Regional Agency Commander
<b>RERC</b>	Regional Emergency Response Coordinator	<b>RCC</b>	Regional Control Centre
<b>RERCC</b>	Regional Emergency Response Coordination Centre	<b>RDO</b>	Regional Duty Officer
<b>DFFH</b>	Department of Families Fairness and Housing	<b>SAC</b>	State Agency Commander
<b>DEDJTR</b>	Department of Economic Development, Jobs, Transport, Resources	<b>SBO</b>	Special Building Overlay
<b>DELWP</b>	Department of Environment, Land, Water and Planning	<b>SCC</b>	State Control Centre
<b>EMLO</b>	Emergency Management Liaison Officer	<b>SEMP</b>	State Emergency Management Plan
<b>EMT</b>	Emergency Management Team	<b>SDO</b>	State Duty Officer
<b>ERC</b>	Emergency Relief Centre	<b>SERP</b>	State Emergency Response Plan
<b>EO</b>	Executive Officer	<b>SEWS</b>	Standard Emergency Warning Signal
<b>FO</b>	Floodway Overlay		

# Part 1. Introduction

## 1.1 Approval and Endorsement

This Municipal Flood Emergency Plan (MFEP) has been prepared by the authority of the Mansfield MEMP committee - pursuant to Emergency Management Legislation Amendment Act 2018.

Mansfield MEMP committee has undertaken the following consultations with the Mansfield and Jamieson communities about the arrangements contained within this plan:

A consultation process was conducted with the Mansfield shire community and from representatives of these communities as members of the Mansfield MEMP committee.

This MFEP is a Sub plan / Complementary Plan to the Mansfield Municipal Emergency Management Plan (MEMPC), is consistent with the State Emergency Management Plan(SEMP) and the Victorian Floodplain Management Strategy (2016), and takes into account the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the Municipal Emergency Management Planning Committee (MEMPC).

The MFEP is consistent with the Regional Flood Emergency Plan (RFEP) and the State Emergency Management Plan (SEMP) – Flood sub-plan.

This MFEP is a result of the cooperative efforts of the MEMP committee and its member agencies.

This Plan is approved by the VICSES Regional Manager.

This Plan is adopted by the Mansfield MEMPC as a sub-plan / Complementary Plan to the MEMP.

### Approval

.....

Keith O'Brien Date

Hume Region VICSES Regional Manager

### Endorsement

.....

[Enter Name Details] Date

Chair – Municipal Emergency Management Planning Committee

## 1.2 Purpose and Scope of this Flood Emergency Plan

The purpose of this MFEP is to detail arrangements agreed for the managing a flood emergency before, during and after it occurs or potentially occurs within Mansfield Shire

As such, the scope of the Plan is to:

- Identify the local flood risk.
- Support the implementation of mitigation and planning measures to minimise the causes and impacts of flooding.
- Detail emergency management arrangements.
- Identify linkages with Local, Regional and State emergency and wider planning arrangements with a specific emphasis on those relevant to flood.

## 1.3 Municipal Flood Planning Committee (MFPC)

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

- VICSES (i.e. Unit Controller & Regional Officer – Emergency Management) (**Chair**),
- Council (i.e. Municipal Emergency Management Officer)
- Victoria Police (i.e. Municipal Emergency Response Co-ordinator) (MERC),
- Catchment Management Authority (CMA),
- Department of Families Fairness and Housing (DFFH) as required

## 1.4 Responsibility for Planning, Review & Maintenance of this Plan

This MFEP must be maintained in order to remain effective.

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

The MFPC will meet at least once per year. The plan should be reviewed following:

- A new flood study;
- A significant change in flood mitigation measures;
- After the occurrence of a significant flood event within the Municipality;
- Or if none of the above occur, every 3 years.

## Part 2. BEFORE: Prevention / preparedness arrangements

### 2.1 Community Engagement and Awareness

Details of this MFEP will be released to the community through; local media, any FloodSafe engagement initiatives and websites (VICSES and the Municipality) upon formal adoption by VICSES and the Municipality. VICSES with the support of Mansfield Shire and Goulburn Broken Catchment Management Authority will coordinate targeted community flood engagement programs within the council area. Refer to appendix H (LFG and FloodSafe Information. Attach any broader FloodSafe details).

### 2.2 Structural Flood Mitigation Measures

The following summary of structural flood mitigation measures exist within the Council area:

- Levees: No levees are identified within the Mansfield Shire
- Retarding Basins: No retarding Basins are identified within the Mansfield Shire

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

### 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. It is recommended that the MFEP is exercised on annual basis and reviewed in line with Section 1.4.

#### 2.3.2 Flood Warning

Arrangements for Bureau issued Flood Watch and Flood Warning products are contained within the SEMP Sub Plan – Flood ([www.ses.vic.gov.au/em-sector/vicses-emergency-plans](http://www.ses.vic.gov.au/em-sector/vicses-emergency-plans)) and on the Bureau of Meteorology (BoM) website [www.bom.gov.au](http://www.bom.gov.au).

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

#### 2.3.3 Local Knowledge

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

Specific details of arrangements to capture local knowledge are provided in **Appendix G**.

# Part 3. DURING: Response arrangements

## 3.1 Introduction

### 3.1.1 Activation of Response

Flood response arrangements may be activated by the Regional Duty Officer (RDO) VICSES Hume Region or Regional Agency Commander (RAC).

The VICSES Incident Controller (IC)/RDO will activate agencies as required as documented in the State Emergency Management Plan - Flood.

### 3.1.2 Responsibilities

There are a number of agencies with specific roles that will act in support of VICSES and provide support to the community in the event of a serious flood within the Mansfield Shire. These agencies will be engaged through the EMT.

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

#### 3.1.1 Emergency Coordination Centre or equivalent

If established, liaison with the emergency coordination centre will be through the established Division/Sector Command and through Municipal involvement in the IEMT, in particular the Municipal Emergency Response Coordinator (MERC). The VICSES RDO / ICC will liaise with the centre directly if no Division/Sector Command is established.

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

#### 3.1.2 Escalation

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

Resourcing and event escalation arrangements are described in the SEMP.

## 3.2 The six C's

Arrangements in this MFEP must be consistent with the 6 C's detailed in State and Regional Flood Emergency Plans and the MEMP. For further information, refer to in the SEMP.

- **Command:** Overall direction of response activity in an emergency.
- **Control:** Internal direction of personnel and resources within an agency.
- **Coordination:** Bringing together agencies and resources to ensure effective preparation for response and recovery.
- **Consequence:** 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 communities around resilience and decision making.

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

### 3.2.1 Control

Functions 5(a) and 5(c) at Part 2 of *the Victoria State Emergency Service Act 1986 (as amended)* detail the authority for VICSES to plan for and respond to flood.

SEMP prepared under the *Emergency Management Act 2013*, identifies VICSES as the Control Agency for flood. It identifies DELWP as the Control Agency responsible for “dam safety, water and sewerage asset related incidents” and other emergencies. A more detailed explanation of roles and responsibilities is provided in later sections of SEMP.

All flood response activities within the Mansfield Shire 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 delegated representative.

### 3.2.2 Incident Controller (IC)

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

### 3.2.3 Incident Control Centre (ICC)

As required, the IC will establish an Incident Control Centre (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 (i.e. VICSES).

Pre-determined ICC locations are available in the MEMP

Incident Level	Location	ICC Location	Facility owner	Key contact
3	Benalla	64 Sydney Road, Benalla	VicSES	RAC
3	Shepparton	195-205 Numurkah Road, Shepparton	CFA	CFA duty officer
3	Seymour	Macintyre Street, Seymour.	CFA	CFA duty officer
3	Wangaratta	Ely Street, Wangaratta.	CFA	CFA duty officer

### 3.2.4 Divisions and Sectors

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

The following Divisions and Sectors may be established to where applicable to assist with the management of flooding within the Municipality:

Division	Sector
Seymour	Mansfield SES
Seymour	Jamieson Police Station

### 3.2.5 Incident Management Team (IMT)

The IC will form an Incident Management Team (IMT).

Refer to SEMP for guidance on IMTs and Incident Management Systems (IMSs).

### 3.2.6 Incident Emergency Management Team (IEMT)

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

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

Refer to SEMP for guidance on IEMTs.

### 3.2.7 On Receipt of a Flood Watch / Severe Weather Warning

SOP008 and SOP009 outline in detail the actions to be undertaken upon receipt of a Flood Watch/Flood Warning or Severe Weather Warning. VICSES RDO (until an incident controller is appointed) or IC will undertake actions as defined within the flood intelligence cards (**Appendix C**). General considerations by the IC/VICSES RDO will be as follows:

- Review flood intelligence to assess likely flood consequences
- Monitor weather and flood information – [www.bom.gov.au](http://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 Regional Control Centre (RCC) (if established), State Control Centre (SCC) (if established), Council, other emergency services through the EMT.
- Assess ICC readiness (including staffing of IMT and IEMT) and open if required
- Ensure flood warnings and community information is prepared and issued to the community where required
  - Flood (Riverine and flash) Warnings are managed by the RDO/RAC
  - Severe Weather/ Thunderstorm warnings are managed by SDO/SAC
- Develop media and public information management strategy
- Monitor watercourses and undertake reconnaissance of low-lying areas
- Ensure flood mitigation works are being checked by owners
- Develop and issue incident action plan, if required
- Develop and issue situation report, if required

### 3.2.8 On Receipt of the First and Subsequent Flood Warnings

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

- Develop an appreciation of current flood levels and predicted levels. Are floodwaters, rising, peaking or falling?
- Review flood intelligence to assess likely flood consequences.
- Consider:
  - What areas may be at risk of inundation?
  - What areas may be at risk of isolation?
  - What areas may be at risk of indirect affects as a consequence of power, gas, water, telephone, sewerage, health, transport or emergency service infrastructure interruption?
  - The characteristics of the populations at risk
- Determine what the at-risk community need to know and do as the flood develops.
- Warn the at-risk community including ensuring that an appropriate warning and community information strategy is implemented including details of:
  - The current flood situation
  - Flood predictions
  - What the consequences of predicted levels may be
  - Public safety advice
  - Who to contact for further information
  - Who to contact for emergency assistance
- Liaise with relevant asset owners as appropriate (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/](http://www.bom.gov.au/vic/flood/)
- Continue to conduct reconnaissance of low-lying areas

### 3.3 Initial Impact assessment

Initial impact assessments will be conducted in accordance with SEMP to assess and record the extent and nature of damage caused by flooding. This information may then be used to provide the basis for further needs assessment and recovery planning by DFFH and recovery agencies.

### 3.4 Preliminary Deployments

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

### 3.5 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 SEMP - Flood.

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 and etc;
2. If evacuation is possible, then evacuation should be the adopted strategy and it must be supported by a public information capability and a rescue contingency plan;
3. Where it is likely people will become trapped by floodwaters due to limited evacuation options safety advice needs to be provided to people at risk. Advice should be given to not attempt to flee by entering floodwater if they become trapped, 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 unsuitable 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 Mansfield Shire MERC, MEMO and MRM at the earliest opportunity to allow for relief preparation to commence.

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

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

## 3.6 Evacuation

The IC decides whether to warn people to evacuate or if it is recommended to evacuate immediately.

Once the decision is made VicPol are responsible for the management of the evacuation process where possible. VICSES and other agencies will assist where practical. VICSES is responsible for the development and communication of evacuation warnings.

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

Refer to SEMP and the Evacuation Guidelines for guidance of evacuations for flood emergencies.

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

## 3.7 Flood Rescue

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

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

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

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

The following resources are available within Mansfield Shire to assist with rescue operations:

Mansfield SES have two boats, with one identified for lake work and the other for river work.

Alexandra SES has a rigid boat for river work.

Known high-risk areas/communities (i.e. low-lying islands) where rescues might be required include:

The Jamieson Caravan Park is situated on the banks of Jamieson River on Grey Street and has a history of flooding.

## 3.8 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

The Incident Controller may request aircraft support from the State Air Desk located at the SCC, who will establish priorities across the state.

Suitable airbase facilities are located at: Mansfield Airfield (Walsh's Airstrip)

<b>Airport - General Information:</b>
Privat Airstrip - permission may be required
* Operator: M AND P WALSH
* Contact: 03 5775 2558 SEE ERSa FOR MORE
* Country: AUSTRALIA
* State/province: VICTORIA
* Latitude: S 37 04 20
* Longitude: E 146 07 11
* Direction: ESTIMATE 34/16
* Length: ESTIMATE 1200 METERS
* Width: ESTIMATE STRIP 15 METERS - TOTAL 60 METERS
* Surface: GRASS
* Slope:
* Altitude: 1050 FEET
* Frequency: CTAF 126.70 MHZ
* Airspace: CLASS G
* Navigation aid:
* Chart: WAC 3470



<b>Airport - Runway features:</b>
* Runway markers
* Parking

<b>Airport - Fuel and Passengers facilities:</b>
No fuel or passengers facilities of data available

<b>Airport - Aerodrom Lights:</b>
* Pal Not available

### 3.9 Resupply

Communities, neighbourhoods or households can become isolated during 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, VICSES will advise businesses and/or households that they should stock up on essential items.

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

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

### 3.10 Essential Community Infrastructure and Property Protection

Essential Community Infrastructure and Property (e.g. residences, businesses, roads, power supply etc.) may be affected in the event of a flood.

Council maintains a small stock of sandbags at their Municipal Depot Lakins road Mansfield. Small quantities of sandbags are also maintained by SES at the CFA Station in Jamieson. Additionally, Council will maintain a five cubic meter stockpile of sand at Jamieson to be located at the playground area Perkins Street Jamieson (Adjacent to the CFA Station), and back-up supplies are available through the VICSES Regional Headquarters. The IC 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 Community Infrastructure. Other high priorities may include for example the protection of historical buildings.

Property may be protected by:

- Sandbagging to minimise entry of water into buildings
- Encouraging businesses and households to lift or move contents
- Construction of temporary levees in consultation with the CMA, LGA and VICPOL and within appropriate approval frameworks.

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

Contact your local VICSES representative for the most current Sandbag Guidelines or download it from IMT Toolbox in EMCOP- Operations.

Refer to **Appendix C** for further specific details of essential infrastructure requiring protection and location of sandbag collection point(s).

### 3.11 Disruption to Services

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

### 3.12 Road Closures

Mansfield Shire Council, RRV (Regional Roads Victoria) DELWP ( Department of Environment, Land, Water and Planning) and will carry out their formal functions of road closures including observation and placement of warning signs, road blocks etc. to its designated local, regional roads and state forest/national park roads, bridges, walking and bike trails. Council and DELWP staff should also liaise with and advise RRV as to the need or advisability of erecting warning signs and / or of closing roads and bridges under its jurisdiction. RRV are responsible for designated main roads and highways, councils are responsible for the designated local and regional road network and DELWP is a Road Management Authority in state forest/national parks.

RRV and Council will communicate community information regarding road closures. Information will be updated on the VIC Traffic website: <https://traffic.vicroads.vic.gov.au/>

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

### **3.13 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.

DELWP have developed Dam Safety Emergency Plans for municipalities where it is applicable.

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

### **3.14 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 asset should undertake the following:

- Advise VICSES of the security of critical sewerage assets to assist preparedness and response activities in the event of flood;
- Maintain or improve the security of critical sewerage assets;
- Check and correct where possible the operation of critical sewerage assets in times of flood;
- Advise the ICC in the event of inundation of critical sewerage assets.

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

### **3.15 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.

### **3.16 After Action Review**

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

All agencies involved in the 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 flood incident within the Municipality, is detailed in the Mansfield Shire MEMP and/or the Recovery Sub-plan.

### 4.2 Emergency Relief

The decision to recommend the opening of an emergency relief centre sits with the IC. The IC is responsible for ensuring that relief arrangements have been considered and implemented where required under the State Emergency Relief and Recovery Plan SEMP

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

Suitable relief facilities identified for use during floods are detailed in **Appendix C** and/or the MEMP.

Details of the relief arrangements are available in the MEMP.

### 4.3 Animal Welfare

Matters relating to the welfare of livestock and companion animals (including feeding and rescue) are to be referred to DEDJTR.

Requests for emergency supply and/or delivery of fodder to stranded livestock or for livestock rescue are passed to DEDJTR.

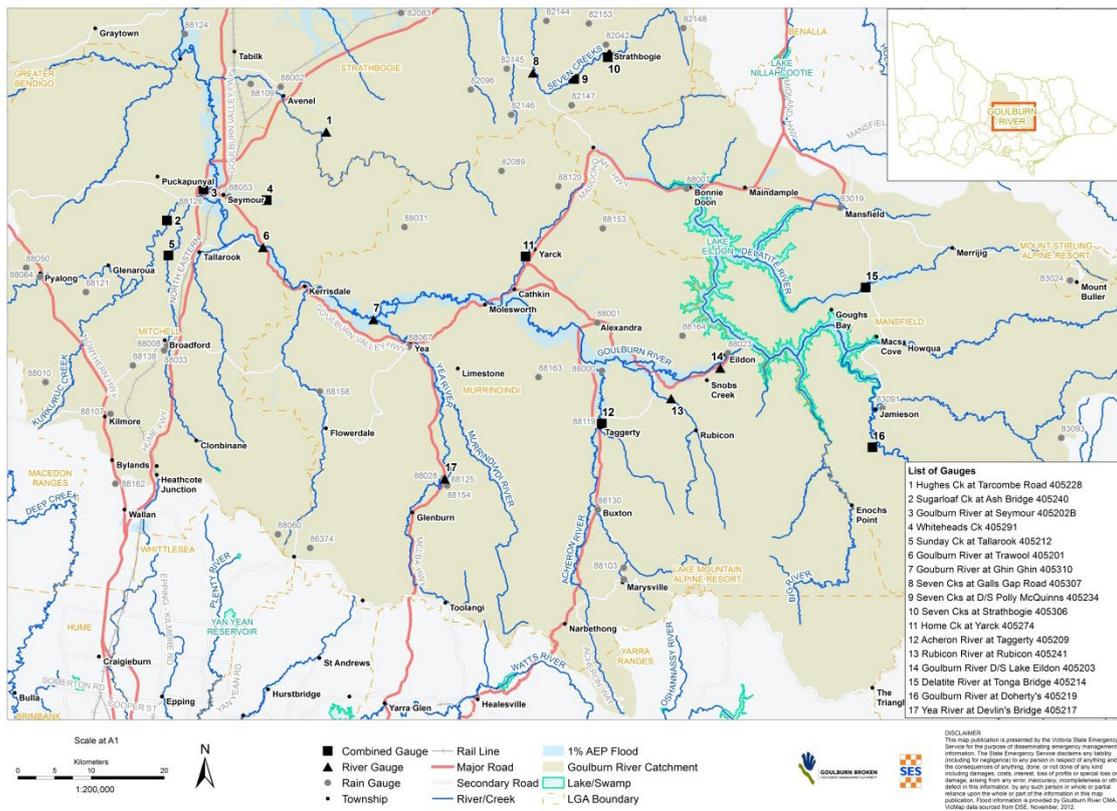
Matters relating to the welfare of wildlife are to be referred to DELWP.

Refer to The Mansfield Shire Animal Emergency Welfare plan 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. This transition will be conducted in accordance with existing arrangements as detailed in the SEMP or locations of the transition arrangements are available in the MEMP.

# Appendix A: Flood threats for Mansfield Shire



## General

Within the Mansfield Township boundaries there are approximately 4 properties which would be inundated during a 10% AEP event, potentially rising to 20 properties for the 1% AEP flood. It is estimated that less than five dwellings would be flooded above floor, during a 1% AEP flood event within the Mansfield township boundaries.

Jamieson can experience both riverine and flash flooding. Riverine floods in Jamieson happen when the Goulburn or Jamieson Rivers (or both) break their banks and overflow after heavy or prolonged rainfall in the steep catchments of the surrounding state forests and Alpine National Park. Riverine flooding in Jamieson generally last about 24 hours, but in low-lying areas can take up to 48 hours to recede. The Jamieson Caravan Park and low-lying farms and rural properties are often impacted during flooding.

Flash flooding can occur in Jamieson at any time of year during and after heavy rain or thunderstorms. The hilly terrain surrounding Jamieson makes flash flooding more likely as water can gain both speed and power as it flows downhill. Flash floods often come and go in just a few hours but can be deep, powerful and fast moving, making them very dangerous. There is often little or no time to warn communities before flash flooding occurs.

The Jamieson district is very remote. The Mansfield - Woods Point Road is the only main road in and out of town. Many places along this road can be flooded, closing the road both north and south of the town. Because of this, residents, visitors, campers, fishers, hunters and four-wheel drivers can become isolated as roads and bridges become impassable. Roads, bridges and tracks can also be damaged and blocked by landslides caused by prolonged rainfall.

The impact of flooding on the Jamieson community can vary depending on the amount of rainfall, how quickly it has fallen and where it has fallen. Past floods in Jamieson have resulted in nearly 30 properties being inundated (flooded above floor level), cut off by road closures or surrounded by floodwater.

Historical records show that significant floods occurred in Jamieson in 1912, 1934, 1939, 1993, 1998, 2007 and 2010. Jamieson's recent flood history includes riverine flooding (rivers overflowing their banks) in 1998, and flash flooding (caused by heavy local rainfall) in 2010. Flash flooding in September 2010 caused the largest recorded flood in the Jamieson area with 27 properties and the Jamieson caravan park flooded. This flood peaked soon after midnight, dropping away early the following morning. While no two floods are the same, floods like this or worse could occur again. Knowing what to do can save your life and help protect your property.

#### Mansfield Planning Scheme:

The planning controls ensure that risks associated with the use and development of floodplain land are recognised and responded to appropriately via the planning permit application process.

The UFZ, FO and LSIO areas are based on the relative flood risk assessed for different parts of the floodplain, considering factors such as flood depth, velocity, natural storage, flood duration and warning time.

The UFZ and FO within the Mansfield Planning Scheme denote floodway land. Floodway is the component of the floodplain required to provide adequate flood conveyance and storage and should remain free from obstruction during major flood events. Furthermore, floodway land is generally the high hazard portion of the floodplain where deep and fast flowing floodwater can be expected. Placement of buildings on floodway land substantially increases risk to life and community wellbeing and should therefore be avoided.

In general, the UFZ in Mansfield Township applies to the area from Fords Creek at Withers Lane, located at the north of the township, and ending with the flow paths at the corner of Mansfield-Woods Point Road and Mt Buller Road. The UFZ serves to protect the natural values and function of the floodplain through prohibition of most forms of development – including residential, commercial and industrial.

The FO recognises existing use of floodway land that may already be developed. Further development can be considered provided strict criteria are applied to approvals for buildings and works to minimise flood risks.

The LSIO within the Mansfield Planning Scheme generally denotes land where flooding is likely to be relatively shallow and slow moving. The level of hazard in this part of the floodplain is relatively low. This land is often on the fringe of the floodplain and development is possible provided strict criteria is applied to building and works approvals to minimise flood risks.

The catchments of Lake Eildon, Lake Nillahcootie, Fords Creek, Doolam Creek, Glen Creek, Broken River, Delatite River, Goulburn River and Howqua River in the Mansfield Shire include areas of flood prone land where flooding has historically caused damage to the natural and built environment.

Parts of the Mansfield Township and Jamieson Township are known to have been most affected by past flooding events.

Floods are naturally occurring events and the inherent functions of the floodplains to convey and store floodwater should be recognised and preserved to minimise the long-term flood risk to floodplain production, assets and communities. Natural flooding, long term productivity of flood prone land, river and wetland health are all closely linked. Inappropriate development on the floodplain can lead to the deterioration of environmental values and reduced agricultural production.

The Argus 03 December 1934 – Flood reports – Trove – National Library of Australia:

MANSFIELD - 153.points (54mm) since Thursday. Jamison cut off both ways by 4ft of water across the road. Losses of sheep expected to total 1,200; snow on Mount Buller mid hills.

## Historic Floods

The recorded flood in Jamieson occurred during September 2010 and is estimated as a 1% AEP event. The highest recorded flood in Mansfield occurred during September 1975 and is estimated as a 1% AEP event. On each occasion short duration flooding occurred overnight peaking soon after midnight and receding early the following morning.

### Significant Floods since 1968

<i>Month year</i>	<b>Jamieson</b>		<b>Upper Goulburn</b>		<b>Goulbourn @ Eildon</b>		<b>Ford Creek @ Mansfield</b>	
	Peak Stage (Metres)	Equivalent AEP %	Peak Stage (Metres)	Equivalent AEP %	Peak Stage (Metres)	Equivalent AEP %	Peak Stage (Metres)	Equivalent AEP %
<i>September 2010</i>	4.76	1	5.12	1				
<i>October 2000</i>							2.95	25
<i>Sept 1998</i>	4.47		4.66		1.29	100		
<i>October 1996</i>	4.06	5	3.71	12	3.25	50	3.08	20
<i>June 1995</i>	4.00		3.33	20	0.74	<100	3.28	14
<i>October 1993</i>	3.69		2.07	62	5.05	17	3.99	3
<i>September 1993</i>	2.66		3.86	12	4.82	20		
<i>July 1986</i>	3.69		3.56	17	0.55	<100		
<i>September 1975</i>							4.34	1
<i>May 1975</i>	4.05	5	0.94	100	1.76	100		
<i>August 1970</i>							3.42	
<i>October 1968</i>	4.16		3.84	12	1.59			

## Description of Major Waterways and Drains

Waterway or Drain	Description
<b>Goulburn River above Lake Eildon</b>	The Goulburn River rises in the western end of the Victoria Alps, near Woods Point at an elevation of about 811m, and flows into Lake Eildon merging with the Jamieson River at an elevation of 293m. The Mansfield Woods Point Road follows the alignment of the river from Jamieson township to the area above Kevington and Gaffneys Creek, then the creek before reconnecting with the river at Woods Point. The road is subject to inundation and riverine floodwater impact / damage.
<b>Jamieson River</b>	The Jamieson River starts below Potato Patch at an elevation of 491m and ends near Jamieson at an elevation of 293m at its confluence with the Goulburn River. The Jamieson River drops around 197m over its 33km length. The level of the Jamieson River at its junction with the Goulburn River is affected by complex factors such as wind effects, the likelihood of the Lake Eildon being at or near full supply level and any local effects of floodwaters entering Goulburn Inlet. It should be noted that the width of the Goulburn Inlet (into Lake Eildon) is of the order of 50 to 100 metres, and one would expect local flood surge effects.
<b>Ford Creek</b>	<p>The Ford Creek catchment is upstream of Mansfield. The Midland Highway from Benalla crosses the creek at the Highett Street Bridge in Mansfield. On the eastern side of the town the Monier Bridge connects the township to the Mansfield Whitfield Road leading through Tolmie. Fords Creek is also adjacent to the intersection of the Mansfield Mt Buller road and the Mansfield Woods Point Road intersection – opposite Mansfield airstrip (DELWP Airbase).</p> <p>The catchment headwaters are located 13 km east of Mansfield. The catchment falls from 770 metres AHD at its eastern most point to 320 metres AHD at Mansfield. The catchment is largely cleared, with generally only low density scattered trees remaining. Grazing is the predominant land use within the catchment. Ford Creek outfalls into Lake Eildon approximately 7 km downstream of Mansfield.</p>
<b>Delatite River</b>	The Delatite River rises between the ski resort mountains of Mount Stirling and, Mount Buller. Flowing generally westwards, it passes the town of Merrijig before reaching Lake Eildon. It crosses Mansfield Woods Point Road at Piries and the Howes Creek Road at Bracks Bridge near the northerly approach to Goughs Bay. The river supplies township water to the upper Merrijig area (offtake near Carters Road Sawmill Settlement with no reservoir) and Mansfield township - Killarney Lane area is the offtake and 3 reservoirs
<b>Lake Eildon</b>	A major water storage reservoir with a Full supply volume of 3,341,580 ML Located on the Goulburn River in its upper catchment, immediately below the junction with the Delatite River, the Big River, the Jamieson river the Howqua River and numerous Creeks.

## Dam Spilling/ Failure

Flooding resulting from spilling or failure of the following dams is likely to cause significant structural and community damage

Flooding resulting from failure of the following dams is likely to cause minimal short term community issues within the Mansfield Shire as the dam / reservoir walls are located on the Municipalities boundaries, however the neighbouring shires and the State would be significantly affected.

The following supporting documentation is available from the VICSES Regional HQ Office and the Dam Operators.

- Dam Safety Emergency Plan for Lake Nillahcootie doc no 3304280
- Dam Safety Emergency Plan for Lake Eildon doc no 3026344

Location	Owner	Dam Height	Dam Capacity	Comments
<p><b>Lake Eildon</b></p> 	Goulburn Murray Water	Embankment height 79m existing and 84.25m with raise including parapet wall	Full supply volume 3,341,580 ML	Located on the Goulburn River in its upper catchment, immediately below the junction with the Delatite River, the Big River, the Jamieson river the Howqua River and numerous Creeks.
<p><b>Lake Nillahcootie</b></p> 	Goulburn Murray Water	Embankment height 35m	Full supply volume 40,400 ML	Situated on the Broken River 36km south of Benalla.

## Appendix B: Typical flood peak travel times

Stream flow gauges are located within a few kilometres upstream of Jamieson, with an automated gauge located on the Goulburn River and a manual gauge on the Jamieson River. There is therefore no effective warning time available from these gauges. The catchment above Jamieson on the Goulburn River is 694 km<sup>2</sup> and on the Jamieson River is 368 km<sup>2</sup>. It is likely that large rainfall episodes in the similar 'High Country' catchment would result in river rises in Jamieson in around 12 to 24 hours. Therefore, the community/agency reaction to local observations and the BoM's flood watch and severe thunderstorm services is paramount.

It is recommended that a study determining the relationship between rainfall and river gauge height should be undertaken to improve warnings for Jamieson

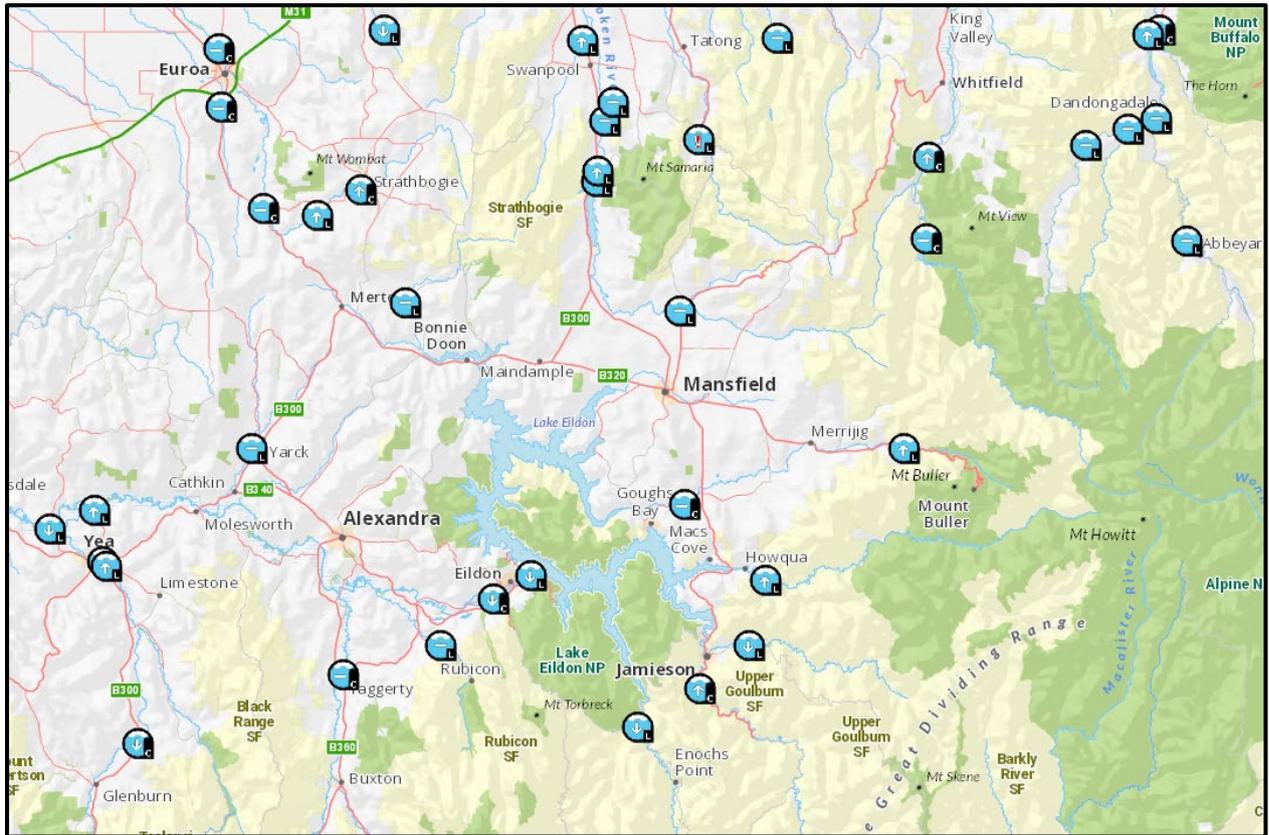
The Delatite River is not 'close' to the Mansfield township, the river gauge is on the Delatite River near Piries (Tonga) and will provide advance warning of general catchment conditions in the Mansfield area and the likely replicated conditions of the Ford Creek and upstream area and potential roadway inundation leading north, south and east from Mansfield

The catchment to Mansfield Township is less than 100 km<sup>2</sup> and therefore the time from rainfall to flood commencing is likely to be around 6 hours for large floods like that occurred in 1975.

Estimates of the time of concentration, i.e., the time taken for rainfall to travel through the catchment as streamflow, are presented below. These have been estimated using standard engineering equations as outlined in the 'Comments' section. These estimates align with historic observations presented above.

Location From	Location To	Typical Travel Time	Comments
<b>Start of rainfall – Goulburn River catchment</b>	Jamieson	Approximately 7.2 hours	Estimated using Australian Rainfall & Runoff Time of Concentration calculations.
<b>Start of rainfall – Jamieson River catchment</b>	Jamieson	Approximately 19 hours	Estimated using Bransby-Williams Time of Concentration calculations.
<b>Start of rainfall – Ford Creek catchment</b>	Mansfield	Approximately 4.5 hours	Estimated using Australian Rainfall & Runoff Time of Concentration calculations.

## Live Water Height Gauges both Non FCL and FCL



Note – It should be noted that only the gauge at Doherty’s on the Goulburn has Flood Class Levels accepted by BoM and as such warnings for this River will be issued by BoM as part of its flood warning system. Whilst the gauge at Gerran’s is a telemetry gauge it does not have established Flood Class Levels so warnings by BoM cannot be issued for the Jamieson River.

Note – In Flash Flood areas without gauges, it will only be possible to provide a general description of likely flood impact.

Note - FLC Flood Class Level (Minor – Moderate – Major) Non FLC has been flood levels allocated to the gauge.

# Appendix C1: Mansfield

## Overview of Flooding Consequences

The township of Mansfield is located on the fringe of the Ford Creek floodplain, 5 km east of Lake Eildon. Past flooding at Mansfield has occurred most notably in 1975 and 1993 leading to flooding of existing development in low lying areas including inundation of some houses. The creek has a catchment area of 84 km<sup>2</sup> at the Highett Street Bridge in Mansfield. The township has a population of 2,300. The catchment headwaters are located 13 km east of Mansfield. The catchment falls from 770 metres AHD at its eastern most point to 320 metres AHD at Mansfield. The catchment is largely cleared, with generally only low density scattered trees remaining. Grazing is the predominant land use within the catchment. Ford Creek outfalls into Lake Eildon approximately 7 km downstream of Mansfield. The only stream-flow measurement station on Ford Creek is located midway between Mansfield and Lake Eildon.

Prior to 1993, the creek channel had extensive willow growth within the township. Extensive willow removal works were undertaken during and after 1993 to address both the bank stabilisation and discharge capacity issues associated with the willows choking the creek. Existing development is located on much of the southern fringe of the floodplain. More recent development on the north side of the creek upstream of Highett Street is located on high ground above the floodplain.

The most vulnerable areas in Mansfield are located along Baldry Street, the north-eastern end of Alisa Street near Rowe Street, and east toward Greenvale Lane.

### 4.5 Overview of Flood Characteristics

**The 1975 flood characteristics are described as follows:**

- Moderate flood event occurred 5 days prior to the main flood, peaking at 81m<sup>3</sup>/s on the 13 September 1975.
- 41 mm of rainfall was recorded at the Mansfield Post Office gauge in the 72 hours to 09:00 on 15 September 1975.
- 24hour rainfall recorded at the Mansfield post office prior to 9.00am on the 18 September 1975 was 53 mm.
- Main flood peaked at 12.20am on the 18 September 1975, with a peak flow of 232 m<sup>3</sup>/s recorded at the gauging station.
- The time taken from when the creek water level started to rise at the gauging station, to peak flow, was approximately 6 hours.
- Peak flow had receded to 77m<sup>3</sup>/s by 6.00am on the 18 September 1975.
- The September 1975 flood was over within a period of approximately 12 hours during the night.

## Intensity-Frequency-Duration Table

Location: 37.100S 146.100E NEAR.. Mansfield SE Issued: 28/6/2012

Rainfall intensity in mm/h for various durations and Average Recurrence Interval

### Average Recurrence Interval

Duration	1 YEAR	2 YEARS	5 YEARS	10 YEARS	20 YEARS	50 YEARS	100 YEARS
5Mins	50.5	67.4	93.5	111	134	167	194
6Mins	47.2	62.9	87.2	103	125	155	180
10Mins	38.4	51.0	70.4	83.3	100	124	144
20Mins	27.7	36.8	50.5	59.7	71.8	88.9	103
30Mins	22.4	29.7	40.6	47.9	57.5	71.1	82.2
1Hr	15.0	19.8	26.7	31.3	37.3	45.8	52.7
2Hrs	9.68	12.7	16.7	19.3	22.8	27.6	31.4
3Hrs	7.44	9.66	12.5	14.3	16.7	20.0	22.7
6Hrs	4.72	6.05	7.57	8.50	9.78	11.5	12.9
12Hrs	3.01	3.83	4.66	5.17	5.88	6.82	7.56
24Hrs	1.93	2.44	2.96	3.27	3.71	4.29	4.74
48Hrs	1.21	1.53	1.88	2.08	2.37	2.74	3.04
72Hrs	.890	1.13	1.38	1.53	1.74	2.01	2.22

(Raw data: 20.24, 3.87, 1.15, 43.8, 6.47, 1.93, skew=0.26, F2=4.29, F50=15.14)

© Australian Government, Bureau of Meteorology

**IFD table for the tributaries of Ford Creek south east of Mansfield.**

### **The 1993 flood characteristics are described as follows:**

- Minor flood peaks experienced on 2 September (42 m<sup>3</sup>/s), 8 September (56 m<sup>3</sup>/s) and 15 September (51 m<sup>3</sup>/s) prior to the main flood event in early October 1993.
- Main flood peaked at 12.30am on the 4 October 1993, with a peak flow of 167 m<sup>3</sup>/s recorded at the gauging station.
- 24hour rainfall recorded at the Mansfield post office prior to 9.00am on the 4 October 1993 was 113 mm (highest 24hour total on record dating back to 1901).
- Flood level rose over a period of approximately ten hours prior to peaking 30 minutes after midnight.
- Peak flow had receded to 67 m<sup>3</sup>/s by 6.30am on the 4 October 1993
- The 1993 flood was therefore similar to the 1975 flood in that it rose and fell during the night.

### **Properties affected**

The following buildings are known to have been subject to past above floor flooding based on discussions with residents and / or Council staff during the course of the Mansfield 2005 flood study.

- House on the south side of the High Street, Mansfield-Whitfield Road and Mount Battery Road intersection (no 10 Mt Battery Road). This house is reported to have been flooded to above floor level in the 1975 and 1993 flood events.
- Buildings on the north side of Ailsa Street between Rowe Street and New Street. In particular, the houses at addresses No. 9 and 11 Ailsa Street are reported to have been flooded to above floor level in the 1956, 1975 and 1993 floods. House at 9 Ailsa Street was flooded to a depth of '6 to 9 inches' in the 1975 flood.
- Residents of the house at 11 Ailsa Street since 1942 have advised that the house has been flooded on three occasions, 1956, 1975 and 1993. Flooding most severe in the 1975 flood.
- House located 70 metres south west of the High Street Bridge (4 High Street). This house is reported to have been flooded to above floor level in 1975 and 1993. House at 4 High Street (house closest to west side of creek on the upstream side of High Street) was flooded to above floor level in the 1993 and 1975 floods.

### **Major roads affected**

- Dead Horse Lane (west of Midland Hwy) overtopping threshold is equivalent to less than a year ARI flood.
- Highett Street (Midland Highway) overtopping threshold is equivalent to a 10-year ARI flood. Highett Street Bridge. Constructed in 1939. Only marginally perched with 30 metre span. Overtopped in 1975 and 1993.
- High Street (Mansfield Whitfield Road) overtopping threshold is equivalent to between a 2 and 5-year ARI flood event.
- Mount Battery Road overtopping threshold is equivalent to a 5-year ARI flood.
- Greenvale Lane overtopping threshold is equivalent to a 2-year ARI flood.

Mansfield-Woods Point Road in Piries, Lat Long: -37.145421810292575, 146.13168357909993, this elbow in the Delitite River often floods and puts the Mansfield-Woods Point Road at risk

## Flood Impacts and Required Actions

There are currently no telemetered rainfall or river gauges within the Ford Creek catchment upstream of Mansfield however the existing gauge at the Delatite River provides some collineation both the Mansfield and also to a couple of properties in the Merrijig area and downstream of the Tonga Bridge on the Delatite River floodplain . The presence of a telemetered rainfall gauge above Mansfield Township is desirable to provide an improved means for estimating the impending severity of flooding aside from relying on rainfall recorded at Mansfield. The presence of a telemetered rainfall gauge will however only marginally increase the duration of flood warning time available, given the relatively small size of the Ford Creek catchment upstream of Mansfield.

Note – In Flash Flood areas without gauges, it will only be possible to provide a general description of likely flood impacts.

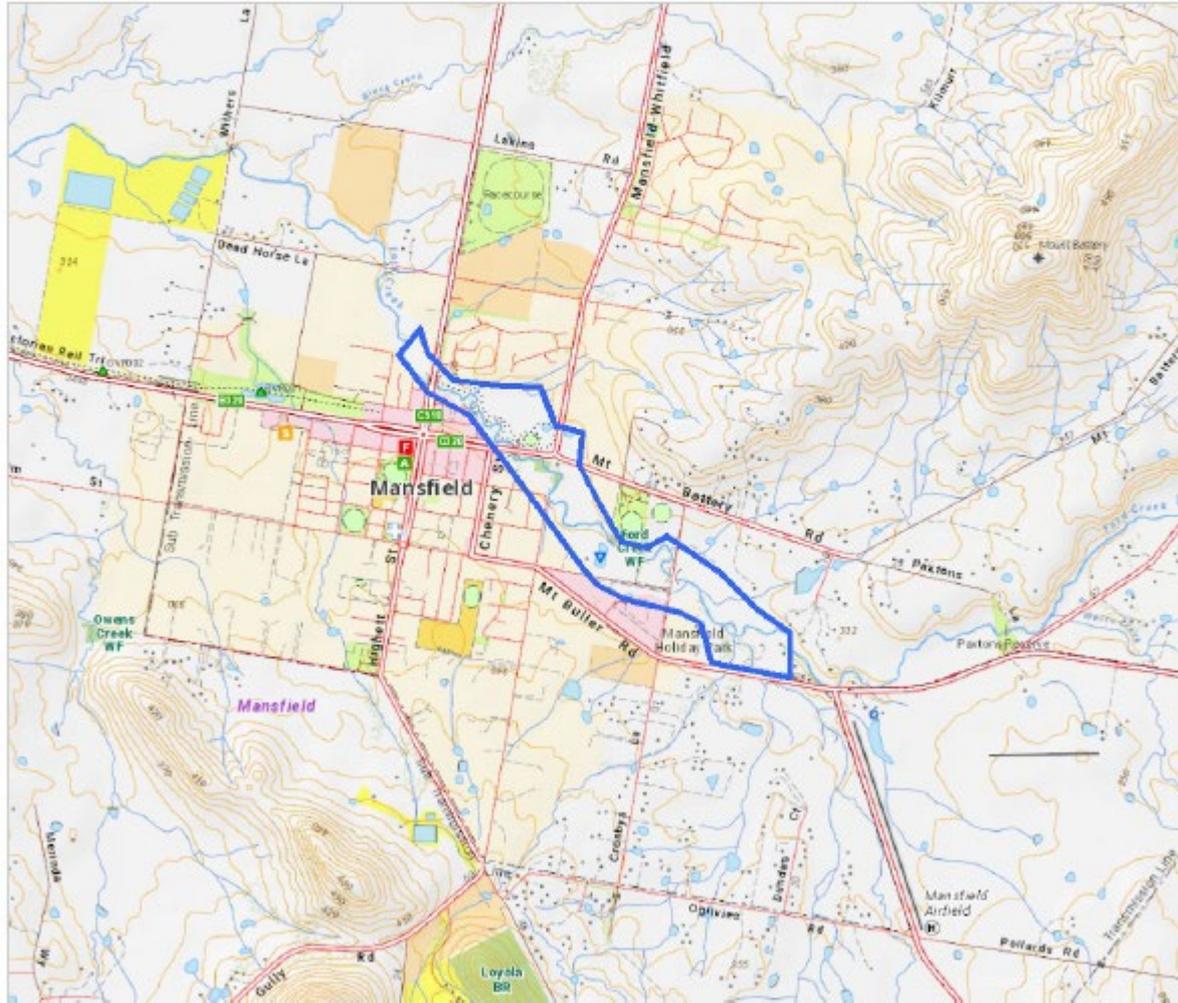
The following flood intelligence card incorporates known intelligence on Ford Creek. The rainfall data was collected at the Mansfield Post Office Rain Gauge, and are used as a guide only. Impacts linked to rainfall data are inaccurate and will change depending on the catchment conditions at the time of the rainfall.

AEP Event XX%	Properties Affected	Number of properties	Description of risk	Warning Time	Road Closure	Bus Route disruption
%1	<b>Residential</b>	5	Over floor flooding	NIL	Dead Horse Lane Highett Street High Street Mount Battery Road Greenvale Lane	
%1	<b>Commercial</b>					
%1	<b>Industrial</b>					
%1	<b>Public Land</b>					
%1	<b>Rural</b>					



# Mansfield 1 in 100 event

Flood Potential Impact Report



**Created:** Tuesday 01. December 2020 @ 02:51PM  
**Area derived from:** User drawn polygon  
**Area:** 101.5 hectares  
**Perimeter:** 7.1 kilometres

Flash Flood	User Selected Area
Storm Surge	Flooded Area Confirmed
	Flooded Area Unconfirmed

N

## Life

Townships	0	
Properties	80	
Hospitals	0	
Health Care Facilities	0	
Care Facilities	0	
Retirement Villages	0	
Schools/Pre-schools	0	
Prisons	0	
Camp Grounds	0	
Caravan Parks and Group Camps	1	Mansfield Holiday Park (caravan park)
Neighbourhood Safer Places	0	
Cultural Centres	0	
Community Venues	0	
Census - Population	589	
Census - Dwellings	317	

## Economic

Apiary	0	
Vineyards	0	
Industrial Facilities	0	
Plantations	0.0 (ha)	
Intensive Animal Production	0.0 (ha)	
Irrigated Horticulture	0.0 (ha)	
General Farming / Grazing	0.0 (ha)	
EPA Stockpile Sites	0	

## Assets / Infrastructure

Power Facilities	0	
Power Company Boundaries	1	SP AusNet
Major Transmission Lines	0.0 (km)	
Oil Pipelines	0.0 (km)	
Gas Pipelines	0.0 (km)	
Road Bridges	3	Greenvale Lane High St Highett St
Foot Bridges	1	Unnamed
Major Roads	0.8 (km)	High St Highett St Mansfield - Whitfield Rd
Major Rail	0.0 (km)	
Wind Farms	0	
Solar Farms	0	
Emergency Services - Police, Fire, Ambulance, SES	0	
Communication Services	0	
Proclaimed Water Supply Catchments	1015 (ha)	UPPER GOULBURN
Water Asset (point)	3	MANSFIELD - PUMPSTATION PUB (SEWERAGE)
Water Asset (line)	0.0 (km)	
Water Asset (polygon)	0.0 (ha)	
Water Infrastructure (point)	0	
PTV School Bus Route	6	Barjang - Mansfield (Fallons Wangaratta Pty Ltd as Trustee for Fallon Wangaratta Family Trust, 5722 9255) Barwite - Mansfield (H & B Stewarts Bus Company Pty Ltd, 5775 2630) Mahaikah - Mansfield (H & B Stewarts Bus Company Pty Ltd, 5775 2630) Mansfield - Benalla (Read & Brack P/L, 9459 3000)
PTV Metro Bus Route	0	
PTV Regional Bus Route	2	Woods Point - Mansfield Via Jamieson (H & B Stewarts Bus Company)

## Flood Mitigation

- Yet to be determined

## Flood Impacts and Required Actions

**Note:** In Flash Flood areas without gauges, it will only be possible to provide a general description of likely flood impacts.

## Flood intelligence card-

**Gauge Location: No gauges near Mansfield**

**River at Location Fords Creek**

River Height (m) and or River Flow (ML/d)	Annual Exceedance Probability (%AEP)	Consequence/ Impact	Action <small>Actions may include: Evacuation, closure of road, sandbagging, issue warning and who is responsible etc.</small>
x.xxm	Minor Flood Level x% AEP (xx year ARI)		
x.xxm			
x.xxm			
x.xxm			
x.xxm	Moderate Flood Level x% AEP (xx year ARI)		
x.xxm	5% AEP (20 year ARI)		
x.xxm	Major Flood Level x% AEP (xx year ARI)		
x.xxm	2% AEP (50 year ARI)		

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 Institute of Disaster Resilience (AIDR) Handbook series on managing the Floodplain.

## Appendix C2: Jamieson

### Overview of Flooding Consequences

Jamieson sits in the upper Goulburn catchment in Mansfield Shire. This catchment collects rainfall from Woods Point to Mount Skene and the western end of the Alpine National Park. Jamieson is located at the junction of Goulburn and Jamieson Rivers which join at the north end of "The Island". Goulburn River then continues flowing northward into Lake Eildon. Jamieson Township has a permanent population of approximately 350 people, but this number can grow significantly during holiday periods. About 60 percent of the buildings in Jamieson are holiday homes. The map below shows the likely impacts of a 1% Goulburn River riverine flood at the Jamieson Township, equivalent to 5.33 metres on the Doherty's Gauge. A 1% flood is sometimes referred to as a '1 in 100 year flood', however it really means that there is a 1% chance of a flood of this size occurring in any year, not that it will only occur every 100 years.

#### 4.6 Overview of Flood Characteristics

Jamieson can experience both riverine and flash flooding. Riverine floods in Jamieson happen when the Goulburn or Jamieson Rivers (or both) break their banks and overflow after heavy or prolonged rainfall in the steep catchments of the surrounding state forests and Alpine National Park. Riverine flooding in Jamieson generally last about 24 hours, but in low-lying areas can take up to 48 hours to recede. The Jamieson Caravan Park and low-lying farms and rural properties are often impacted during flooding. Flash flooding can occur in Jamieson at any time of year during and after heavy rain or thunderstorms. The hilly terrain surrounding Jamieson makes flash flooding more likely as water can gain both speed and power as it flows downhill. Flash floods often come and go in just a few hours but can be deep, powerful and fast moving, making them very dangerous. There is often little or no time to warn communities before flash flooding occurs.

The Jamieson township is remote. The Mansfield - Woods Point Road is the only main road in and out of town. Many places along this road can be flooded, closing the road both north and south of the town. Because of this, residents, visitors, campers, fishers, hunters and four-wheel drivers can become isolated as roads and bridges become impassable. Roads, bridges and tracks can also be damaged and blocked by landslides caused by prolonged rainfall. The impact of flooding on the Jamieson community can vary depending on the amount of rainfall, how quickly it has fallen and where it has fallen. Past floods in Jamieson have resulted in nearly 30 properties being inundated (flooded above floor level), cut off by road closures or surrounded by floodwater.

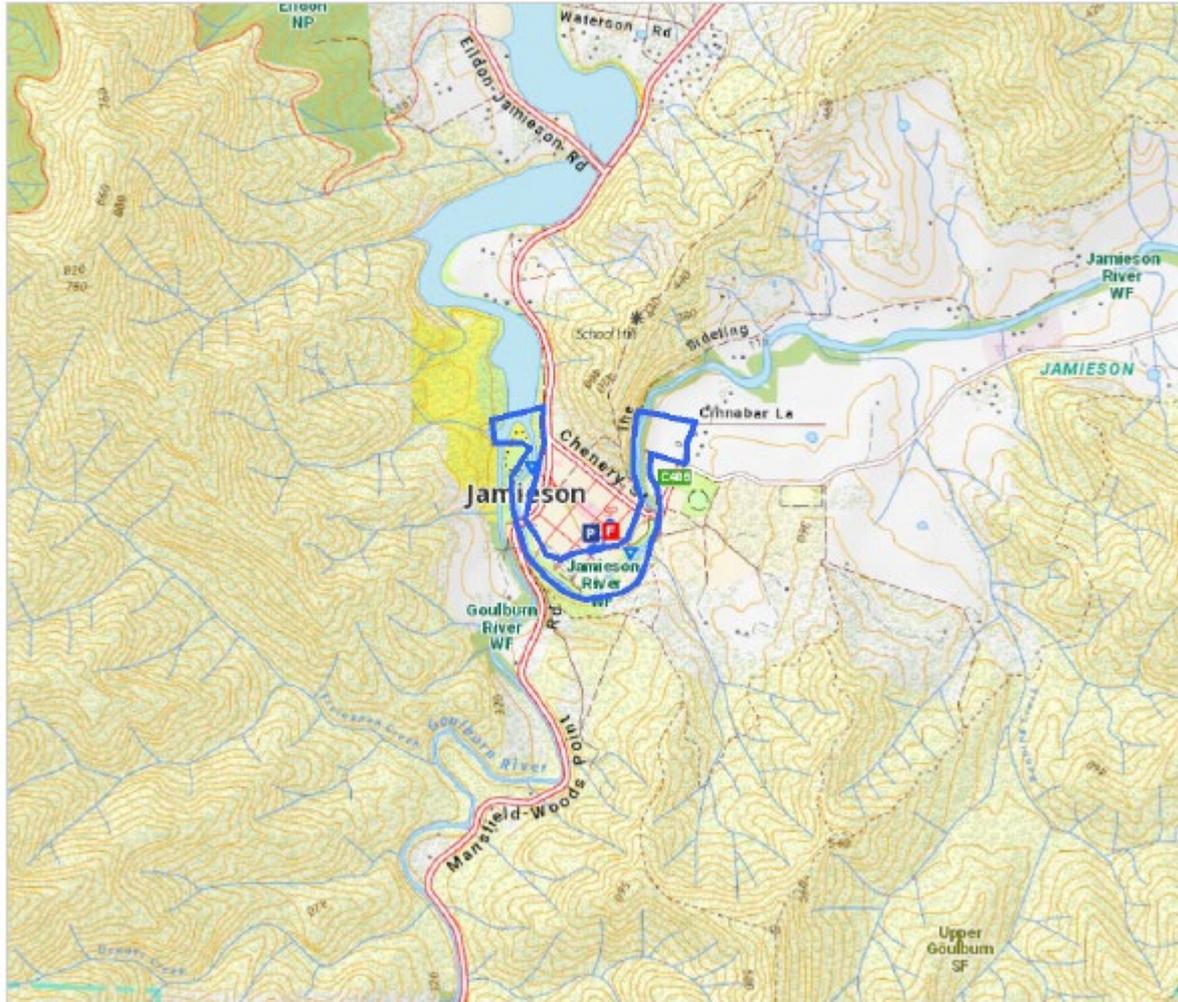
#### Flood Impacts and Required Actions

Even if you are not directly affected, you may still need shelter where you are or take long detours around flooded areas. Historical records show that significant floods occurred in Jamieson in 1912, 1934, 1939, 1993, 1998, 2007 and 2010. Jamieson's recent flood history includes riverine flooding (rivers overflowing their banks) in 1998, and flash flooding (caused by heavy local rainfall) in 2010. Flash flooding in September 2010 caused the largest recorded flood in the Jamieson area with 27 properties and the Jamieson caravan park flooded. This flood peaked soon after midnight, dropping away early the following morning.



# Jamieson 1 in 100 event

Flood Potential Impact Report



**Created:** Tuesday 01. December 2020 @ 02:58PM  
**Area derived from:** User drawn polygon  
**Area:** 29.1 hectares  
**Perimeter:** 5.0 kilometres

Flash Flood	User Selected Area	
Storm Surge	Flooded Area Confirmed	
	Flooded Area Unconfirmed	

## Life

Townships	0	
Properties	39	
Hospitals	0	
Health Care Facilities	0	
Care Facilities	0	
Retirement Villages	0	
Schools/Pre-schools	0	
Prisons	0	
Camp Grounds	0	
Caravan Parks and Group Camps	1	Jamieson Caravan Park (caravan park)
Neighbourhood Safer Places	0	
Cultural Centres	0	
Community Venues	0	
Census - Population	184	
Census - Dwellings	232	

## Economic

Apiary	0	
Vineyards	0	
Industrial Facilities	0	
Plantations	0.0 (ha)	
Intensive Animal Production	0.0 (ha)	
Irrigated Horticulture	0.0 (ha)	
General Farming / Grazing	3.3 (ha)	Mixed farming and grazing (generally more than 20ha)
EPA Stockpile Sites	0	

## Assets / Infrastructure

Power Facilities	0	
Power Company Boundaries	1	SP AusNet
Major Transmission Lines	0.0 (km)	
Oil Pipelines	0.0 (km)	
Gas Pipelines	0.0 (km)	
Road Bridges	2	Chenery St Mansfield - Woods Point Rd
Foot Bridges	0	
Major Roads	0.1 (km)	Mansfield - Woods Point Rd
Major Rail	0.0 (km)	
Wind Farms	0	
Solar Farms	0	
Emergency Services - Police, Fire, Ambulance, SES	0	
Communication Services	0	
Proclaimed Water Supply Catchments	29.1 (ha)	UPPER GOULBURN
Water Asset (point)	0	
Water Asset (line)	0.0 (km)	
Water Asset (polygon)	0.0 (ha)	
Water Infrastructure (point)	0	
PTV School Bus Route	2	Jamieson - Mansfield (H & B Stewarts Bus Company Pty Ltd, 5775 2630)
PTV Metro Bus Route	0	
PTV Regional Bus Route	2	Woods Point - Mansfield Via Jamieson (H & B Stewarts Bus Company)
PTV Regional Coach Route	0	
PTV Night Bus Route	0	
Chair Lifts	0.0 (km)	
PV Camping Grounds	0	
PV Infrastructure Assets	0	
PV Building Assets	0	

## Flood Mitigation

There are nil identified mitigation works at this point in time.

## Flood Impacts and Required Actions

Located at the head of the Goulburn River, where the Upper Goulburn and Jamieson Rivers join Lake Eildon; Jamieson had its origins as a supply town for sending supplies to the more remote working mines, after gold was discovered in the area in 1854.

At its peak Jamieson had a population of 3000 to 4000. Today the permanent population averages around 300. Many of its historic buildings still remain including the Court House Hotel, which is an elegant reminder of a town that supported fourteen hotels and several breweries in its heyday.

Today, Jamieson is a quiet rural town known for its local trout fishing and gold panning for holiday fossickers. Jamieson has experienced numerous floods, although little documentary evidence is available. Flood behaviour at Jamieson has been influenced by the formation of Lake Eildon (3,390 GL capacity) in the 1950s, which, when full, will affect flood levels in the lower reaches of the Upper Goulburn and Jamieson Rivers. Prior to 1950, a smaller lake existed behind the current lake - Sugarloaf Reservoir (377,000 ML capacity) constructed after the 1912-1914 drought.

Anecdotal evidence points to a number of large floods at Jamieson prior to 1955, including 1912, 1934 and 1939. All three events preceded the construction of Lake Eildon in the 1950's. Newspaper records indicate that the 1912 event was the largest flood since Jamieson was settled up to that date. No information was found for the August 1939 flood, although the *Mansfield Courier* (August 25 edition) observed that, while there was exceptionally heavy rain that month, floods in the region were not as severe as other areas. The 21 December 1934 edition of this newspaper mentioned that a "Jamieson Flood Fund" had been set up, but no details of the flood were provided.

Comparison with flow records at Eildon indicated large regional floods (in addition to the December 1934 and August 1939 events) occurred in August/September 1916, June to October 1917, May to July 1918, September 1921, October 1923, July 1942, July 1952, and October 1953. The *Mansfield Courier* provided a few details of floods in the Mansfield/Lake Eildon area (July 1917, September 1921 and October 1923). However no specific details of floods at Jamieson could be found.

### **: From the Jamieson flood scoping study 2003**

**Note:** In Flash Flood areas without gauges, it will only be possible to provide a general description of likely flood impact

## Flood intelligence card-

### Gauge Location: Dohertys Station 405219 – **Goulburn River**

Goulburn River River Height (m) and or River Flow (ML/d)	Annual Exceedance Probability (%AEP)	Consequence/ Impact	Action  Actions may include: Evacuation, closure of road, sandbagging, issue warning and who is responsible etc.
2.00m or 7,100ML/d	Minor Flood Level 50% AEP <2year ARI		
3.31m or 13,000	5% AEP (20year ARI)		
3.50m or 13,800ML/d	Moderate Flood Level 18% AEP (6year ARI)		
3.58	July 1974		
3.71m	October 1996		
3.86m or 15,500ML/d	October 1993 10% AEP (10year ARI)	Rural sheds and roads were flooded in along the Goulburn River.  Lake Eildon was above %100 full at this time.	
3.93m or 15,800ML/d	August 1958 9.1% AEP (11year ARI)	Many low-lying properties along both rivers flooded around their houses but not above floor level.	
3.95m	June 2007	Flash flooding in both the Goulburn and Jamieson Rivers. Sheds in yards backing onto the Goulburn River inundated with many roads flooded.	

Goulburn River River Height (m) and or River Flow (ML/d)	Annual Exceedance Probability (%AEP)	Consequence/ Impact	Action  Actions may include: Evacuation, closure of road, sandbagging, issue warning and who is responsible etc.
4.66m or 19,300ML/d	September 1998 2.5% AEP (40year ARI)	Significant flooding from both rivers with some properties being flooded above floor level and roads flooded.	
4.94m or 20,700ML/d	2% AEP (50year ARI)		
5.33m or 22,600ML/d	September 2010 1% AEP (100year ARI)		
6.00m	Major Flood Level		

Gauge Location: Gerrang Bridge 405218 - **Jamieson River**

Jamieson River River Height (m) and or River Flow (ML/d)	Annual Exceedance Probability (%AEP)	Consequence/ Impact	Action  Actions may include: Evacuation, closure of road, sandbagging, issue warning and who is responsible etc.
3.57m or 9,650ML/d	August 1955 (4.5 ARI)		
3.85m or 11,200ML/d	July 1964 (8 ARI)		Jamieson caravan park to enact their flood emergency plan.  Jamieson CFA to be engaged.
4.06m or 12,350ML/d	October 1996 (20ARI)	Half of the Jamieson Caravan Park grounds flooded. Many low-lying properties along both rivers flooded around their houses but not above floor level	Doorknock all properties facing the river frontage and support relocation of any caravans in the flood zone.
4.16m or 12,900ML/d	October 1968 (25ARI)		
4.47m or 15,3064ML/d	September 1998 (80ARI)	Significant flooding from both rivers with some properties being flooded above floor level and roads flooded.	
4.76m or	September 2010	Flash flooding caused 27 properties to be flooded and roads to be flooded. Caravan Park significantly inundated	

\* **Modify Table to suit.** 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 Institute of Disaster Resilience (AIDR) Handbook series on managing the Floodplain.

# Appendix D - Flood evacuation arrangements

## Phase 1 - Decision to Evacuate

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

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

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

The following should be considered when planning for evacuation:

- Anticipated flood consequences and their timing and reliability of predictions.
- Size and location of the community to be evacuated.
- Likely duration of evacuation.
- Forecast weather.
- Flood Models.
- Predicted timing of flood consequences.
- Time required and 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.
- Is cross border assistance required or evacuation to another municipality relief centre?
- Resources required and 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 table below details triggers for evacuation, if these heights are predicted or are likely to occur evacuation should be considered

Sector	Gauge	Trigger

The table below details time required to evacuate established areas.

Sector	Likely time required for evacuation (including resource assumptions)

## Phase 2 – Warning

The decision to evacuate rests with the control agency in consultation with VicPol. Warnings may include a warning to ‘prepare to evacuate’ and a warning to ‘evacuate now’. Once the decision to evacuate has been made, the at-risk community will be warned to evacuate. Evacuation warnings should be disseminated via methods listed in section 3.3 of this plan.

## Phase 3 – Withdrawal

VICPOL is the responsible agency for evacuation. VICSES will provide advice regarding most appropriate evacuation routes and locations for at-risk communities to evacuate to.

VICSES, CFA, AV and Local Government will provide resources where available to support VICPOL/MICROADS 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.

Possible Evacuation Routes to be used:

Sector	Evacuation Route	Evacuation route closure point and gauge height of closure

### Helicopter Landing Location:

-37.302019036610055, 146.14421766843776 Rear of park at Jamieson-Licola Road, Jamieson

This may be used for evacuated or relocated campers / vans. Alternative would be nearby paddocks of farmers,

Alternative location – Private Property: Brett KAY, 0417 359 276, 178 The Sideling, Jamieson, Helipad and windsock. -37.292984924998365, 146.15224627306222

Special needs groups will be/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 Mansfield MEMP

## Phase 4 – Shelter

Relief Centres and/or assembly areas which cater for people's basic needs for floods may be established to meet the immediate needs of people affected by flooding. The flood relief centres and/or Assembly Areas are listed in the table below:

Sector	Shelter type (Relief Centre/ Assembly Area (include address))	Comments
Jamieson	Jamieson Town Hall - Perkins Street, Jamieson	The Jamieson Town Hall is central however limited numbers of shelter for the many likely displaced campers, tourists and vulnerable residents.

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

## Animal Shelter

Animal shelter compounds will be established for domestic pets and companion animals of evacuees. These facilities may be located at locations detailed below and coordinated by the Mansfield shire.

Sector	Animal Shelter (include address)	Comments
Mansfield	Trans-shipment yards, pound and Mansfield Showgrounds	

## Caravans

Caravans or caravan parks may be relocated to the following locations:

Sector	Caravan evacuation location (include address)	Comments
Mansfield	Show grounds	
Jamieson	Caravans	Oval at Jamieson Licola Road -37.301012533945034, 146.14368086899108

## Phase 5 – Return

The Incident Controller 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 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
- Potable water supply and sewage discharge

## 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, truck routes, water treatment plant affecting potable water supplies etc.

Service	Impact	Trigger Point for action	Strategy/ Temporary Measures
school bus/Woods Point food supply	Service stopped	Mansfield – Woodspoint Road flooded.	Open road asap and communicate information to both services

## Essential Community Infrastructure and Property Protection

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

Facility	Impact	Trigger Point for action	Strategy/ Temporary Measures

## Appendix E: Public Information and Warnings

VICSES uses EM-COP Public Publishing to distribute riverine and flash flood warnings in Victoria. The platform enables automatic publishing to the VicEmergency app, website and hotline (1800 226 226). Communities can also access this information through VICSES social media channels (Victoria State Emergency Service on Facebook and VICSES News on Twitter) and emergency broadcasters, such as Sky News TV and various radio stations (current list available via the [EMV website](#)).

Local community radio: Mansfield Shire has its own community radio station - "Radio Mansfield" this station is a designated emergency broadcaster.

### Frequencies

- Mansfield 99.7 FM
- Tolmie 88.7FM
- Woods Point 90.1 FM

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

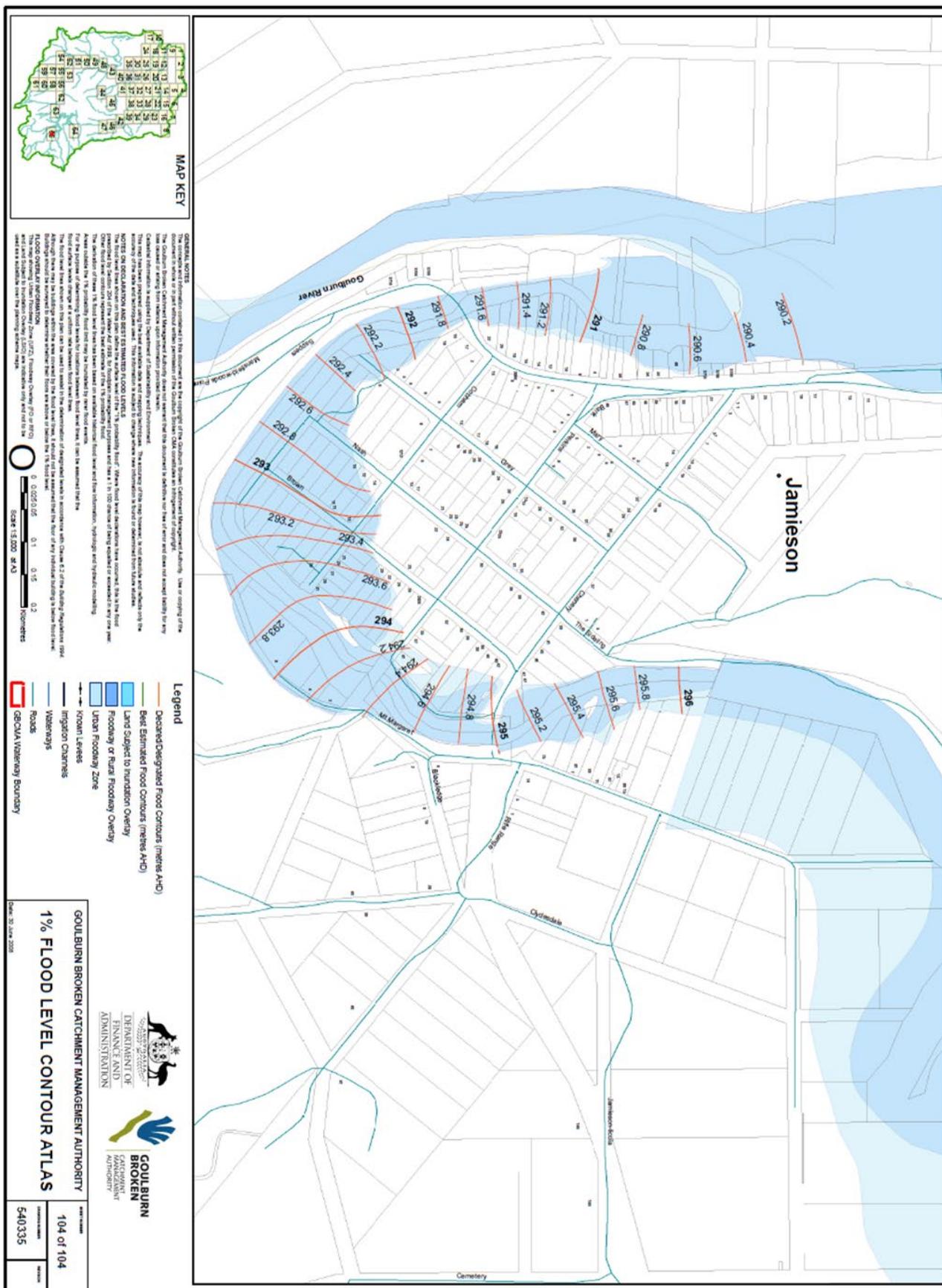
If verified reports are received of flash flooding posing, or resulting in, a significant threat to life or property, VICSES Regions (or ICCs) will issue a flash flood warning product via EM-COP.

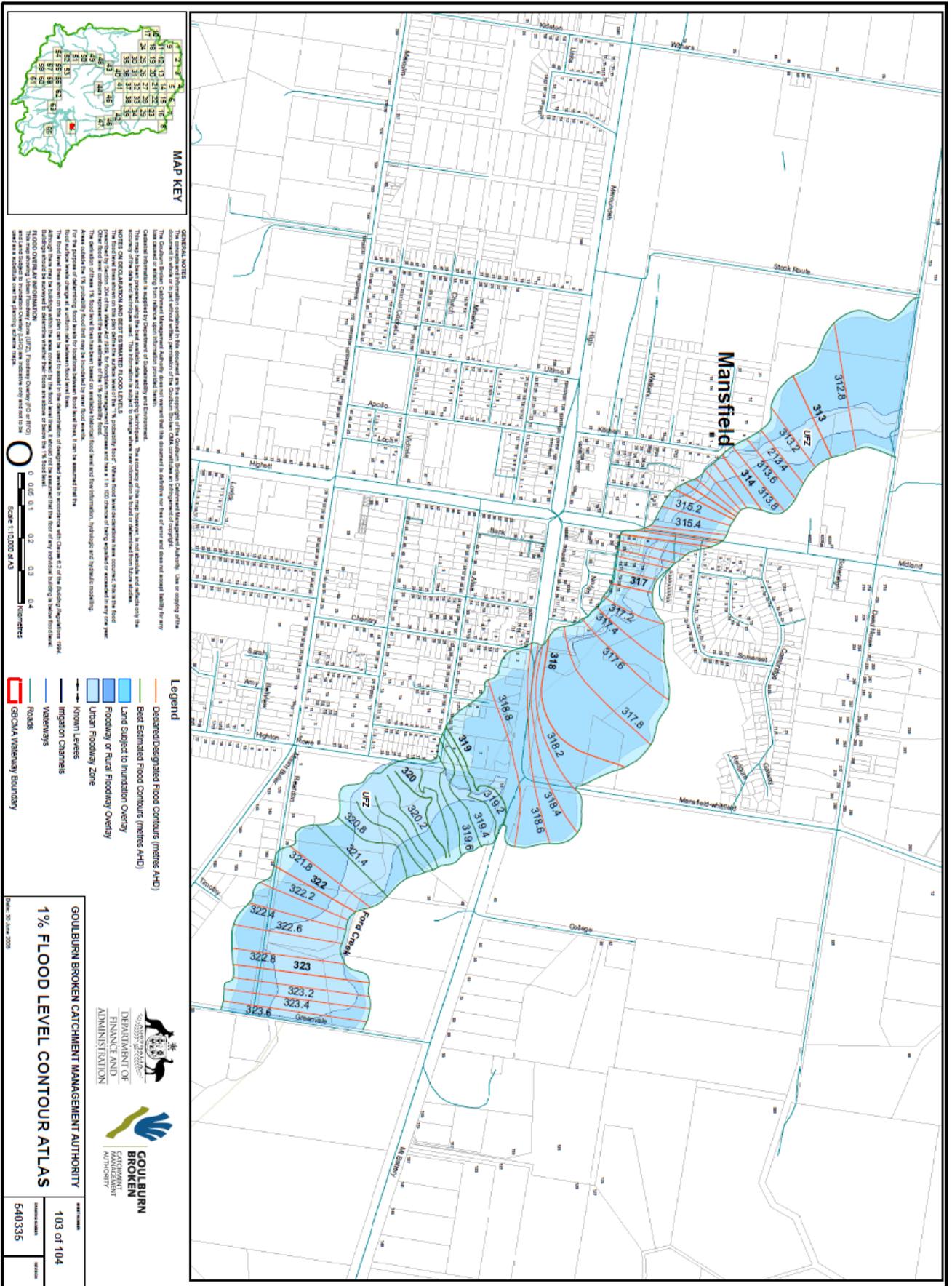
VICSES at the state tier (or SCC Public Information Section) plays an important role in sharing riverine and flash flood information via state-based standard communication channels.

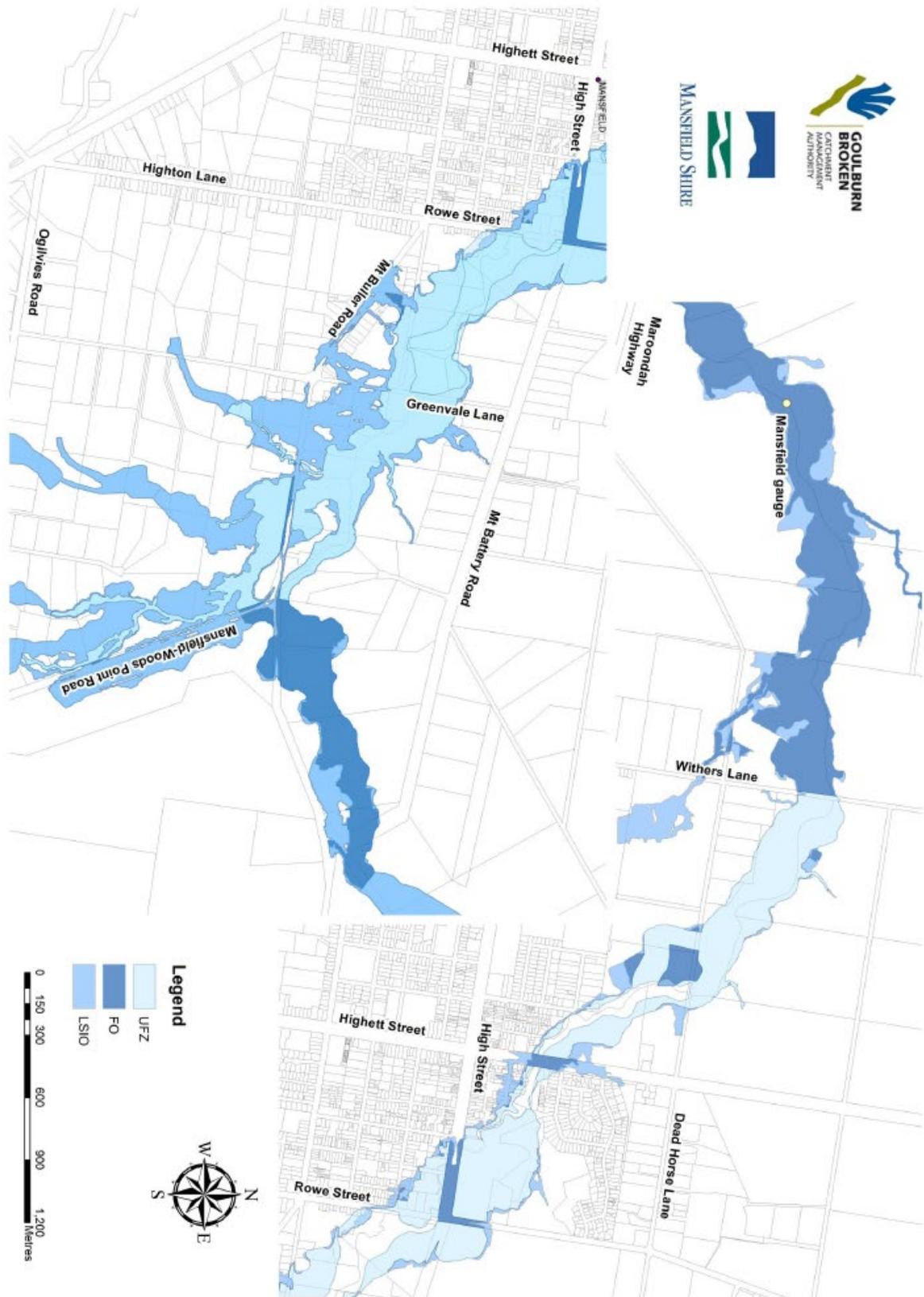
During some emergencies, VICSES may alert communities by sounding a local siren, or by using the Emergency Alert (EA) platform to send an SMS to mobile phones or a voice message to landlines. The use of sirens for higher-end warnings has been pre-determined, and mapped to relevant warning templates in EM-COP.

EM-COP Public Publishing Business Rules for Riverine and Flash Flood are available in the **Public Information tab of the IMT Toolbox**, providing further guidance on specific triggers, roles and responsibilities. VICSES SOP057 and JSOP 04.01 provide further guidance.

# Appendix F: Maps and Schematics

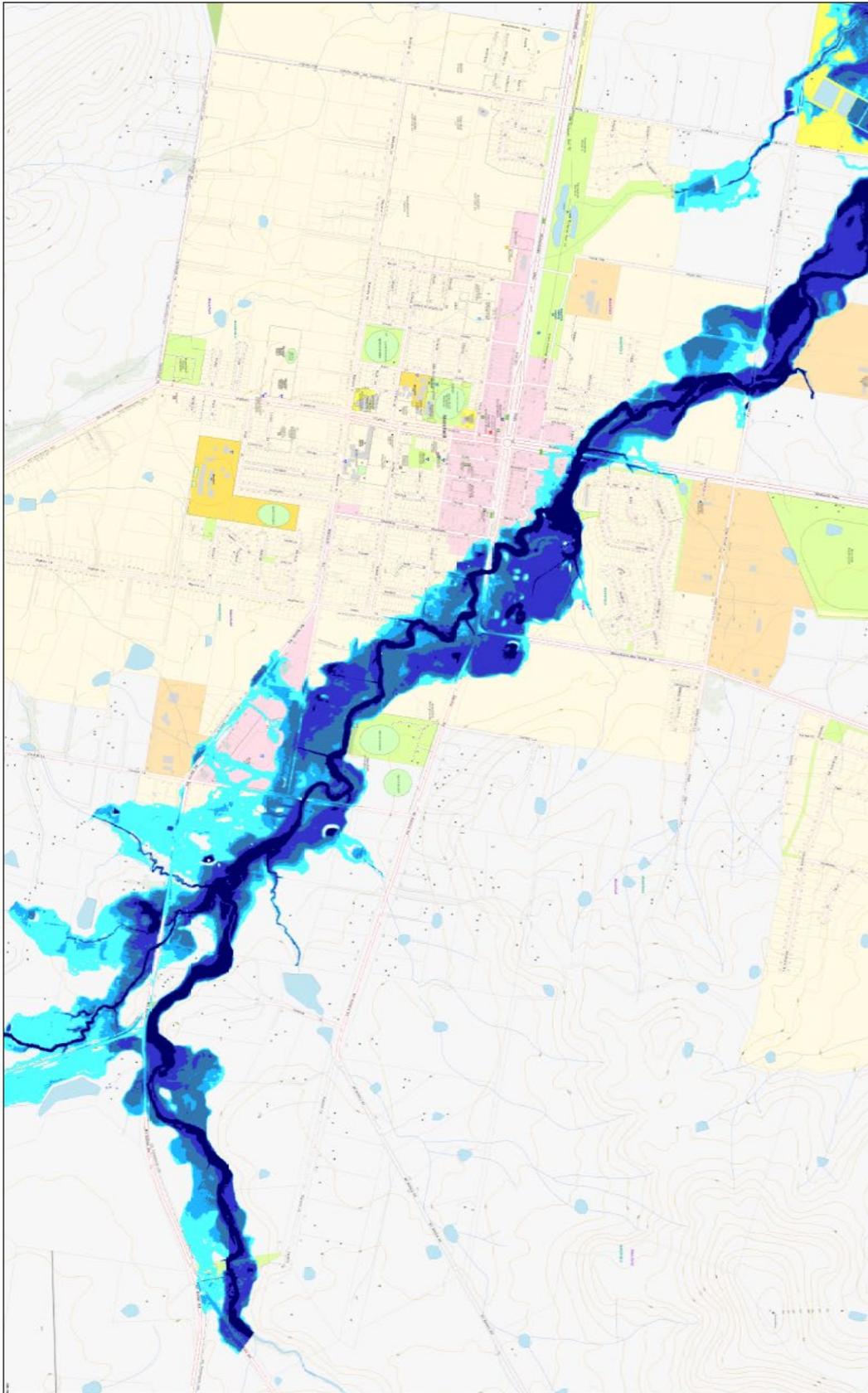






Mansfield 1% AEP Flood Mapping

Downloaded 11/20/2010



FloodZoom for Mansfield 1 in 100-year ARI

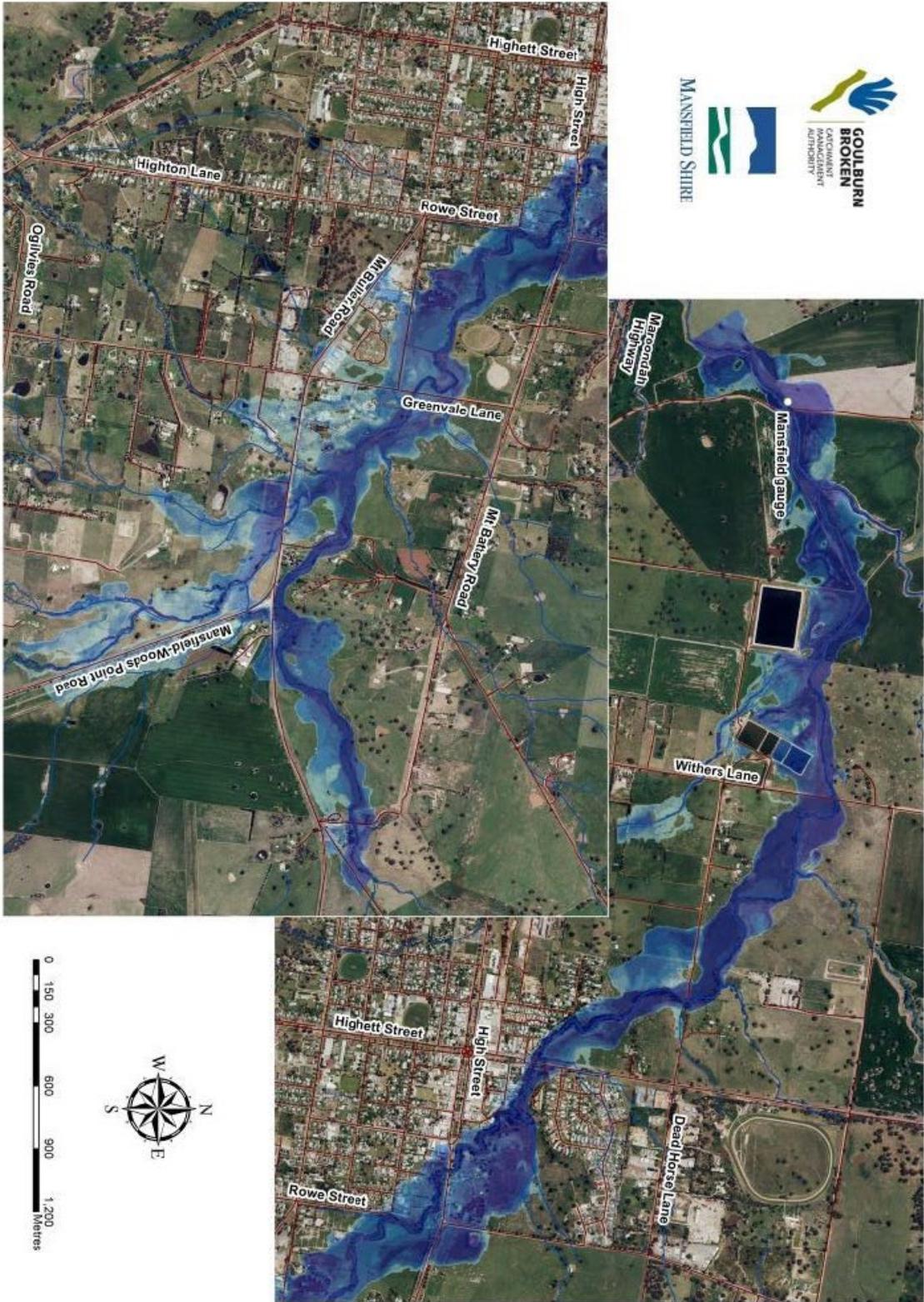


Figure 5-1 The extent of flooding in a 100-year ARI type flood.

## Appendix G: Local knowledge arrangements

As control agency for flood in Victoria, VICSES is committed to ensuring the incorporation of local knowledge in decision making before, during and after incidents.

Information from community sources including but not limited to observations, historical information and information about current and possible consequences of an incident may be utilised to help inform the process of incorporating local knowledge into decision making during an incident. [Community observers, Local Information Officers (LIOs) and other agency networks] identified in [this plan/xxx register] will help support this process.

LIOs provide a key communication interface to community observers and other sources of local knowledge.

For the [Enter Location - Community/Municipality/River system] community observers identified are:

Community Observer Name	Community Observer contact details	LIO Contact	Key areas of local knowledge expertise
Jamieson CFA Captain Chris BADROCK	0429 802 009	Peter HORAN, Secretary of Jamieson CFA (prime for messaging)	Local knowledge of front-line issues to immediate area for Emergency Management
Tom BENNETT Caravan Park Operator	0452 232 358	[Enter name of LIO key point of contact]	Depending on their circumstances, can offer emergency housing. In flood, in direct risk of banks breaking.
Russell BATE President of 'Jamieson Community Group' (JCG)	0425 729 811	Backup communication Sue MAILINS - 0418 564 972	Able to assist with messaging through the network of the JCG. Sound Local knowledge, including of vulnerable residents.
Scott MACKENZIE Jamieson Towing Former Captain of CFA	0418 121 949		Sound Local knowledge in all aspects of the community, including of vulnerable residents.  Good knowledge of assets within the community to assist.

For the [Enter SES unit location] the Local Information Officer identified is:

LIO Name	LIO contact details	Community Observer contacts
[Enter Name]	[Enter contact details]	[Enter names of Community observer and other key local knowledge points of contact]

For the [Enter Location - Community/Municipality/River system] other agency networks identified are:

- [Enter other relevant agency network details including the capability and management of these networks and the contact details if appropriate]

**Important Notes:**

These arrangements do not permit community observers and existing agency networks any responsibility for operational decisions and do not permit community observers and existing agency networks to direct operational activity, including the management of flood levees.

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

## Appendix H: Local flood information



# Jamieson

## Local Flood Guide

Riverine and flash flood information for the Goulburn and Jamieson Rivers at Jamieson



For flood emergency assistance call  
VICSES on **132 500**



Reviewed: 01 May 2016