

Moira Shire risk assessment and draft priority rankings for stakeholder discussion (urban centres)

Community input is needed to prioritise where flood knowledge needs to be improved through flood studies and flood mapping in Moira Shire and to determine actions to reduce the risk of flooding.

This summary provides a list of studies for towns in Moira Shire and draft priorities for flood mitigation actions.

How to read the table below

The column to the left ranks flood risks (1: low, and 5: high), taking into account the possible damage from different sized floods and how often they are expected to happen. The measure of the yearly average cost of floods is known as Annual Average Damage (AAD).

The two columns in the centre of the table show:

- Flood studies that have been (or soon will be) completed for towns in your local government area.
- Recommendations from these studies that have been implemented (or are under way) and other relevant comments or observations.

The columns to the right of the table show DRAFT priority rankings [Low (L), Medium (M), High (H) and No Action (-)] for actions that reduce risk of flooding such as:

- Mitigation works (e.g. levees, retardation basin, and floodways)
- Flood warning systems (e.g. flood watch, flood warning broadcasts and action plans)
- Land use planning (e.g. flood overlay control in planning schemes)
- Municipal flood emergency plans (developed by council, VICSES and other agencies with flood-management responsibilities)

Please review this summary and provide feedback by:

- attending one of the community sessions being held across the catchment during February; or
- completing the feedback form on the website www.gbcma.vic.gov.au

Terminology

Annual Average Damage (AAD), expressed in dollar terms, is the average damage per year that would occur in a particular area from flooding over a very long period of time. This provides a basis for comparing the economic effectiveness of different projects. For more information on risk assessment methodology, please see the Regional Floodplain Management Strategy section of the website.

Annual Exceedance Probability (AEP) is the likelihood of occurrence of a flood of given size or larger occurring in any one year.

FloodSafe is a whole community program designed to prepare and empower the community with the skills and knowledge to appropriately prepare for, respond to, and recover from floods.

Municipal Flood Emergency Plan (MFEP) is a plan prepared and maintained by each municipal council, under the *Emergency Management Act 1986*, which identifies the municipal resources available, and how they are to be used, for flood prevention, response and recovery.

Regional Floodplain Management Strategy (RFMS) (under development) will replace the previous regional strategy (2002) and aims to help manage flood risk by seeking community input to prioritise where flood knowledge needs to be improved. The priorities will be detailed in a rolling three-year regional work plan that can be used by local communities to secure funding for various flood management activities.

Table 1. Moira Shire risk assessment (ranking 1: low, and 5: high)
Draft priority rankings for stakeholder discussion: Low (L), Medium (M), High (H) and No Action (-) (for urban centres)

Name	AAD	Summary of past and existing studies	Summary of implemented study recommendations (Other comments)	Mitigation Works	Total Flood Warning System	Land Use Planning	Municipal Flood Emergency Plans
Barmah	5	<ul style="list-style-type: none"> Murray River Floodplain Management Study (GHD, 1986) Flood Mitigation Study (GHD, 1994) Lower Goulburn Floodplain Rehabilitation Scheme – Assessment of Flood Risk to the Township of Barmah and preliminary flood mitigation review (SKM, 2008) Barmah Township Flood Mitigation – Functional Design (Water Technology, 2012) 1% AEP Flood Contour Atlas available 	<ul style="list-style-type: none"> Flood mitigation unlikely to proceed given cost and impracticalities Flood overlay controls are in the planning scheme Prepare a FloodSafe Guide Check to see MFEP requires updating with property listing available (use floor levels to assessment possible above floor flooding) River gauge established with flood class levels and BoM flood warning service 	L	-	-	-
Bearii	1	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Approx. 60 buildings identified (from 2015 aerial photography) Current flood overlay controls are of low reliability and new flood mapping would be part of combined regional flood mapping study, i.e. part of rural levee review May consider future FloodSafe Guide 	-	L	L	L
Cobram	5	<ul style="list-style-type: none"> Murray River Floodplain Management Study (GDH, 1986) Cobram Town Levees Study Final Design (CMPSF 1993) Cobram Flood Mitigation Proposals Water Management Scheme Approved Scheme Document (NRE, 1996) Murray River Regional Floodplain – Dicks/Seppelts levees to downstream of the Ulupna Creek Confluence Study Report (WT, 2011) 	<ul style="list-style-type: none"> Levee system constructed in mid-2000 to protect the Town from a 1% AEP flood Further work required to explore flood protection options to protect town from overland flooding from the East Flood overlay controls require updating (at regional level) MFEP has been updated Council recommitted to operate and maintain the levee scheme 	H	-	-	-
Katamatite	2	<ul style="list-style-type: none"> Documentation and Review of the 1993 Victorian Floods Volume 4 (HT, 1995) FloodSafe Guide prepared (VicSES, 2015) 	<ul style="list-style-type: none"> Flood scoping study required 	-	M	L	M

Name	AAD	Summary of past and existing studies	Summary of implemented study recommendations (Other comments)	Mitigation Works	Total Flood Warning System	Land Use Planning	Municipal Flood Emergency Plans
Koonoomoo	1	<ul style="list-style-type: none"> Documentation and Review of the 1993 Victorian Floods Volume 4 (Hydro Technology, 1995) Murray River Regional Floodplain – Dicks/Seppelts levees to downstream of the Ulupna Creek Confluence Study Report (WT, 2011) 	<ul style="list-style-type: none"> Approx. sixty buildings have been identified (from 2015 aerial photography) MFEP has been updated New food controls need to be implemented from regional flood study Flood contour Atlas needs to be revised Prepare FloodSafe Guide 	-	-	L	L
Lake Rowan	0	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Approx. 15 buildings have been identified (from 2015 aerial photography) Located on the Boosey Creek floodplain Flood overlay controls are required as evident by captured 2012 peak flood levels Scoping flood study is required with a focus of improved flood mapping 	-	-	H	L
Marungi	1	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Approx. 10 buildings identified (from 2015 aerial photography) No riverine type flooding identified Limited low-lying land subject to localised drainage inundation shown in flood overlay controls in planning scheme No further action 	-	-	-	-
Nathalia	2	<ul style="list-style-type: none"> Nathalia Flood Mitigation Report (SR&WSC, 1978) Documentation and Review of the 1993 Victorian Floods Volume 4 (Hydro Technology, 1995) Nathalia Flood Mitigation Scheme Audit Report (FIDS, 1996) Broken Creek Management Strategy (SKM, 1998) Nathalia Floodplain Management Plan (SMEC Victoria, 2005) Detailed design (SKM?) TFWS Investigation CT Management? 	<ul style="list-style-type: none"> Approx. eight kilometres of levees constructed in the late 1980s. The levees system was upgraded and augmented in late 2000s, including temporary flood barriers Council remains committed in managing the flood protection system TFWS Implemented including new flow gauges, and new BoM prediction services MFEP has been updated FloodSafe Guide to be prepared New flood mapping required in planning scheme (rural study area) 	-	-	-	-

Name	AAD	Summary of past and existing studies	Summary of implemented study recommendations (Other comments)	Mitigation Works	Total Flood Warning System	Land Use Planning	Municipal Flood Emergency Plans
Numurkah	5	<ul style="list-style-type: none"> Documentation and Review of the 1993 Victorian Floods Volume 4 (Hydro Technology, 1995) Broken Creek Management Strategy (SKM, 1998) Numurkah Flood Study (WT, 2012) Numurkah Floodplain Management Study (ongoing) 	<ul style="list-style-type: none"> Flood study component completed in 2014 Further work to extend modelling is now underway Mitigation options are currently being explored including structural works and TFWS The MFEP has been updated and proved useful during 2016 floods New flood zone and overlay controls are required Flood contour Atlas needs updating 	H	H	H	H
St James	1	<ul style="list-style-type: none"> No flood study 	<ul style="list-style-type: none"> Approx. 45 buildings identified (from 2105 aerial photography) New flood overlay controls are required as evident by captured 2012 peak flood levels Scoping flood study is required 	-	-	H	M
Tungamah	3	<ul style="list-style-type: none"> 1% AEP Flood Declaration Project (RWC, 1984) 	<ul style="list-style-type: none"> Floodplain management study required 	H	H	H	H
Waaia	0	<ul style="list-style-type: none"> Nil Significant Drainage Line Mapping within the SIR (GBCMA, 1998) 	<ul style="list-style-type: none"> Approx. 55 buildings have been identified (from 2015 aerial photography) Not identified prone to riverine type flooding Part of Waaia subject to drainage issues along natural drainage lines 	-	L	L	L
Wilby	0	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Approx. 55 buildings have been identified (from 2015 aerial photography) Located on the Sandy Creek Floodplain Flood overlay controls are required as evident by captured 2012 peak flood levels Scoping Study is required 	-	-	H	L
Wunghnu	3	<ul style="list-style-type: none"> Nil 	<ul style="list-style-type: none"> Flood scoping study required 	MH	M	M	M
Yarrowonga	4	<ul style="list-style-type: none"> Murray River Floodplain Management Study (GDH, 1986) Overland Drainage and Flood Study (BMT WBM, 2015) 	<ul style="list-style-type: none"> Local drainage options are being explored New flood overlay controls are required Flood contour Atlas needs updating 	H	-	H	H