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GOULBURN BROKEN
CATCHMENT MANAGEMENT AUTHORITY

Goulburn Broken Regional Floodplain Management Strategy (2018-2028)

Strategy Renewal 2023-2028



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Note specific reference to funding levels in this strategy are for indicative purposes only. The level of Government investment in this strategy will depend upon budgets and Government priorities

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Part A: Mid-Term Review



1. Introduction

The Mid-Term Review of the 2018-2028 Regional Floodplain Management Strategy (referred to as the 2018 Strategy) provides valuable input for the Strategy Renewal for the next five years 2023-2028 (referred as the 2023 Strategy). The 2023 Strategy should be read together with the 2018 Strategy for extensive background and detailed information.

The mid-term review and the renewal of the 2018 Strategy is an important step to document its progress and to update regional priorities and the *Action-Investment plan* including new emerging requirements.

The review provides a stocktake of the 2018 program actions that documents achievements within each local government area and across the whole of region.

Secondly, the new *Action-Investment Plan* and revised priorities have been developed for the next five years (2023-2028) in conjunction with input from representatives from local government and Victorian State Emergency Service.

Since the 2018 Strategy, major 2022 Spring floods occurred in the Goulburn and Murray Rivers. This has influenced the need for additional actions over the next five years.

The 2023 Strategy will continue to build stakeholder resilience including access to reliable flood information to help managing and living with floods.

This Strategy will be implemented within an adaptive management framework. This means management approaches will be flexible to embrace opportunities such as new technologies, or to cope with emerging pressures such as urban growth corridors.

The Strategy's *Program Action-Investment Plan* forms the business case for investment by all tiers of government to implement the program actions. The success of implementing this Strategy will rely on a partnership approach with all stakeholders, and funding initiatives such as the *Disaster Ready Fund*, *Risk and Resilience Grants Program*, and *Victoria Flood Study Fund*.

Since the 2018 Strategy, climate research has considerably advanced, whereby the *Australian Rainfall and Runoff (Bell et al)* will undergo a significant update to the approaches to account for the impact of climate change.

The purpose of the Strategy is to continue to provide pathways to foster and enhance flood resilience across the Goulburn Broken Catchment reflected by vision:

***Through partnerships, improve the flood resilience of the catchment's people,
infrastructure, land, water and biodiversity.***

This Strategy is presented in three parts, namely:

- Part A: The Mid-Term Review
- Part B: The Program Action – Investment Plan: Strategy Renewal 2023-2028
- Part C: Stocktake of the 2018 Strategy

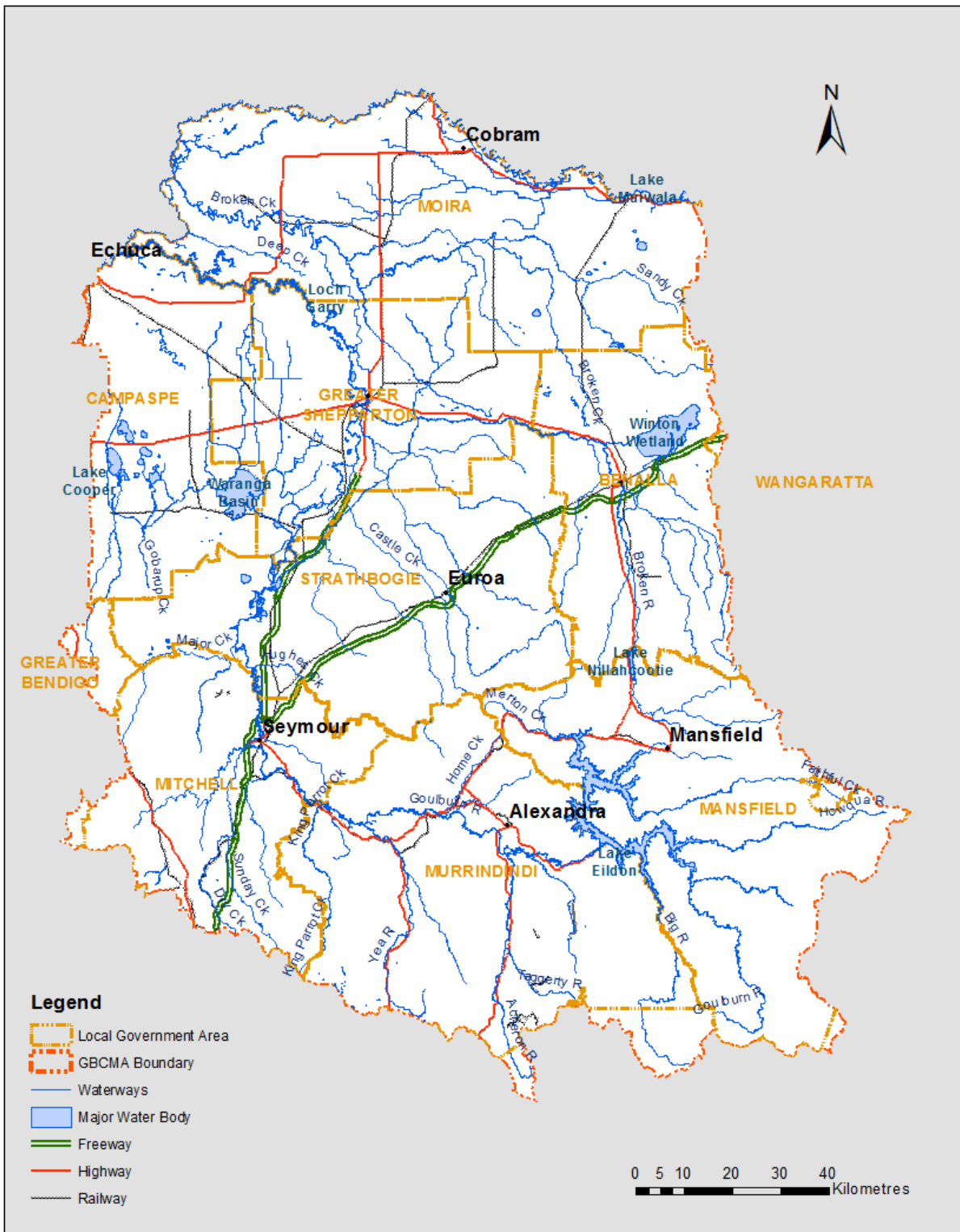


Figure 1: Locality plan within the Goulburn Broken Catchment

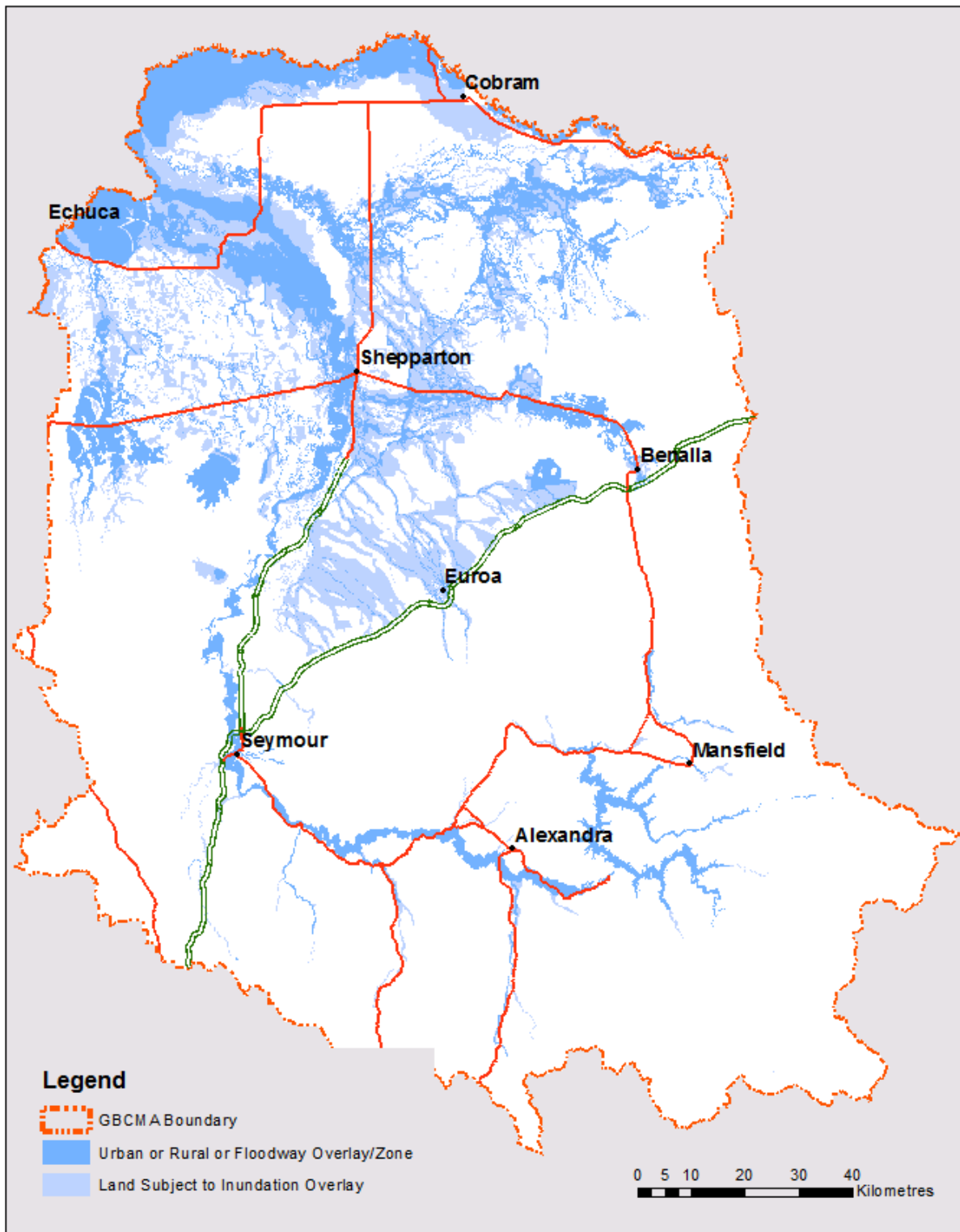


Figure 2: Floodplain areas within the Goulburn Broken Catchment

2. Strategy Overview

A locality plan of the Goulburn Broken Catchment is presented in **Figure 1**. Broad flood mapping across the Goulburn Broken Catchment and major towns are shown in **Figure 2**. The broad mapping is based on current flood mapping contained in local government planning schemes. Refer to the 2018 Strategy for detailed insight of the catchments and their associated floodplains.

The Strategy has four objectives to achieve long-term outcomes, namely:

1. **Build community resilience** – by encouraging communities to act responsibly to manage their own risks (a part of the Total Flood Warning System program) by improving dissemination and communication, education and awareness through the sharing of flood information, etc;
2. **Reduce legacy flood risk** – to minimise exposure to flood hazard and their consequences (part of all four programs; Flood Mitigation Works, Total Flood Warning Systems, Land-use planning, and Municipal Flood Emergency Plans); and
3. **Avoid future flood risk** – by not making things worse (part of the Land-use Planning program); and
4. **Manage residual flood risk** – by working in partnership with emergency services by integrated sharing of flood intelligence (FloodZoom), interpretation at incident control (part of the MFEP and TFWS programs), flood insurance (part of the Total Flood Warning System program).

2.1 The Four Programs

To achieve the vision and objectives the implementation of the Strategy is delivered through four programs areas:

- Flood mitigation works (structural in nature) (MIT);
- Total flood warning systems (TFWS);
- Land use planning (LUP); and
- Municipal flood emergency management plans (MFEP).

The vehicle used to develop these programs is usually through flood studies and floodplain management plans with stakeholder input.

The Actions in this Strategy are those that deliver a program for a particular town or region such a flood warning system for Numurkah (part of the TFWS).

2.2 Achievements

The achievements prior to 2018 can be found in Appendix D of the 2018 Strategy. Further achievements are summarised in Section 3 (Mid-Term Review) and detailed in Part C: Stocktake of the 2018 Strategy.

2.3 Case Study 1 – Numurkah Flood Mitigation Program

The 2012 Broken Creek floods in Numurkah, which is representative of the 1 in 100 AEP (*annual exceedance probability*) flood, initiated the need to develop a *Numurkah Floodplain Management Plan* that was community driven.

This Plan formed the basis for a successful funding bid amounting to \$3.176 million for **Stage 1 – Northern Levee Implementation**, for some 4.5 kilometres long comprising earthen embankments and concrete walls.

During a repeat of a 1 in 100 AEP flood, the northern levee will protect some 94 homes from above floor flooding, with some 466 properties no longer experience any impacts from flooding.

The plan includes **Stage 2 – Southern Levee Implementation** subject to further funding opportunities. Funding for a detailed design has been successful (Disaster Ready Fund) that will commence in 2023.

Stage 1 implementation has been through a community process with the conceptual alignment shown in **Figure 3** below.

In parallel to the above levee implementation, is the installation of new stream and rain gauges to augment the existing network, which was funded by the Victorian Government. The Bureau of Meteorology is currently developing flood prediction services to Numurkah to the new Melville Street stream gauge. The Municipal Flood Emergency Plan, Local Flood Guide and Community Flood Intelligence Portal have been updated with flood intelligence from the Numurkah Floodplain Management Plan linked to the gauge network. This work will further assist to mitigate the impacts from major floods for the Numurkah community.

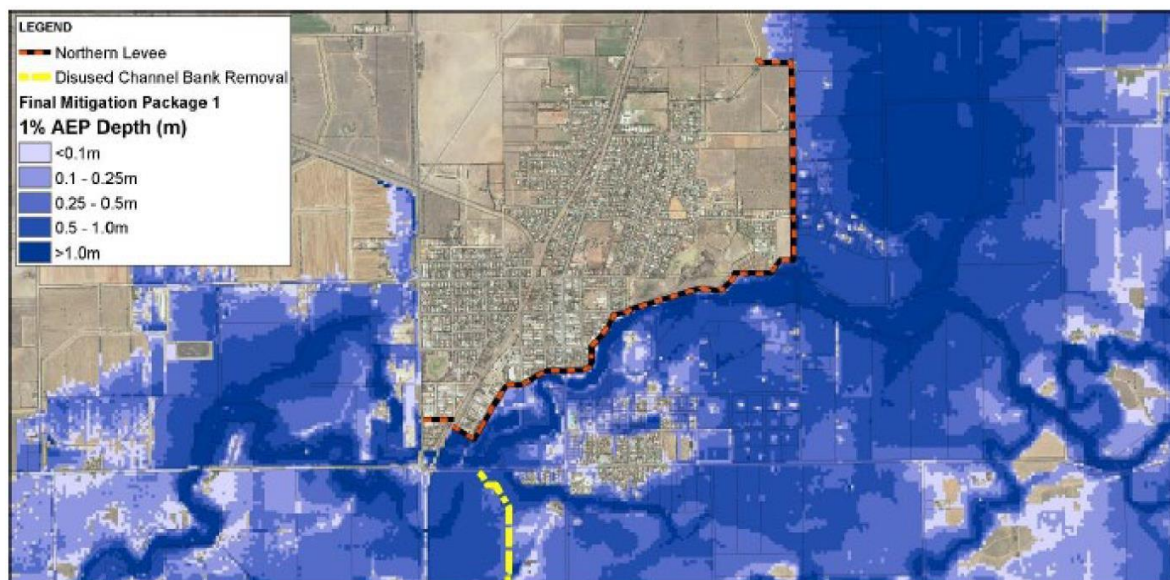


Figure 3: Numurkah conceptual northern town levee and potential channel bank removal.

3. Mid-Term Review of 2018 - 2028 Strategy (to 2023)

The 2018 Strategy had a total of 212 Actions across the four programs. The following three tables provide snapshots across the Goulburn Broken Catchment. Part C: Stocktake of the 2018 Strategy provides further tabulated detail and descriptions of all actions from the 2018 Strategy. This information is presented by local government and whole of region areas.

Table 1: Strategy Action by Program and priority - Snapshot at mid-2023

Strategy Action by Program and priority	High	Medium	Low	Very Low	Total
Mitigation	9	8	5	0	22
Total Flood Warning System (TFWS)	16	14	17	0	47
Land-use Planning (LUP)	29	19	21	1	70
Municipal Flood Emergency Plan (MFEP)	21	27	23	1	72
Cross program action (All)	0	1	0	0	1
Total	75	69	66	2	212

Table 2: Status by Program - Snapshot at mid-2023

Status by program	Not yet started	In progress	Completed	Total
Mitigation	15	7	0	22
Total Flood Warning System (TFWS)	15	23	9	47
Land-use Planning (LUP)	42	26	2	70
Municipal Flood Emergency Plan (MFEP)	22	38	12	72
Cross program action (All)	0	0	1	1
Total	94	94	24	212

Table 3: Status by Priority - Snapshot at mid-2023

Status by Priority	Not yet started	In progress	Completed	Total
High	26	37	12	75
Medium	24	42	3	69
Low	40	17	9	66
Very Low	2	0	0	2
Total	92	96	24	212

3.1 Observations

1. Some 68% of the actions are either rated as medium (75) or high (69) priority (see Table 1);
2. Of the 212 Actions, 94 are currently in progress and a further 24 have been completed (see Table 2), which collectively accounts for 56% of the Actions; and
3. In terms of addressing the high to medium priorities totalling 144 actions (see Table 3), 94 are either in progress or completed account to 65%.

3.2 Case Study 2 – Goulburn Broken Community Flood Intelligence Portal

<https://my.floodreport.com.au/gbcma/>

The Victorian Floodplain Management Strategy (DELWP, 2016) and the Goulburn Broken Regional Floodplain Management Strategy (2018-2028) highlighted the importance of sharing flood information to make communities more flood resilient. Sharing flood intelligence is a priority focus, that drove the development and implementation of the Goulburn Broken Flood Intelligence Portal for all stakeholders. This initiative was made possible through a collaborative approach with local government across the region and currently has seven partners: Benalla Rural City, Greater Shepparton City, Mitchell Shire, Moira Shire, Murrindindi Shire, Strathbogrie Shire Councils and the Goulburn Broken CMA.

The Flood Intelligence Portal was developed to be fit for purpose for communities. Ease of access provides interactive navigation across any geographic area, by stream gauge heights, design and historical floods. The Flood Intelligence Portal is designed to be searchable with the ability to create a flood risk report for a specific property to inform land-use and building and insurance and flood preparedness information at an individual property scale. Figure 4 and Error! Reference source not found. provide extracts from a typical flood risk report.

INDICATIVE MAP OF THE EXTENT AND DEPTH OF THE 1 IN 100 YEAR ARI FLOOD

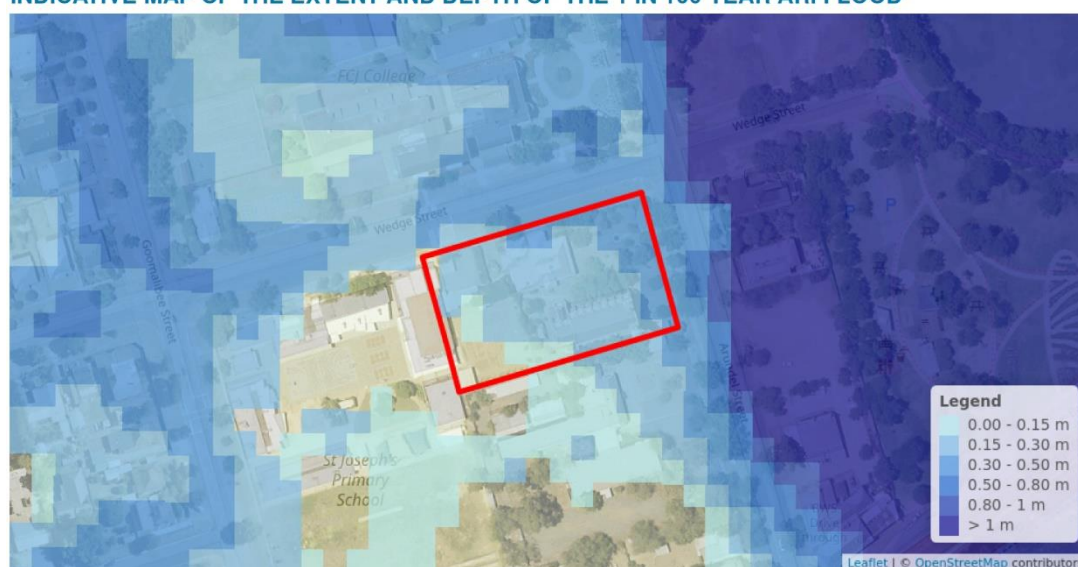


Figure 4: Example of flood mapping as a property scale (Flood Portal)

PROPERTY FLOOD INFORMATION

ARI	Water Level Min (m AHD)	Water Level Max (m AHD)	Water Depth Min (m)	Water Depth Max (m)	Max Velocity (m/s)	Max Hazard
1 in 5 Year	136.91	136.94	0.02	0.23		
1 in 10 Year	137.15	137.18	0.22	0.47		
1 in 20 Year	137.50	137.53	0.58	0.82		
1 in 50 Year	138.01	138.04	1.08	1.33		
1 in 100 Year	138.38	138.41	1.45	1.70	0.55	

FLOOD PREPAREDNESS TABLE

Scenario	Gauge Level: Goulburn River @ Seymour (m)	Flood Class / Design Level ⁽¹⁾	Water Level ⁽²⁾ (m AHD)	Water Depth over floor ⁽²⁾ (m)
Goulburn River	6.99	1 in 5 Year	136.94	-0.34
	7.33	1 in 10 Year	137.18	-0.1
	7.80	1 in 20 Year	137.53	0.25
	8.38	1 in 50 Year	138.04	0.76
	8.75	1 in 100 Year	138.41	1.13

Figure 5: Example of flood risk intelligence for a dwelling (Flood Portal)

The developers are currently planning for processing speed improvements, particularly in light of significant demands during the Spring 2022 flood. Also significant functionality improvements are included to improve ease of use and additional features.

During the implementation of the 2018 Strategy, the adaptive framework was applied largely due to advancement in flood modelling techniques and associated improved processing speed. For instance, many smaller studies, and associated actions, have been integrated into larger regional scale studies. This includes:

- The *Sunday Creek Catchment Flood Intelligence and Mapping Flood* was originally intended to focus on Broadford. The study was expanded to include several major waterways (Sunday, Dry, Kilmore, Kurkuruc and Mollison and Sugarloaf Creeks) and towns of Broadford, Kilmore East, Heathcote Junction, Pyalong, and Wandong.
- The *Boosey and Upper Broken Creeks Flood Study* was that originally intended to focus on Tungamah. The study has been expended to include several major waterways (Boosey, Broken, Nine Mile, Sandy Creeks and Muckatah Depression) and towns of Katamatite, Devenish, Lake Rowan, Goorambat, St. James, Thoona, Tungamah, and Wilby.
- The *Acheron Valley Flood Study* was originally intended to focus on Buxton. This study was expanded to include the Acheron and Steavenson Rivers to the Goulburn River and towns of Buxton, Marysville and Taggerty.
- *Goulburn and Broken Rivers Flood Study* was originally intended to focus on Goulburn River Seymour to Shepparton. This study includes the Goulburn and Broken Rivers from Lake Eildon and Lake Nillahcootie to Loch Garry (Bunbartha) and all associated townships such as Thornton, Molesworth, Mitchellstown, and Swanpool.



Part B: The Action-Investment Plan: Strategy Renewal 2023-2028



4. The Action-Investment Plan for 2023-2028

The *Action-Investment Plan* for the next five years (2023-2028) has been prepared based on the following considerations:

- Implementation to date of the 2018 Strategy.
- 2018 Strategy Action-Investment Plan (based on the service level and priority assessment of each of the four programs).
- Emerging issues of technological advancements and the Spring 2022 floods.
- Feedback for local government including on urban growth corridors (land-use planning) and the need for flood study input to inform floodplain management programs.
- Feedback from VICSES on the currency of MFEPs and Local Flood Guides. This is now part of the 2023 Goulburn Broken Flood Intelligence Project including 2022 flood information.

Five sets of Tables are presented:

1. Implementation responsibilities for program actions.
2. Total investment summary – Local Government Areas.
3. Individual Local Government Investment Summaries.
4. Individual Local Government Action-Investment Plans.
5. Whole of region actions.

Table 4: Implementation responsibilities for the Program Actions

Program	Flood Mitigation	Total Flood Warning Systems	Land-use planning	Municipal Flood Emergency Plan ^v
Lead agency ⁱ	Local Government ⁱⁱ	VICSES / Local Government ⁱⁱⁱ	Local Government ^{iv}	VICSES
Partners	Community, Traditional Owners, GB CMA	Community, VICSES, GB CMA	VICSES, GB CMA, DTP ^{vi}	Local Government, TOs, GB CMA
Sharing data	Community, VICSES, EMV, DEECA, AAV, PV	Community, VICSES, EMV, DEECA, PV	DTP	EMV, DEECA, AAV, PV

- Although, the Goulburn Broken CMA does not generally have a leading role in any of the four programs above, it is committed to coordinate the implementation of the Strategy through leading the monitoring, evaluation, reporting and improvement (MERI) Plan, which includes a rolling four-year Investment-Action Plan.
- Local Government's role is generally related to urban flood mitigation. See 2.4.1 Management arrangements for rural levees in 2018 Strategy.
- There are a number of elements to this program where VICSES will take the lead around education and awareness, communications and dissemination and Local Government will take the lead in sharing operation and maintenance costs of the relevant gauge network components under the Northern Regional Water Monitoring Partnership.
- Goulburn Broken CMA is the lead agency for preparation of mapping for planning scheme amendments and may become the lead agency for rural studies and become the planning authority where studies cross multiple Local Government Areas.
- Note that MFEPs need to be reviewed following the completion of a flood study, a major flood or part on the three-yearly review cycle.
- DTP, at a regional level provides planning guidance around the preparation on proposed planning scheme amendments.

Note: DEECA, at the State level generally provides support and guidance across all programs including financial assistance. Other agencies may be a partner such as BoM, G-MW, GVW, VicRoads, and VicTrack depending on the nature of the investigation.

Table 5: Total Investment Summary – By Program and Priority

Program	High	Medium	Low	Total
Mitigation (Structural)	\$17,070,000	\$313,000	\$200,000	\$17,458,000
TFWS	\$246,000	\$560,000	\$70,000	\$876,000
Land-use Planning	\$453,000	\$596,000	\$1,408,000	\$1,408,000
MFEP	\$116,000	\$396,000	\$200,000	\$712,000
	\$17,885,000	\$1,865,000	\$829,000	\$20,579,000

Approximately \$16.5 million of the total investment figure is due to two large proposed structural flood mitigation projects within Moira Shire at Numurkah (high priority) \$14 million and at Cobram (high priority) \$2.5 million. The cost of implementing the remaining actions is \$4,058 million.

Separate investment summaries for each local government area are shown with the Action-Investment Renewal Plans on the following pages.

4.1 Abbreviations and Symbology

Note the *Action-Investment Renewal Tables* that follow may use the following abbreviations and symbols:

FO = Floodway Overlay

LSIO = Land Subject to Inundation Overlay

UFZ = Urban Floodway Zone

MIT = Mitigation (Structural)

TFWS = Total Flood Warning System

LUP = Land-use Planning

MFEP = Municipal Flood Emergency Plan

FS = Flood Study

FMO = Floodplain Management Plan






H = High Priority

M = Medium Priority

L = Low Priority

- = No priority or No further action

Symbology (Action-Investment Status)

	Not yet started		Not a priority now
	In progress		New priority
	Completed		

4.2 Benalla Rural City Council

Table 6: Benalla Rural City Council Investment summary Renewal by Program and priority

Program	High	Medium	Low	Total
Mitigation	\$-	\$45,000	\$-	\$45,000
TFWS	\$25,000	\$45,000	\$-	\$70,000
Land-use Planning	\$93,000	\$75,000	\$30,000	\$198,000
MFEP	\$45,000	\$-	\$-	\$45,000
	\$163,000	\$165,000	\$30,00	\$358,000

Table 7: Benalla Rural City Council - Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Baddaginnie FS Focus on the urban areas of Baddaginnie	In light of Spring 2022 floods carry out a detailed FS. Note the <i>Regional Granite Creeks Regional FS</i> includes Baddaginnie but is broad brush that provides indicative flood information only. >>> The MFEP update and a new Flood Safe Guide (TFWS) will be delivered by the 2023 <i>Goulburn Broken Flood Intelligence Project</i> using the Regional FS, until the detailed FS is completed. Estimated cost of detailed FS is \$180,000.				
	MIT	Look at preliminary mitigation options	🟡	M	\$45
	TFWS	TFWS to include delivery of a Local Flood Guide update from detailed FS.	🟡	M	\$45
	LUP	Update flood overlay controls into the planning scheme.	🟡	H	\$45
	MFEP	Incorporate flood intelligence from detailed FS	🟡	H	\$45
Benalla FMP Focus on the urban areas of Benalla	This FMP refers to the <i>Benalla Floodplain Management Study (Willing Cardno, 2002.</i> and refer to "Goulburn and Broken FS." ✓ Benalla flood mitigation (water management) scheme was implemented in mid-2000 (MIT). Local Flood Guide, <i>Goulburn Broken Community Flood Intelligence Portal</i> includes Benalla and flood warning services are place (TFWS). The MFEP has been updated. >>> The <i>Goulburn Broken Strategic Levee Categorisation Project 2023-2024</i> will deliver an impact assessment of the decommissioned Mokoan Inlet embankment (upstream of Benalla and Hume Freeway).				
	LUP	As part of LGA-wide amendment, prepare updated flood overlay and zone controls for the planning scheme. Consider deliverables from the <i>Goulburn and Broken Rivers FS</i> when completed.	✗	H	\$30
Goulburn and Broken Rivers FS	This FS is well advanced across five LGAs (Benalla Rural City, Greater Shepparton City, Mitchell, Murrindindi, Strathbogie Shires). This FS include the 2018 Actions for "Tatong," "Lower Broken River," and "Upper Broken River." >>> This FS will deliver update to the five MFEPs.				

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	Program Actions, Priority and Indicative Cost				
Study/Area Description	Program Action/Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Rural areas and Swanpool, Lima South, Tatong, Benalla	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the 2023 <i>Goulburn Broken Community Flood Intelligence Portal</i> .	Commence following completion of FS including MFEP updates.	H	\$25
	LUP	As part of five LGA-wide planning scheme amendment adopt the FS to inform flood overlay controls.	Flood overlay controls coordinated by GB CMA.	H	\$100 ⁱ (across five LGAs)
Boosey and Upper Broken Creeks FS Rural areas and Devenish, Gooramab, Thoona.	This FS is well advanced across two LGAs (Benalla Rural City and Moira Shire Councils). This FS include the 2018 Actions for “Devenish,” “Thoona,” and “Upper Broken Creek.” Update to the MFEPs will be delivered as part of the FS. The FS will deliver Local Flood Guides and updates to the MFEP.				
	LUP	Introduce and flood overlay and zone controls from FS deliverables into planning scheme.	This will cover many areas currently without flood controls.	H	\$60 (across two LGA)
Granite Creeks Regional FS Rural areas and Baddaginnie	This has been finalised as a regional broad brush flood mapping exercise across three LGAs (Benalla Rural City, Greater Shepparton City and Strathbogie Shire Councils). “Baddaginnie” town is subject to a future detailed flood study as listed above. The 2023 <i>Goulburn Broken Flood Intelligence Project</i> will deliver Regional Fact Sheets, Local Flood Guides TFWS and updates to the MFEPs.				
	LUP	As part of LGA-wide amendment adopt the Regional FS and consider Flood Data Transfer Project flood mapping , and any other relevant flood information.	Current overlay controls do not warrant this Action.	L	\$30
Winton Scoping FS	This Scoping FS commenced in 2022 and will be finalised in 2023. The town experienced significant flooding in January 2022. A Local Flood Guide (TFWS) and update to the MFEP is to be delivered as part of the scoping FS.				
	LUP	Consider rudimentary flood mapping for a planning scheme amendment.	×	M	\$30

4.3 Campaspe Shire Council

Table 8: Campaspe Shire Council Investment summary Renewal by Program and priority

	High	Medium	Low	Total
Mitigation	\$25,000	\$-	\$-	\$25,000
TFWS	\$-	\$-	\$-	\$-
Land-use Planning	\$30,000	\$-	\$63,000	\$93,000
MFEP	\$-	\$-	\$-	\$-
	\$55,000	\$-	\$63,000	\$118,000

Table 9: Campaspe Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Colbinabbin Focus on the urban areas of Colbinabbin	<p>The <i>Corop Lakes Scoping Flood Study (GHD, 2016)</i> made recommendations to make the operation of Waranga Western Channel transparent to the Colbinabbin community.</p> <p>»» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Local Flood Guide updates to the MFEP (Also note Goulburn-Murray Water continue to host on-line information about Waranga Western Channel operations).</p>				
	LUP	The Scoping FS indicated that the flood overlay controls in the Campaspe Planning Scheme is sound. However Colbinabbin (west of town) should include flood overlay controls.	7/10	L	\$30
Kyabram FS Focus on the urban areas of Kyabram	<p>✓ Kyabram FMP was completed in 2021 that explored mitigation options (MIT) and provided deliverables to progress program actions.</p> <p>»» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Local Flood Guide (TFWS) and MFEP.</p>				
	LUP	Incorporate updated flood overlay controls into planning scheme. This may be delivered as part of the statewide pilot coordinated by the DTP.	✗ Flood controls prepared.	H	\$30
Lower Goulburn FMP Bunbartha to Echuca	<p>The Lower Goulburn FPM Scheme project was completed in 2005 to investigate floodplain management options that did not proceed.</p> <p>Other deliverables do exist that could inform other program areas. There is now a future opportunity to use improved modelling from the Echuca-Moama FS, which is nearing completion, and has extensive coverage from the Shepparton Gauge to Torrumbarry Weir. This latest FS should inform the program delivery.</p> <p>This initiative includes three LGAs (Campaspe Shire, Greater Shepparton City and Moira Shire Councils).</p> <p>»» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Regional Fact Sheets (new TFWS) and update to the MFEPs.</p>				

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	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
	MIT	1. Re-evaluate options on an opportunistic basis . 2. Investigate impact on Cultural Heritage Values and opportunities. 3. Carry out a scoping investigating from a renewed perspective in light of: <ul style="list-style-type: none"> Investment into Environmental through nature-based economics and similar. Opportunities to strengthen connection to County by the Yorta Yorta Nation Aboriginal Corporation. 	×	L	\$75 (scoping review across three LGAs)
	LUP	As part of LGA-wide amendment adopt the FS and consider Flood Data Transfer Project flood mapping , and any other new information.	×	L	\$100 (across three LGAs)

4.4 Greater Shepparton City Council

Table 10: Greater Shepparton City Investment summary Renewal by Program and priority

	High	Medium	Low	Total
Mitigation	\$125,000	\$-	\$25,000	\$25,000
TFWS	\$25,000	\$-	\$-	\$25,000
Land-use Planning	\$60,000	\$20,000	\$33,000	\$113,000
MFEP	\$-	\$-	\$-	\$-
	\$210,000	\$20,000	\$58,000	\$288,000

Table 11: Greater Shepparton Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Broken Creek Tributaries FS Broken River to Broken Creek system including towns of Congupna and Tallygaroopna	✓	<p>Tributaries include (East to West) Guilfus, Congupna, Daintons, Pine Lodge and O'Keefe Creeks.</p> <p>MFEP has been updated from past flood information, particularly since 2012 including Congupna and Tallygaroopna. In terms of TFWS a local gauge network has been established and Flood Safe Guide in place for Congupna and being prepared for Tallygaroopna.</p> <p>In coming years, consider the possibility for a regional FS (partly includes Moira Shire) that first requires the completion of the <i>Goulburn and Broken Rivers FS</i>. Note a flood scoping study for Tallygaroopna Town commenced June 2023 that may justify a full flood study.</p> <p>Low priority for a regional FS. This would change to a medium priority if the Tallygaroopna Flood Scoping Study recommended that a full FS is required. The Broken Creek tributaries would also be included as part of the Wunghnu FS (Moira Shire). This remains adaptive.</p>			
Goulburn and Broken Rivers FS Rural areas along Goulburn River, and Toolamba.		<p>This FS is well advanced across five LGAs (Benalla Rural City, Greater Shepparton City, Mitchell, Murrindindi, Strathbogie Shires). This includes the 2018 Strategic Actions of "Bunbartha," "Goulburn River – Seymour to Shepparton," and "Lower Broken River" and "Toolamba."</p> <p>» This FS will deliver updates to the five MFEPs and mapping products to assist with LUP flood overlay controls.</p>			
	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the <i>Goulburn Broken Community Flood Intelligence Portal</i> .	Commence following completion of FS and MFEPs.	H	\$25
	LUP	As part of five LGA-wide planning scheme amendment adopt the FS to inform flood overlay controls.	Flood overlay controls coordinated by GB CMA.	H	\$100 (across five LGAs)
Granite Creeks Regional FS		<p>FS Completed in 2017. This Study covers three LGAs: Benalla Rural City Council, Greater Shepparton City Council and Strathbogie Shire Council.</p> <p>» The 2023 <i>Goulburn Broken Flood Intelligence Project</i> will deliver Regional Fact Sheets (TFWS) and to the MFEPs.</p>			
	LUP	As part of LGA-wide amendment adopt the Regional FS and consider Flood Data Transfer Project flood mapping , and any other relevant flood information.	Current overlay controls do not warrant this Action.	L	\$30

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Study/Area Description	Program Actions, Priority and Indicative Cost (subject to funding)				
	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Katandra West Scoping FS Focus on the urban areas of Katandra West	✓ The <i>Katandra West Scoping FS</i> completed in 2023 with program deliverables. No further studies are recommended based on findings of the scoping FS. No flood mitigation identified in scoping study. »» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver updates to the Local Flood Guide and updates to the MFEP based on drafted deliverables from the Scoping FS.				
	LUP	Incorporate updated flood overlay control (Land Subject to Inundation Overlay) into the planning scheme.	»» Flood mapping delivered in the report and digital format.	H	\$30
Lower Goulburn FMP Rural areas, and Coomboona, Bunbartha, Kotupna, Wyuna, Lower Moira, Yambuna	The Lower Goulburn FPM Scheme project was completed in 2005 to investigate floodplain management options that did not proceed. Other deliverables do exist that could inform other program areas. There is now a future opportunity to use improved modelling from the Echuca-Moama FS, which is nearing completion, which has coverage from the Shepparton Gauge to Torrumbarry Weir. This latest FS should inform the program delivery. This initiative includes three LGAs (Campaspe Shire, Greater Shepparton City and Moira Shire Councils) »» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Regional Fact Sheets and MFEPs updates.				
	MIT	1. Re-evaluate options on an opportunistic basis. 2. Investigate impact on Cultural Heritage Values and opportunities. 3. Carry out a scoping investigating from a renewed perspective in light of: <ul style="list-style-type: none"> Investment into Environmental through nature-based economics and similar. Opportunities to strengthen connection to County by the Yorta Yorta Nation Aboriginal Corporation. 	×	L	\$75 (scoping review across three LGAs)
	LUP	As part of three LGA-wide amendment adopt the FS and consider Flood Data Transfer Project flood mapping, and any other new information for revised flood overlay controls.	×	L	\$100 (across three LGAs)
Merrigum FS	✓ Flood overlay and zone controls in place in planning scheme (LUP) and FS intelligence has been incorporated into the MFEP. »» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver a Local Flood Guide and note that Merrigum is also part of the <i>Goulburn Broken Community Flood Intelligence Portal</i> .				

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Study/Area Description	Program Actions, Priority and Indicative Cost (subject to funding)				
	Program Action/Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Murchison FMP	<p>✓ A Flood Safe Guide (TFWS) has been delivered and is included in the <i>Goulburn Broken Community Flood Intelligence Portal</i>. The MFEP has been updated from the <i>Murchison FS (Water Technology, 2014)</i> flood intelligence.</p> <p>»» MIT Action: The town levee will now be investigated as part of the <i>Goulburn Broken Strategic Levee Categorisation Review in 2023-2024</i>. The 2022 flood experienced seepage through the levee with little freeboard.</p> <p>Following post 2022 flood experience and consequences, the Murchison community has expressed a need for flood mitigation augmentation.</p> <p>Estimated FMP cost is \$125,000.</p>				
	MIT	Explore flood mitigation options for the Murchison and development a Floodplain Management Plan. The work will utilise the flood modelling completed as part of the <i>Murchison FS (2014)</i> .	review and augment flood mitigation for the Murchison.	H	\$125
	LUP	Update the Greater Shepparton Planning Scheme with revised flood overlay controls. This may be delivered as part of the statewide pilot program coordinated by the DTP.	»» Consider the <i>Goulburn and Broken Rivers Flood Study</i> .	H	\$30
Shepparton East FS	<p>✓ 2018 Actions completed. FS intelligence incorporated into MFEP. TFWS included in the <i>Goulburn Broken Flood Intelligence Portal</i>.</p> <p>LUP flood overlay controls prepared and planning scheme amendment to be delivered under a statewide pilot coordinated by DTP.</p>				
Shepparton Mooroopna FS and Emergency Mapping Project	<p>2018 Actions are completed or underway.</p> <p>»» MIT (existing levees) will be investigated as part of the <i>Goulburn Broken Levee Strategic Categorisation Project in 2023-2024</i>.</p> <p>✓ TFWS education and awareness in place including the Flood Safe Guide and <i>Goulburn Broken Community Flood Intelligence Portal</i>.</p> <p>»» LUP flood controls prepared and planning scheme amendment to be delivered under a statewide pilot coordinated by the DTP.</p> <p>»» MFEP is being updated including new emergency flood modelling and new floor level survey to be completed 2023-2024.</p>				
Surplus Irrigation Channels	<p>2018 Action underway.</p> <p>»» MIT (existing levee) will be investigated as part of the <i>Goulburn Broken Strategic Levee Categorisation Project in 2023-2024</i>.</p>				
Tallygaroopna Scoping FS	<p>»» Scoping FS commenced in June 2023 to determine flooding issues, flood mapping, flood intelligence and to explore, in broad terms mitigation options. This may lead to a full flood study. A Flood Safe Guide (TFWS), MFEP will be drafted, with draft flood overlay controls prepared (LUP).</p>				
Tatura FS	<p>»» 2018 Actions underway.</p> <p>The <i>2023 Goulburn Broken Flood intelligence Project</i> will deliver a Local Flood Guide and is part of the <i>Goulburn Broken Community Flood Intelligence Portal</i>.</p>				

4.5 Mansfield Shire Council

Table 12: Mansfield Shire Council Investment summary Renewal by Program and priority

	High	Medium	Low	Total
Mitigation	\$-	\$-	\$-	\$-
TFWS	\$-	\$70,000	\$-	\$70,000
Land-use Planning	\$-	\$85,000	\$-	\$85,000
MFEP	\$-	\$60,000	\$-	\$60,000
	\$-	\$215,000	\$-	\$215,000

Table 13: Mansfield Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Actions	Status/Program Action Description	Status/Comment	Priority	Cost (\$000)
Upper Tribs to Lake Eildon and Nillahcootie Regional FS	<p>The 2018 Strategic Actions have been consolidated for "Delatite River," "Ford Creek," and "Howqua River."</p> <p><i>Design Flood Hydrographs for the Goulburn and Broken River Catchments (Jacobs, 2016)</i> focused on the upper rivers that drain into Lake Eildon and Lake Nillahcootie. These include Delatite River, Ford Creek, Big River, Howqua River, and upper Broken Rivers.</p> <p>Take advantage of the completed design hydrology work for the regional FS (full hydraulic modelling) to obtain flood intelligence for the TFWS, LUP and MFEP programs.</p> <p>The estimated cost of the FS is \$165,000.</p>				
	TFWS	Prepare Local Flood Guides and Regional Fact Sheets.	🟡	M	\$55
	LUP	Prepare flood overlay controls for planning scheme.	🟡	M	\$55
	MFEP	Update Mansfield MFEP	🟡	M	\$55
Jamieson FS	<p>Jamieson FS (includes the 2018 Action "Upper Goulburn").</p> <p>Hydraulic modelling completed and draft report prepared by Goulburn Broken CMA (2023). Note the Draft Hydrographs for the <i>Goulburn and Broken River Catchments (Jacobs, 2016)</i> were utilised. Note current flood overlay controls match closely to latest Jamieson FS.</p>				
	TFWS	Review existing Local Flood Guide and consider inclusion into the <i>2023 Goulburn Broken Community Flood Intelligence Portal</i> . Carry out floor level survey of building within the identified floodplain.	🟡	M	\$15
	MFEP	Update MFEP based on flood intelligence from Jamieson FS.	🟡	M	\$5
Mansfield FS	<p>This builds on the <i>1% AEP Flood Mapping Project (GBCMA, 2014)</i>.</p> <p>»» The new detailed FS has been funded under the <i>Risk and Resilience Grants Program</i> including greater coverage including tributaries of Ford Creek in Mansfield and its surrounds. Flood intelligence will inform all three programs (not mitigation) TFWS, LUP and MFEP.</p>				
	LUP	Update flood overlay and zone controls in planning scheme.	🟡	H	\$30

4.6 Mitchell Shire Council


Table 14: Mansfield Shire Council Investment summary Renewal by Action type and Priority

	High	Medium	Low	Total
Mitigation	\$-	\$-	\$-	\$-
TFWS	\$25,000	\$10,000	\$-	\$35,000
Land-use Planning	\$90,000	\$80,000	\$-	\$170,000
MFEP	\$-	\$-	\$-	\$-
	\$115,000	\$90,000	\$-	\$205,000

Table 15: Mitchell Shire Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Sunday Creek Catchment Regional FS	<p>The 2018 Actions for “Broadford,” “Kilmore East,” “Pyalong” and “Sunday & Dry Creeks” areas has been integrated into this regional FS (<i>Sunday Creek Catchment Flood Intelligence and Mapping Study (on-going)</i>). Main floodplains include Dry, Kilmore, Kurkuruc, Mollison, Sugarloaf and Sunday Creeks including towns of Broadford, Kilmore East, Wandong-Heathcote Junction and Waterford Park.</p> <p>»» The Regional FS will deliver updates to the MFEPs and mapping to assist with flood overlay controls for the planning scheme.</p>				
	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the <i>2023 Goulburn Broken Community Flood Intelligence Portal</i> .	✗ Commence following completion of FS and MFEP.	M	\$10
	LUP	Prepare flood overlay controls for planning scheme amendment. The FS will prepare preliminary draft flood controls to be finalised by Goulburn Broken CMA and Mitchell Shire.	✗	M	\$50
Dabyminga Creek Regional FS	<p>This study includes the 2018 Strategic Actions for “Dabyminga Creek,” “Reedy Creek,” “Tallarook” and “Tyaak” areas have been integrated into this regional FS (<i>Dabyminga Creek Regional FS (on-going)</i>).</p> <p>»» The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Local Flood Guide and/or Regional Fact Sheet and updates to the MFEP.</p>				
	LUP	Prepare flood overlay controls for planning scheme amendment.	✗ Commence following completion of Regional FS	M	\$30
Goulburn and Broken Rivers FS	<p>This FS is well advanced across five LGAs (Benalla Rural City, Greater Shepparton City, Mitchell, Murrindindi, Strathbogie Shires). This includes the 2018 Strategic Actions of “Seymour to Shepparton,” “Mid-Goulburn,” and “Seymour.”</p> <p>»» This FS will deliver updates to five MFEPs.</p>				
	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the <i>Goulburn Broken Community Flood Intelligence Portal</i> .	🔄 Commence following completion of FS including MFEP updates.	H	\$25

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Program Actions, Priority and Indicative Cost (subject to funding)					
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
	LUP	As part of five LGA-wide planning scheme amendment adopt the FS to inform flood overlay controls.	 Flood overlay controls coordinated by GB CMA.	H	\$100 across five LGAs
Kilmore FS	Kilmore FS (<i>Kilmore Flood Mapping and Intelligence Study (BMT WBM, 2017)</i>). ✓ 2018 Actions completed including MIT (investigation of five flood mitigation options) and FS intelligence included in the MFEP. »» The 2023 Goulburn Broken Flood Intelligence Project will deliver a Local Flood Guide (TFWS).				
	LUP	Flood overlays and zone have been prepared for a planning scheme amendment. This may be included as part of the pilot program coordinated by DTP.	»»	H	\$40
Whiteheads Creek FMP	The FMP (<i>Flood Mapping and Intelligence Study – Mitigation Report (Cardno, 2020)</i>) was completed that included a new action since 2018 to investigate flood mitigation options. »» The 2023 Goulburn Broken Flood Intelligence Project will deliver a Local Flood Guide and updates to the MFEP.				
	LUP	Prepared updated flood overlay and zone control from FPM deliverable. This may be included a collective statewide initiative pilot within the Goulburn Broken CMA coordinated by the DTP.	»»	H	\$30

4.7 Moira Shire Council

Table 16: Moira Shire Council Investment summary Renewal by program and priority

	High	Medium	Low	Total
Mitigation	\$16,570,000	\$93,000	\$175,000	\$16,838,000
TFWS	\$70,000	\$235,000	\$-	\$305,000
Land-use Planning	\$100,000	\$236,000	\$113,000	\$449,000
MFEP	\$70,000	\$236,000	\$-	\$306,000
	\$16,810,000	\$800,000	\$288,000	\$17,898,000

Table 17: Moira Shire Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Barmah FMP	<p>The Barmah FMP (<i>Barmah Township Flood Mitigation Functional Design (Water Technology, 2012)</i>) explored a levee system to protect the town from a 1% AEP flood, which did not proceed.</p> <p>There are learnings from the 2022 flood that will be captured into the MFEP.</p> <p>No LUP required.</p> <p>»» The 2023 Goulburn Broken Flood Intelligence Project will deliver a Local Flood Guide (TFWS) and updates to the MFEP. Part of the <i>Goulburn Broken Strategic Levee Category 2023-2024</i>.</p>				
	MIT	Review mitigation options in light of 2022 flood and FMP.	✕	L	\$150
Boosey and Upper Broken Creeks FS	<p>This FS ongoing (with Benalla Rural City Council), and integrates the 2018 listed towns of “Katamatite,” “Lake Rowan,” “Muckatah Depression,” “Tungamah,” and “Wilby” (plus towns in Benalla Rural City).</p> <p>»» Deliverables include new and updated Local Flood Guides (TFWS), flood mapping (LUP) and updates to the MFEPs.</p>				
Broken Creek Tributaries FS Between Broken River and Broken Creek system	<p>Review the possibility for a regional FS (with Greater Shepparton City Council (GSCC)) that first requires the completion of the <i>Goulburn and Broken Rivers FS</i> and the <i>Boosey and Upper Broken Creeks FS</i>. Note in Greater Shepparton City Council, a flood scoping study for Tallygaroopna Town commenced mid-2023 that may justify a full flood study.</p> <p>✕ Low priority for a regional FS. This would change to a medium priority if the Tallygaroopna Flood Scoping Study recommended that a full FS is required. The Broken Creek tributaries would also be included as part of the Wunghnu FS (See below).</p>				
Cobram (and Cobram East) FMP	<p>The flood mitigation (Ministerial) scheme was constructed circa 2005. The Regional FS (<i>Water Technology, 2011</i>) confirmed that further mitigation work is required in Cobram East to prevent riverine flooding in Cobram. Such investigations are ongoing by Moira Shire Council. The Regional FS has informed updates to the MFEP. A further review recently completed by DEECA require further updates to the MFEP.</p> <p>»» The 2023 Goulburn Broken Flood Intelligence Project will deliver a Local Flood Guide and update to the MFEP. LUP is part of the Murray Regional FS</p>				
	MIT	Design and implement Cobram East flood mitigation works	»» Investigation is ongoing.	H	\$2.5M

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Study/Area Description	Program Actions, Priority and Indicative Cost (subject to funding)				
	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Lower Goulburn FMP Bunbartha to Echuca	The Lower Goulburn FPM Scheme project was completed in 2005 to investigate floodplain management options that did not proceed. Other deliverables do exist that could inform other program areas. There is now a future opportunity to use improved modelling from the <i>Echuca-Moama FS</i> , which is nearing completion. This new FS has extensive coverage from the Shepparton Gauge to Torrumbarry Weir. This latest FS should inform the program delivery. This initiative includes three LGAs (Campaspe Shire, Greater Shepparton City and Moira Shire Councils). >>> The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver Regional Fact Sheets and update to MFEPs.				
	MIT	1. Re-evaluate mitigation (Scheme) on an opportunistic basis 2. Investigate impact on Cultural Heritage Values and opportunities 3. Carry out a scoping investigating from a renewed perspective in light of: <ul style="list-style-type: none"> Investment into Environmental through nature-based economics and similar Opportunities to strengthen connection to Country by the Yorta Yorta Nation Aboriginal Corporation 	X	L	\$75 (scoping review across three LGAs)
	LUP	As part of three LGA-wide amendment adopt the FS and consider Flood Data Transfer Project flood mapping , and any other new information for revised flood overlay controls.	X To be coordinated by the GB CMA	L	\$100 (across three LGAs)
Lower Broken Creek FS Walshs Bridge to Barmah	Include renewal for <i>Nathalia Floodplain Management Plan (SMEC 2005)</i> given its age, town levee upgrade (in late 2000s) and new available LiDAR. Extend model from upstream of Walshs Bridge to Barmah. This study could be carried out following the completion of two studies, <i>Goulburn and Broken FS</i> , <i>Wunghnu</i> (that would need to integrate the <i>Broken Creek Tributaries FS</i>) <i>FS</i> . Estimated FS cost is \$280,000.				
	MIT	Determine the performance of the Nathalia Town levee.	📋	H	\$70
	TFWS	Update Local Flood Guide for Nathalia and prepare Regional Fact Sheet. Include on the Community Flood Intelligence Portal	📋	H	\$70
	LUP	Update flood overlay controls in planning scheme	📋	H	\$70
	MFEP	Update MFEP	📋	H	\$70
Mid Broken Creek FS Katamatite to Walshs Bridge	The FS (<i>Numurkah Floodplain Management Plan – Final Report (Water Technology, 2017)</i>) has delivered flood intelligence for a Local Flood Guide and augmentation of new rain and stream gauge network with flood prediction service in preparation (TFWS), update of the MFEP, conceptual floodplain management plan (MIT) (Stage 1 work to commence late 2023, and funding for Stage 2 detailed design obtained under the Disaster Ready Fund, and flood mapping delivered to assist with revised flood overlay controls. >>>				
	LUP	Update flood overlay controls in planning scheme.	X	L	\$40

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Study/Area Description	Program Actions, Priority and Indicative Cost (subject to funding)				
	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Murray River Regional FS Cobram to Ulupna	<p>The Regional FS (<i>Murray River Regional Flood Study (Water Technology, 2011)</i>) integrates listed 2018 Strategy towns of “Cobram,” “Koonoomoo,” and “Cobram to Ulupna.” Also include towns of Barooga and Tocumwal in Berrigan Shire (NSW).</p> <p>»» The 2023 Goulburn Broken Flood Intelligence Project will deliver a Local Flood Guide and updates to the MFEP.</p>				
	LUP	Incorporate updated flood overlay controls into the planning scheme.	📅 ✕	L	\$40
Murray River Regional FS Bundalong to Barmah	<p>This is new FS integrates the 2018 Actions for “Cobram,” “Koonoomoo,” “Murray – Barmah to Echuca,” “Murray – Cobram to Ulupna,” “Murray – Ulupna to Barmah,” “Murray – Yarrawonga to Cobram East” and “Yarroweyah.”</p> <p>Since the completion of the 2011 Murray - Cobram to Ulupna FS there are three Murray River Regional FSs that are well advanced. These are led by NSW Councils (Federation Shire, Berrigan Shire and Murray River Shire Councils). Further, a new and far greater LiDAR coverage is now available. This will resolve limitations of the 2011 FS due to model boundary issues.</p> <p>Estimated FS (including Lidar) cost is \$425,000.</p>				
	TFWS	Flood intelligence	📅	M	\$141
	LUP	Preparation of Flood overlay controls for planning scheme amendment	📅	M	\$142
	MFEP	Flood intelligence update to MFEP	📅	M	\$142
Nathalia Flood Mitigation	Refer to “Lower Broken Creek FS.”				
Numurkah Flood Mitigation Program	Refer to Mid Broken FS. Stage 1 works are funded. Stage 2 detail design is funded. Funding for Stage 2 works subject to funding following completion of the detailed design.				
	MIT	Stage 2: implementation of flood mitigation works.	✕ Stage 2 is subject to funding following completion of the detailed design.	H	\$14M
Wunghnu FS	<p>The completion of the <i>Goulburn and Broken FS</i> will inform outflows into the Broken Creek tributaries (i.e., Guilfus, Congupna, Daintons, Pine Lodge and O’Keefe Creeks). This is missing input into the Nine Mile Creek system and would improve the Mid Broken Creek modelling (Numurkah FS).</p> <p>Estimated FS cost estimate is \$375,000 (including LiDAR purchase).</p>				
	MIT	Evaluate existing Wunghnu levees.	✕	M	\$93
	TFWS	Assess current flood warning arrangements and improvement opportunities. Prepare Local Flood Guide	✕	M	\$94
	LUP	Prepare flood overlay controls for planning scheme amendment	✕	M	\$94
	MFEP	Update MFEP	✕	M	\$94
Yarrawonga Overland FS	<p>This FS (<i>Yarrawonga Flood Management & Drainage Master Plan (BMT WBM, 2013)</i>). MIT relates to Moira Shire Council drainage solution and do not form part this floodplain management strategy.</p> <p>»» The 2023 Goulburn Broken Flood Intelligence Project will deliver updates to the MFEP.</p>				
	LUP	Prepare flood overlay controls for planning scheme amendment.	✕	H	\$30

4.8 Murrindindi Shire Council

Table 18: Murrindindi Shire Council Investment summary Renewal by program and priority

Program	High	Medium	Low	Total
Mitigation	\$-	\$125,000	\$-	\$125,000
TFWS	\$26,000	\$100,000	\$70,000	\$196,000
Land-use Planning	\$60,000	\$50,000	\$60,000	\$170,000
MFEP	\$1,000	\$3-	\$170,000	\$171,000
	\$87,000	\$275,000	\$300,000	\$662,000

Table 19: Murrindindi Shire Council Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Acheron Valley FS	<p>This FS (<i>Acheron Valley Flood Study (BMT, 2019)</i>) integrates the 2018 Strategy Actions for “Acheron River,” “Buxton,” “Marysville,” and “Taggerty.”</p> <p>»» The 2023 Goulburn Broken Flood Intelligence Project will deliver Local Flood Guides to the three towns.</p> <p>✓ The MFEP has been updated.</p>				
	LUP	Prepare flood overlay controls for a planning scheme amendment from FS deliverables.	✗	H	\$40
Alexandra Scoping FS	<p>»» In April 2023 a Scoping FS commenced to determine the level of flood hazard and flood risk to determine if a more detailed FS is warranted. This Floodplain Management Strategy is to remain adaptive and will consider a further detailed study based on the findings of the scoping study. The deliverables will include rudimentary flood mapping (LUP), draft wording for a Local Flood Guide and MFEP if warranted.</p>				
Buxton FMP	<p>This FMP will build on the completed <i>Acheron Valley FS</i> to investigate flood mitigation measures for Buxton with the community.</p>				
	MIT	Investigated flood mitigation measures for Buxton with the community.	✗	M	\$125
Goulburn and Broken Rivers FS	<p>This FS includes the 2018 Strategic Actions of the “Mid Goulburn,” and “Thornton” and is well advanced across five LGAs (Benalla Rural City, Greater Shepparton City, Mitchell, Murrindindi, Strathbogie Shires). Note this FS will inform Mitigation Options – refer to Mid Valley FMP below.</p> <p>»» The FS will deliver updates to five MFEPs.</p>				
	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the <i>Goulburn Broken Community Flood Intelligence Portal</i> .	📅 Commence following completion of FS including MFEP updates.	H	\$25
	LUP	As part of five LGA-wide planning scheme amendment adopt the FS to inform flood overlay controls.	📅 Flood overlay controls coordinated by GB CMA.	H	\$100 (across five LGAs)

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
Study/Area Description	Program Actions, Priority and Indicative Cost (subject to funding)				
	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Lower King Parrot Creek FS	This is an extension of the “Upper King Parrot Creek FS (<i>King Parrot Creek Flood Study – Flood Intelligence and Mapping (2014)</i>)” to the confluence with the Goulburn River. This would also include the 2018 Strategic Action “Strath Creek”. Note a new gauging station will be placed on the lower creek. Estimated FS cost is \$200,000.				
	LUP	Prepare flood overlay controls for a planning scheme amendment.		L	\$100
	MFEP	Update the MFEP from study deliverables		L	\$100
Mid Goulburn Valley FMP	Funding was recently confirmed under the <i>Disaster Ready Fund</i> . This FMP will build on the <i>Goulburn and Broken River FS</i> to explore flood mitigation options (MIT) for existing developed areas, particularly Molesworth and Thornton. It is anticipated that this work will commence late 2023 following completion of the Goulburn and Broken FS. Note a new stream gauging station will be installed at Molesworth.				
Upper King Parrot Creek FS	The FS (<i>Flowerdale Flood Study – Flood Intelligence and Mapping (2014)</i>). Flood intelligence to be incorporated into TFWS, LUP and MFEP programs. The <i>2023 Goulburn Broken Flood Intelligence Project</i> will deliver a Local Flood Guide (new) and updates to the MFEP. The Department of Transport and Planning is coordinating a statewide pilot planning scheme amendment to deliver new and updated flood overlay and zone controls.				
Yea FS	✓ FS (<i>Yea Flood Study (Water Technology, 2005)</i>) has informed a Local Flood Guide, updated the MFEP and incorporated flood overlay controls in the Murrindindi Planning Scheme. No mitigation options required.				
	TFWS and MFEP	Edit documents to include reference to the new “GVW Pumping Station” stream gauge that is now automated in contrast with the manual read gauge at the Yea caravan park. FCL levels to be confirmed by GB CMA and Murrindindi Shire with the Bureau of Meteorology at the new gauge site	🔄	H	\$2
Yea River Regional FS	This Regional FS seeks to determine flood intelligence from Glenburn to Yea and including the Murrindindi River. Note the Murrindindi gauging station will be automated. Study cost estimated at \$200,000.				
	TFWS	The Regional FS will inform FCLs and prepared Regional Flood Fact Sheet.	🔄	L	\$70
	LUP	Prepare flood overly controls for planning scheme amendment.	🔄	L	\$60
	MFEP	Incorporate food intelligence from Regional FS	🔄	L	\$70

4.9 Strathbogie Shire Council





Table 20: Strathbogie Shire Council Investment summary Renewal by program and priority

	High	Medium	Low	Total
Mitigation	\$350,000	\$50,000	\$-	\$400,000
TFWS	\$75,000	\$100,000	\$-	\$175,000
Land-use Planning	\$20,000	\$50,000	\$60,000	\$130,000
MFEP	\$-	\$100,000	\$30,000	\$75,000
	\$445,000	\$300,000	\$90,000	\$835,000

Table 21: Strathbogie Shire Council Program Action-Investment Renewal Plan

	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
Avenel FMP	The 2022 flood has escalated that a Floodplain Management Plan (FMP) is required as a high priority . FPM would include a community reference committee and include community consultation. Mapping and Flood Intelligence to be extended from Tarcombe Road (gauging station site) to the Goulburn River and will also include "Mangalore." (listed in the 2018 Strategy). The estimated cost for an FPM is \$200,000.				
	MIT	Explore flood preliminary mitigation measures	×	M	\$50
	TFWS	New. Prepare a Local Flood Guide.	×	M	\$50
	LUP	Update the flood overlay controls for a planning scheme amendment.	×	H	\$50
	MFEP	Update the MFEP from flood intelligence from FS.	×	M	\$50
Castle Creek Flood Mitigation Augmentation	MIT	Design and construct flood mitigation works (levee) to protect two identified dwellings.	×	H	\$250
Euroa FS	<p>✓ The FS (<i>Euroa Post Flood Mapping and Intelligence Project (Cardno, 2015)</i>) has been used to deliver a Flood Safe Guide (TFWS) and to update the MFEP. The FS also informed upgrades to the Castle Creek levee now implemented (MIT).</p> <p>The Department of Transport and Planning is coordinating a statewide pilot planning scheme amendment to deliver new and updates flood overlay and zone control.</p>				
Goulburn and Broken Rivers FS	<p>This FS includes the 2018 Strategy Actions of the "Goulburn Seymour to Shepparton" and is well advanced across five LGAs (Benalla Rural City, Greater Shepparton City, Mitchell, Murrindindi, Strathbogie Shires). >>> The FS includes update to five MFEPs.</p>				
	TFWS	Prepare Local Flood Guides and Fact Sheets consider inclusion into the <i>Goulburn Broken Community Flood Intelligence Portal</i> .	 Commence following completion of FS including MFEP updates.	H	\$25

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	Program Actions, Priority and Indicative Cost (subject to funding)				
Study/Area Description	Program Action/ Status	Program Action Description	Status/Comment	Priority	Cost (\$000)
	LUP	As part of five LGA-wide planning scheme amendment adopt the FS to inform flood overlay controls.	 Flood overlay controls coordinated by GB CMA.	H	\$100 (across five LGAs)
Granite Creeks Regional FS	<p>✓ This Regional FS (<i>Granite Creeks Flood Mapping (Water Technology, 2019)</i>) has been used to update the MFEP.</p> <p>»» Fact Sheets will be delivered by the 2023 Goulburn Broken Flood Intelligence Project using flood intelligence from the Regional FS.</p> <p>Note this Regional FS included the towns of “Longwood,” “Old Longwood,” and “Locksley” in the 2018 Strategy.</p>				
	LUP	As part of LGA-wide amendment adopt the Regional FS and consider Flood Data Transfer Project flood mapping , and any other relevant flood information.	 Current overlay controls do not warrant this Action.	L	\$30
Nagambie FS	<p>»» This FS (<i>Nagambie Flood Study – Final Report (BMT WBM, 2017)</i>) has informed LUP for new flood overlay and zone controls. The Department of Transport and Planning is coordinating a statewide pilot planning scheme amendment to deliver new and updates flood overlay and zone control.</p> <p>The 2023 Goulburn Broken Flood Intelligence Project will deliver updates to the MFEP and prepare a Local Flood Guide.</p>				
Strathbogie Scoping FS	<p>Carry out a Scoping FS to determine flood hazard that may inform LUP and MFEP.</p> <p>Estimate FS cost is \$60,000</p>				
	LUP	Update flood overlay controls in planning scheme.	✗	L	\$30
	MFEP	Update MFEP from flood intelligence from FS.	✗	L	\$30
Flood Hazard Assessment of Municipal Road Crossings	<p>This flood hazard assessment seeks to gain flood intelligence of road crossings over waterways across the municipality. This initiative is to improve road safety through Fact Sheets and MFEP.</p> <p>Estimated cost for this project is \$100,000.</p>				
	TFWS	Prepare Regional Fact Sheets.		M	\$50
	MFEP	Update MFEP.		M	\$50
Violet Town FS and FMP	<p>✓ This FS (<i>Violet Town Flood Study (Water Technology, 2007)</i> and <i>Violet Town Floodplain Management Plan (Water Technology, 2012)</i>) has informed a Local Flood Guide and the MFEP.</p> <p>»» Flood overlay and zone controls have been prepared. The Department of Transport and Planning is coordinating a statewide pilot planning scheme amendment to deliver new and updates flood overlay and zone control.</p>				
	MIT	The FMP informed a flood mitigation plan that has been designed but never implemented. Revisit the flood mitigation plan if the opportunity arises. Establish a community committee to guide the process.	✗	H	\$100
	TFWS	Review flood warning arrangement starting with recommendations from the 2012 FMP.	✗	H	\$50

4.10 Whole of Region

Table 22: Whole of Region Investment summary Renewal by Program and priority

	High	Medium	Low	Total
Mitigation	\$-	\$-	\$-	\$-
TFWS	\$135,000	\$-	\$-	\$135,000
Land-use Planning	\$-	\$-	\$-	\$-
MFEP	\$-	\$-	\$-	\$-
	\$135,000	\$-	\$-	\$135,000

Table 23 Whole of Region Program Action-Investment Renewal Plan

Proposed Actions, Priorities and Indicative Costs (subject to funding)					
Program Action/Status	Lead	Partners	Priority	Program	Cost
Goulburn Broken Strategic Levee Categorisation Project 2023-2024 (new). >>> Funded as part of post flood initiatives by DEECA	GB CMA	LGAs	H	MFEP	DEECA
Update Goulburn Broken CMA flood information online to assist with decision making process for land-use planning proposals. Comment 2023 Reports for all completed studies are being uploaded onto the CMA website. Adopted >>> floodplain policy and guidelines now available online, and a “Self-Assessment Page” provides land-use planning guidance in relation to floodplain management.	GB CMA		High	LUP	GB CMA
Prepare regional Development Floodplain Management Principles and Assessment Practices for Land-use and Development. Comment 2023 Model Local Floodplain Development Plan has been drafted and subject to external review >>> (planning and legal). Development Guideline in Flood Affected Areas (DELWP, 2019) completed in 2019.	GB CMA	All LGAs, DEECA	Medium	LUP	GB CMA
Investigate options to improve community access to website flood risk information to allow communities (and business) to better plan, prepare and respond to major floods. Comment 2023 >>> The Goulburn Broken CMA is working with its partners to continually improve the <i>Goulburn Broken Community Flood Intelligence Portal</i> .	GB CMA	VICSES, all LGAs	High	TFWS	GBCMA and LGAs
Update and maintain flood intelligence in line with State-wide protocols.	GB CMA	DEECA	High	TFWS	GB CMA

Proposed Actions, Priorities and Indicative Costs (subject to funding)					
Program Action/Status	Lead	Partners	Priority	Program	Cost
Comment 2023 In accordance with the state's Spatial Data Specification. »					
Investigation options to improve flood intelligence gathering during and after major floods. Comment 2023 » During the 2022 floods saw expected efforts to capture flood data.	GB CMA	VICSES, all LGA	Medium	All	GB CMA
Develop community flood education and awareness products/programs relating to flood risk for high priority areas, to build and maintain community resilience. Examples may include individual flood awareness property charts, pre-recorded flood education videos, interactive interpretational products such as animations of flood behaviour, community signs, gauge boards and local flood guides or other initiatives as identified. Comment 2023 » Local Flood Guides and <i>Goulburn Broken Community Intelligence Portal</i> is an on-going task to advance this action.	VICSES	VICSES, all LGAs, DEECA	High	TFWS	\$65,000
State Community Observers Network Website enabling the community to provide local knowledge during a flood event using smartphones to collect flood data via an app. Photos can be instantly uploaded to the web page, viewed and shared between agencies and the community. A source of valuable information where there are gaps in telemetered stream data. Comment 2023 » VICSES has advanced this action.	VICSES	DEECA, all CMAs	High	TFWS	VICSES
Update MFEPs to incorporate school bus runs impacted by flooding where flood mapping is available. Determine approaches to manage changes to school bus routes. Comment 2023 ✕ VICSES is the lead in partnership with local government and Goulburn Broken CMA.	VICSES	Dept. of Education, GB CMA, all LGAs	Medium	MFEP	VICSES
» Undertake exercising of MFEPs	VICSES	CMA, all LGAs	High	MFEP	VICSES
Investigate methods to recognise Aboriginal values before any new proposed floodplain management works, and flood activities, which may include but is not limited to risks to cultural assets after floods, and notification of flood events to relevant Traditional Owner corporations (e.g. MFEPs could include information regarding these risks, including notifying the relevant RAP). Comment 2023 ✕ There are legislated requirements to protect culture heritage for works.	VICSES	All LGAs, GB CMA	Medium	MFEP	VICSES
PAL location Review (new)	GB CMA	All LGAs, VICSES	Medium	MFEP	GB CMA



Part C: Stocktake of the 2018 Strategy



5.1 Benalla Rural City Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	0	0	1	1
Total Flood Warning System (TFWS)	1	2	4	7
Land-use Planning (LUP)	5	5	0	10
Municipal Flood Emergency Plan (MFEP)	3	4	2	9
Total	9	11	7	27

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	1	0	0	1
Total Flood Warning System (TFWS)	0	7	0	7
Land-use Planning (LUP)	8	2	0	10
Municipal Flood Emergency Plan (MFEP)	2	7	0	9
Total	11	16	0	27

Status by Priority	Not yet started	In progress	Completed	Total
High	5	3	1	9
Medium	2	9	0	11
Low	2	5	0	7
Total	9	17	1	27

5.2 Benalla Rural City Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Baddaginnie	TFWS	Deliver a Local Flood Guide following the completion of the Granite Creeks Regional Flood Mapping Study.	Low	In Progress	Part of the 2023 <i>Goulburn Broken Flood Intelligence Project</i> .
	LUP	Introduce flood overlay controls following completion of the Granite Creeks Regional Flood Mapping Study (part of the LGA-wide planning scheme amendment).	High	Not a priority.	Flood mapping consider too broad to improve LUP.
	MFEP	Update MFEP using intelligence from Granite Creeks Regional Flood Mapping Study	High	In Progress	Part of the 2018 <i>Goulburn Broken Flood Intelligence Project</i> .

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Study/Area	Program	Description	Priority	Status	Comment
Benalla	Mitigation	Maintain the Benalla Water Management Scheme. Review decommissioned Mokoan Inlet embankments if they need to be maintained for Benalla flood protection.	Low	Part of the <i>Goulburn Broken Strategy Categorisation review in 2023-2024</i>	
	TFWS	Improve dissemination and communication, awareness and education (Local Flood Guide). Share site-specific property information using web portal.	High	Complete	Benalla flood mapping now included in the <i>Goulburn Broken Community Flood Intelligence Portal</i> .
	LUP	As part of LGA-wide amendment, prepare UFZ, FO and LSIO mapping based on the reference 1993 flood together with Cardno's modelling work of 2009.	High	Not yet started	
	MFEP	Review as part of the three-year cycle or following a major flood.	High	Business as usual	
Devenish	LUP	As part of LGA-wide amendment, prepare rudimentary mapping. In the longer term, utilise mapping if and when the Upper Broken Creek Regional Flood Study becomes available.	High	In progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
	MFEP	Utilise flood intelligence from the proposed Upper Broken Creek Regional Flood Study.	Medium	In Progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
Granite Creeks	TFWS	Deliver Fact Sheet for the Granite Creeks, following the completion of the Granite Creeks Regional Flood Study.	Low	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
	LUP	Revise flood overlay controls from the completed Granite Creeks Regional Flood Study, which include numerous towns	Medium	Not yet started	Flood mapping is broad and no advantage in updating current mapping.
	MFEP	Incorporate flood intelligence from Regional Flood Study.	Medium	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .

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Study/Area	Program	Description	Priority	Status	Comment
Lower Broken River	TFWS	Part of new Goulburn and Broken River Flood Study.	Low	In progress	Part of the <i>2023 Goulburn and Broken Rivers Flood Study</i> .
	LUP	Introduce and revised flood overlay control from Goulburn and Broken Rivers Flood Study.	High	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study.	High	In progress	Part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Tatong	LUP	As part of LGA-wide amendment adopt the FDTP flood mapping, and seek any new information.	Medium	Not yet started	Part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Subject to identification any flood risk, update MFEP.	Low	Not yet started	Part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Thoona	LUP	Prepare rudimentary mapping. In the longer term, utilise mapping if and when the Boosey and Upper Broken Creek Regional Flood Study becomes available.	Medium	In Progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
	MFEP	Subject to identification of any flood risk, update MFEP.	Low	In Progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
Upper Broken Creek	TFWS	Undertake a Regional Flood Study covering numerous Towns	Medium	In Progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
	LUP	Introduce and revised flood overlay controls from Regional Study	Medium	Not yet started	Requires completion of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study	Medium	In Progress	Included as part of the <i>Boosey and Upper Broken Creeks Flood Study</i> .
Upper Broken River	TFWS	Part of new Goulburn and Broken River Regional Flood Study	Medium	In progress	Part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	LUP	Introduce and revised flood overlay control from Goulburn and Broken Rivers Flood Study	High	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study	Medium	In progress	Part of the <i>Goulburn and Broken Rivers Flood Study</i> .

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Study/Area	Program	Description	Priority	Status	Comment
Winton	TFWS	Prepare a Local Flood Guide	Low	In progress	Part of <i>Winton Flood Scoping Study</i> .
	LUP	A scoping flood is required to inform rudimentary mapping.	Medium	In progress	Part of <i>Winton Flood Scoping Study</i> .

6.1 Campaspe Shire Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	0	0	1	1
Total Flood Warning System (TFWS)	0	1	0	1
Land-use Planning (LUP)	1	0	1	2
Municipal Flood Emergency Plan (MFEP)	0	2	1	3
Total	1	3	3	7

Status by Action type	Not yet started	In progress	Completed	Total
Mitigation	1	0	0	1
Total Flood Warning System (TFWS)	0	1	0	1
Land-use Planning (LUP)	1	0	1	2
Municipal Flood Emergency Plan (MFEP)	0	3	0	3
Total	2	4	1	7

Status by Priority	Not yet started	In progress	Completed	Total
High	0	0	1	1
Medium	0	3	0	3
Low	2	1	0	3
Total	2	4	1	7

6.2 Campaspe Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Colbinabbin	TFWS	Goulburn-Murray Water continue to host information about Waranga Western Channel operations.	Medium	In progress	
	MFEP	Link G-MW material to MFEP.	Medium	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
Kyabram	Mitigation	See land-use planning.	Low	Not yet started	
	LUP	Carry out a new flood study to review the current mitigation scheme and to improve flood intelligence and mapping.	High	Completed	Kyabram Flood Study Completed.

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Study/Area	Program	Description	Priority	Status	Comment
	MFEP	See land-use planning.	Medium	In progress	Part of the <i>2018 Goulburn Broken Flood Intelligence Project</i> .
Lower Goulburn	Mitigation	1. Re-evaluate options on an opportunistic basis 2. Investigate impact on Cultural Heritage Values i	Low	Not yet started	Might be an opportunity to explore this again post flood and under renewed focuses.
	LUP	Revise flood overlay controls from the completed Lower Goulburn Floodplain Rehabilitation Scheme Study.	Low	Not yet started	
	MFEP	Incorporate flood intelligence from Scheme Study.	Low	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .

7.1 Greater Shepparton City Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	0	5	0	5
Total Flood Warning System (TFWS)	3	0	6	8
Land-use Planning (LUP)	6	2	1	9
Municipal Flood Emergency Plan (MFEP)	3	2	3	8
Total	12	9	9	30

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	4	1	0	5
Total Flood Warning System (TFWS)	3	1	4	8
Land-use Planning (LUP)	1	8	0	9
Municipal Flood Emergency Plan (MFEP)	1	3	4	8
Total	9	13	8	30

Status by Priority	Not yet started	In progress	Completed	Total
High	1	8	3	12
Medium	4	5	0	9
Low	3	1	5	9
Total	8	14	8	30

7.2 Greater Shepparton City Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Broken Creek Tributaries	TFWS	Improve education and awareness, interpretation, dissemination and communication	Low	Not yet started	
	MFEP	Incorporate any flood intelligence from TWFS	Low	Completed	Greater Shepparton MFEP has been updated.
Bunbartha	LUP	See Lower Goulburn Regional Flood Study	-	-	
Karramomus	TFWS	Part of Granite Creeks Regional Flood Study	-	New Not yet started	The action was added post 2018 Strategy and now moved into <i>Granite Creek Regional Flood Study</i> .
	LUP		-	New Completed	
	MFEP		-	New Not yet started	

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Study/Area	Program	Description	Priority	Status	Comment
Katandra West	LUP	Carry out rudimentary flood mapping	High	In progress	Now complete at time of this Mid-term review.
Goulburn River – Seymour to Shepparton	TFWS	Prepare a Fact Sheet for the Goulburn and Broken Rivers, following the completion of the Goulburn and Broken Rivers Flood Study.	High	Not yet started	Cannot commence until the <i>Goulburn and Broken Rivers Flood Study</i> is complete.
	LUP	Revised flood overlay controls from Goulburn and Broken Rivers Flood Study	Medium	In progress	Draft planning scheme overlays will be prepared as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study	Medium	In progress	Update to the MFEP will be undertaken as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Lower Broken River	TFWS	Part of new Goulburn and Broken River Regional Flood Study	Low	Not yet started	
	LUP	Revised flood overlay controls from Goulburn and Broken Rivers Flood Study.	High	In progress	Draft planning scheme overlays will be prepared as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study	High	In progress	Update to the MFEP will be undertaken as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Lower Goulburn	Mitigation	1. Re-evaluate options on an opportunistic basis 2. Investigate impact on Cultural Heritage Values	Medium	Not yet started	
	LUP	Revise flood overlay controls from the completed Lower Goulburn Floodplain Rehabilitation Scheme Study.	Low	Not yet started	
	MFEP	Incorporate flood intelligence from Scheme Study.	Low	In progress	Part of the <i>Goulburn Broken Flood Intelligence Project</i> .
Merrigum	TFWS	Proposed education and awareness material such a Local Flood Guide	Low	Completed	Greater Shepparton MFEP has been updated.
	MFEP	Review MFEP	Low	Completed	Included as part of the <i>2023 Goulburn Broken Community Flood Intelligence Portal</i> .

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Study/Area	Program	Description	Priority	Status	Comment
Murchison	Mitigation	Investigate bringing existing levees under maintenance arrangements.	Medium	Not yet started	This action is part of a project which has been funded and planned to be delivered as part of the <i>Goulburn Broken Strategic Levee Categorisation Project</i> in 2023-2024.
	TFWS	Update Local Flood Guide using Murchison Flood Study	Low	Completed	Local Flood Guide has been developed and included as part of the <i>Goulburn Broken Community Flood Intelligence Portal</i> .
	LUP	Update planning scheme with new flood mapping from the Murchison Flood Study. Do as part of Goulburn and Broken Rivers Flood Study.	High	In progress	Part of the proposed Group Amendment being led by Greater Shepparton City Council under a statewide pilot coordinated by the DTP.
Shepparton East	TFWS	Prepare a Local Flood Guide for Area	High	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
	LUP	Update planning scheme with new flood mapping from the Shepparton East Overland Flood Study. Do this together with Shepparton/Mooroopna.	High	In progress	Part of the proposed Group Amendment being led by Greater Shepparton City Council under a statewide pilot coordinated by the DTP.
	MFEP	Update intelligence from Shepparton East Overland Flood Study	High	Completed	Greater Shepparton MFEP has been updated.
Shepparton and Mooroopna	Mitigation	Investigate bringing existing levees under maintenance arrangements.	Medium	Not yet started	This action is part of a project which has been funded as part of <i>Goulburn Broken Strategic Levee Categorisation Project</i> in 2023-2024.
	TFWS	Improve education and awareness, access to shared flood intelligence (property specific data), and improve communication and dissemination.	High	Completed	Flood Intelligence included as part of the <i>Goulburn Broken Community Flood Intelligence Portal</i> .
	LUP	Update planning scheme with new flood mapping from the Shepparton Mooroopna Flood Intelligence and Mapping Study.	High	In progress	Part of the proposed Group Amendment being led by Greater Shepparton City Council under a statewide pilot coordinated by the DTP.

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Study/Area	Program	Description	Priority	Status	Comment
	MFEP	Update MFEP with intelligence from the Shepparton Mooroopna Flood Intelligence and Mapping study.	High	Completed	Greater Shepparton MFEP has been updated.
Surplus Irrigation Channels	Mitigation	Investigate bringing existing levees under maintenance arrangements.	Medium	Not yet started	This action is part of a project which has been funded as part <i>Goulburn Broken Strategic Levee Categorisation Project</i> in 2023-2024.
Tallygaroopna	Mitigation	Carry out a flood study to determine viable flood mitigation solutions.	Medium	In progress	The <i>Tallygaroopna Flood Scoping Study</i> has commenced.
	LUP	Update following completion of a Flood Study. In the short term carry out broad brush mapping.	High	In progress	The <i>Tallygaroopna Flood Scoping Study</i> has commenced.
Tatura	TFWS	Propose education and awareness material such a Local Flood Guide	Low	Completed	Flood Intelligence included as part of the <i>Goulburn Broken Community Flood Intelligence Portal</i> .
Toolamba	LUP	Revised flood overlays following completion of the Goulburn and Broken Rivers Flood Study	Medium	In progress	Draft planning scheme overlays will be prepared as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Update flood intelligence following completion of the Goulburn and Broken Rivers Flood Study	Medium	Not yet started	Update to the MFEP will be undertaken as part of the <i>Goulburn and Broken Rivers Flood Study</i> .

8.1 Mansfield Shire - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	0	0	0	0
Total Flood Warning System (TFWS)	0	0	1	1
Land-use Planning (LUP)	0	0	6	6
Municipal Flood Emergency Plan (MFEP)	0	1	5	6
Total	0	1	12	13

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	0	0	0	0
Total Flood Warning System (TFWS)	1	0	0	1
Land-use Planning (LUP)	5	1	0	6
MFEP	2	0	0	6
Total	10	3	0	13

Status by Priority	Not yet started	In progress	Completed	Total
High	0	0	0	0
Medium	0	1	0	1
Low	10	2	0	12
Total	10	3	0	13

8.2 Mansfield Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Delatite River	LUP	Hydrology completed. Carry out a Regional Flood Mapping Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.
	MFEP	Incorporate flood intelligence from Regional Flood mapping Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.
Ford Creek	LUP	Carry out regional flood study (include Mansfield)	Low	In progress	<i>Mansfield Flood Study</i> to commence in 2023 to include greater coverage and inflow tributaries.
	MFEP	Incorporate flood intelligence from Regional Flood Study	Low	In progress	<i>Mansfield Flood Study</i> to commence in 2023 to include greater coverage and inflow tributaries.

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Study/Area	Program	Description	Priority	Status	Comment
Howqua River	LUP	Hydrology completed. Carry out a Regional Flood Mapping Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program or as a renewed priority by Mansfield Shire under other funding opportunities.
	MFEP	Incorporate flood intelligence from Regional Flood mapping Study	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program or as a renewed priority by Mansfield Shire under other funding opportunities.
Jamieson	TFWS	(Local Flood prepared and delivered). Update following Upper Goulburn and Jamieson Rivers Flood Mapping Study	Low	Not yet started	Goulburn Broken CMA in-house flood study well advanced.
	LUP	Introduce and revise flood overlay controls following the completion of the Upper Goulburn River Flood Mapping Project.	Low	Not yet started	Goulburn Broken CMA in-house flood study well advanced.
	MFEP	Provide intelligence following completion of Upper Goulburn River Flood Mapping Project.	Low	Not yet started	Goulburn Broken CMA in-house flood study well advanced.
Mansfield	LUP	Carry out an overland flood study. Seek LiDAR Capture.	Low	In progress	Mansfield Flood Study to commence in 2023.
	MFEP	Update flood intelligence from Mansfield Flood Mapping and Overlay Studies. Include targeted floor level survey.	Medium	In progress	Mansfield Flood Study to commence in 2023 or as a renewed priority by Mansfield Shire under other funding opportunities.
Upper Goulburn	LUP	Hydrology completed. Carry out a Regional Flood Mapping Study – include Jamieson.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program or as a renewed priority by Mansfield Shire under other funding opportunities.
	MFEP	Incorporate flood intelligence from Regional Flood mapping Study	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program or as a renewed priority by Mansfield Shire under other funding opportunities.

9.1 Mitchell Shire - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	1	0	1	2
Total Flood Warning System (TFWS)	2	2	3	7
Land-use Planning (LUP)	4	4	1	9
Municipal Flood Emergency Plan (MFEP)	4	4	1	9
Total	11	10	6	27

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	2	0	0	2
Total Flood Warning System (TFWS)	4	3	0	7
Land-use Planning (LUP)	2	7	0	9
Municipal Flood Emergency Plan (MFEP)	2	7	0	9
Total	10	17	0	27

Status by Priority	Not yet started	In progress	Completed	Total
High	4	7	0	11
Medium	1	9	0	10
Low	4	2	0	6
Total	9	18	0	27

9.2 Mitchell Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Broadford	TFWS	Improve interpretation of data based on completion of the Sunday and Dry Creeks Regional Flood Intelligence and Mapping Study. Prepare Local Flood Guide.	Medium	Not Yet Started	Will commence following the completion of the <i>Sunday Creek Catchment Flood Intelligence and Mapping Study</i> .
	LUP	Revise flood overlay controls following the completion of the Sunday and Dry Creeks Regional Flood Intelligence and Mapping Study.	High	In Progress	The <i>Sunday Creek Catchment Flood Intelligence and Mapping Study</i> is currently being undertaken.

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Study/Area	Program	Description	Priority	Status	Comment
	MFEP	Update flood intelligence following completion of the Sunday and Dry Creeks Regional Flood Intelligence and Mapping Study.	High	In Progress	The <i>Sunday Creek Catchment Flood Intelligence and Mapping Study</i> is currently being undertaken.
Dabyminga Creek	LUP	Carry out a Regional Flood Study covering three Towns (Reedy Creek, Tallarook, and Tyaak).	Low	In Progress	The <i>Dabyminga Creek Regional Flood Study</i> is currently being undertaken.
	MFEP	Incorporate flood intelligence from Regional Flood Study.	Low	Not Yet Started	Will commence following the completion of the <i>Dabyminga Creek Regional Flood Study</i> .
Goulburn - Seymour to Shepparton	TFWS	Prepare a Fact Sheet, following the completion of the Goulburn and Broken Rivers Flood Study.	Low	Not yet started	Cannot commence until the <i>Goulburn and Broken Rivers Flood Study</i> is complete.
	LUP	Revised flood overlay controls from Goulburn and Broken Rivers Flood Study.	Medium	In progress	Draft planning scheme overlays will be prepared as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study.	Medium	In progress	Update to the MFEP will be undertaken as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Kilmore	Mitigation	Utilise Flood modelling (Kilmore Flood Study) to determine overland mitigation options (e.g. retardation basins)	Low	Not yet started	
	TFWS	Prepare a Local Flood Guide.	Low	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
	LUP	Introduce flood overlay controls following the completion of the Kilmore Creek Flood Intelligence and Mapping Study.	High	In Progress	Part of a Group Amendment covering multiple Councils (being led by Greater Shepparton City Council) as part of the statewide pilot coordinated by DTP.
	MFEP	Update flood intelligence following completion of the Kilmore Creek Flood Intelligence and Mapping Study.	High	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
Kilmore East	LUP	See Sunday and Dry Creeks Regional Study	-		
	MFEP	See Sunday and Dry Creeks Regional Study	-		

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Study/Area	Program	Description	Priority	Status	Comment
Mid Goulburn	TFWS	Prepare a Fact Sheet, following the completion of the Goulburn and Broken Rivers Flood Study.	Low	Not yet started	Cannot commence until the <i>Goulburn and Broken Rivers Flood Study</i> is complete.
	LUP	Use data from Regional Goulburn and Broken Rivers Regional Flood Study	Medium	In progress	Draft planning scheme overlays will be prepared as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study	Medium	In progress	Update to the MFEP will be undertaken as part of the <i>Goulburn and Broken Rivers Flood Study</i> .
Pyalong	LUP	See Sunday and Dry Creeks Regional Study	-		
	MFEP	See Sunday and Dry Creeks Regional Study	-		
Reedy Creek	LUP	See Dabyminga Creek Regional Flood Study.	-		
	MFEP	See Dabyminga Creek Regional Flood Study.	-		
Seymour	Mitigation	Implementation of Town levee - ongoing	High		Mitchell Shire Council has resolved to cease the Seymour Town Levee Project. All actions related to the Seymour levee are no longer applicable.
	TFWS	Revise flood intelligence with levee in place – see MFEP. Prepare a new Local Flood Guide.	High		
	LUP	See MFEP. From post levee flood modelling revise zone & overlay controls.	High		
	MFEP	Revise flood intelligence with levee in place. Require post levee flood modelling.	High		
Sunday & Dry Creeks	TFWS	Complete Regional Study.	Medium		
	LUP	Complete Regional Study.	Medium		
	MFEP	Complete Regional Study.	Medium		

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Study/Area	Program	Description	Priority	Status	Comment
Tallarook	LUP	Revise flood overlay controls from the completed Tallarook Flood Mapping Investigation unless Dabyminga Creek Regional Flood Study is completed.	Medium		
	MFEP	Identify vulnerable buildings in the MFEP.	Medium		
Tyaak	LUP	See Dabyminga Creek Regional Flood Study.	-		
	MFEP	See Dabyminga Creek Regional Flood Study.	-		
Whiteheads Creek	TFWS	Improve education and awareness (e.g. Local Flood Guide). Look at warning systems for low culvert crossing.	High	In progress (Local Flood Guide)	Part of a Group Amendment covering multiple Councils (being led by Greater Shepparton City Council) as part of the statewide pilot coordinated by DTP.
	LUP	Revise flood zones and overlay controls following the completion of the Whiteheads Creek Flood Intelligence and Mapping Study.	High	In progress	Part of a Group Amendment covering multiple Councils (being led by Greater Shepparton City Council) as part of the statewide pilot coordinated by DTP.
	MFEP	Update flood intelligence following completion of the Whiteheads Creek Flood Intelligence and Mapping Study, including threats to Seymour Town Levee.	High	In progress	Part of the 2023 <i>Goulburn Broken Flood Intelligence Project</i> .

10.1 Moira Shire Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	5	1	1	7
Total Flood Warning System (TFWS)	3	4	1	8
Land-use Planning (LUP)	4	2	8	14
Municipal Flood Emergency Plan (MFEP)	3	6	6	15
Total	15	13	16	44

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	3	4	0	7
Total Flood Warning System (TFWS)	2	5	1	8
Land-use Planning (LUP)	11	3	0	14
Municipal Flood Emergency Plan (MFEP)	3	9	3	15
Total	19	21	4	44

Status by Priority	Not yet started	In progress	Completed	Total
High	5	8	2	15
Medium	6	7	0	13
Low	10	4	2	16
Total	21	19	4	44

10.2 Moira Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Barmah	Mitigation	Implement Barmah Township Flood Mitigation Functional Design (levees)	Low	Not yet started	
	TFWS	Prepare Local Flood Guide.	Medium	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
	MFEP	Review MFEP following 2016 Murray River flood.	Medium	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
Broken Creek Tribs	TFWS	Improve education and awareness, interpretation, dissemination and communication.	Low	Not yet started	
	MFEP	Incorporate any flood intelligence from TFWS.	Low	Not yet started	

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Study/Area	Program	Description	Priority	Status	Comment
Cobram	Mitigation	Carry out flood mitigation design and implement works to prevent flooding from the east. Functional design (Funded).	High	In progress	
	TFWS	Improve education and awareness, dissemination and communication. Prepare Local Flood Guide (NSWSES & VICSES).	Medium	In progress	Part of the 2023 <i>Goulburn Broken Flood Intelligence Project</i> .
	LUP	See Murray Regional Study.	-		
	MFEP	See Murray Regional Study.	-		
Katamatite	TFWS	(Local Flood Guide prepared and delivered)	-		
	LUP	Revise overlay controls when Upper Broken Creek Regional Flood Study becomes available.	Low	In progress	Requires completion of the <i>Boosey and Upper Broken Flood Study</i> .
	MFEP	Part of Upper Broken Creek Regional Flood Study when available.	Medium	In progress	Part of the <i>Boosey and Upper Broken Flood Study</i> .
Koonoomoo	LUP	See Murray River Regional Flood Study Cobram to Ulupna.	-		
Lake Rowan	LUP	See Regional Upper Broken Creek Flood Study.	-		
Lower Broken Creek	LUP	Revise flood overlay controls with data from the completed Nathalia and Numurkah Floodplain Management Plans.	Low	Not yet started	
	MFEP	Finalise flood intelligence from the completed Flood Studies.	Low	Complete	
Lower Goulburn	Mitigation	1. Re-evaluate options on an opportunistic basis 2. Investigate impact on Cultural Heritage Values ii	-	Not yet started	Opportunities may present following the 2022 flood event.

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Study/Area	Program	Description	Priority	Status	Comment
	LUP	Revise flood overlay controls from the completed Lower Goulburn Floodplain Rehabilitation Scheme Study.	Low	Not yet started	
	MFEP	Incorporate flood intelligence from Scheme Study.	Low	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
Mid Broken Creek	LUP	Revise flood overlay controls with data from the completed Numurkah Floodplain Management Plan.	Low	Not yet started	
	MFEP	Finalise flood intelligence from the completed Flood Study.	Low	Complete	
Muckatah Depression	LUP	Carry out a regional flood study.	Low	In progress	Partially covered by the Boosey and Upper Broken Creek Flood Study.
	MFEP	Part of regional flood study.	Low		
Murray - Barmah to Echuca	LUP	See Lower Goulburn	-		
	MFEP	See Lower Goulburn	-		
Murray - Cobram to Ulupna	Mitigation	See Cobram	-		
	TFWS	See Cobram	-		
	LUP	Revise flood overlay controls from the completed Murray River Regional Flood Study – Cobram to Ulupna.	High	Not yet started	
	MFEP	Incorporate flood intelligence from Regional Study – drafted.	Medium	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
Murray - Ulupna to Barmah	LUP	Carry out a regional flood study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program as part of the statewide pilot coordinated by DTP.
	MFEP	Incorporate flood intelligence from Regional Study.	Medium	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program as part of the statewide pilot coordinated by DTP.
Murray - Yarrawonga to Cobram East	LUP	Use amended minor anomalies for LGA-wide shire for revised flood overlay controls	Low		
	MFEP	Part of three-year review cycle	Low		

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Study/Area	Program	Description	Priority	Status	Comment
Nathalia	Mitigation	Maintain and renewal of town levees	High		
	TFWS	Revise Flood Class Level at Walshs Bridge and Nathalia	High		
Numurkah	Mitigation	Finalise Stage 1 flood mitigation functional design (Funded), Implement works (\$1M), and then Stage 2 design and works (\$15M).	High	In progress	
	TFWS	Implement new flood prediction service with Flood Class levels and augment rain and stream gauge network. Prepare a revised Local Flood Guide.	High	In progress	
	LUP	Revise zones and flood overlay controls following the completion of the Numurkah Floodplain Management Plan.	High	Not yet started	
	MFEP	Update flood intelligence following completion of the Numurkah Floodplain Management Plan.	High	Complete	
Strathmerton	LUP	See Murray River Regional Flood Study Cobram to Ulupna.	-		
Tungamah	Mitigation	Undertake a new floodplain management study as part of Upper Broken Creek Flood Study	High	In progress	Part of the <i>Boosey and Upper Broken Creek Flood Study</i> .
	TFWS		High	In progress	Part of the <i>Boosey and Upper Broken Creek Flood Study</i> .
	LUP		High	Not yet started	Requires completion of the <i>Boosey and Upper Broken Creek Flood Study</i> .
	MFEP		High	In progress	Part of the <i>Boosey and Upper Broken Creek Flood Study</i> .
Upper Broken Creek	TFWS	Undertake a Regional Flood Study covering numerous Towns.	Medium	In progress	Part of the <i>Boosey and Upper Broken Creek Flood Study</i> .
	LUP	Introduce and revised flood overlay controls from Regional Study.	Medium	Not yet started	Requires completion of the <i>Boosey and Upper Broken Creek Flood Study</i> .
	MFEP	Incorporate flood intelligence from Regional Flood Study.	Medium	In progress	Part of the <i>Boosey and Upper Broken Creek Flood Study</i> .

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Study/Area	Program	Description	Priority	Status	Comment
Waaia	LUP	Introduce significant drainage line data as a FO as part of LGA-wide amendment	Low		
Wilby	LUP	See Regional Upper Broken Creek Flood Study.	-		
Wunghnu	Mitigation	Carry out a new flood study.	Medium	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program as part of the statewide pilot coordinated by DTP.
	TFWS	Prepare a Local Flood Guide.	Medium		
	LUP	Part of new flood study.	Medium		
	MFEP	Update MFEP from study	Medium		
Yarrawonga	Mitigation	LGA to determine mitigation options.	High	Not yet started	
	LUP	Introduce flood overlay controls from the completed Yarrawonga Drainage Study.	High	Not yet started	
	MFEP	Update flood intelligence following completion of the Study.	High	In progress	Part of the 2023 <i>Goulburn Broken Flood Intelligence Project</i> .
Yarroweyah	LUP	See Murray River Regional Flood Study Cobram to Ulupna.	-		

11.1 Murrindindi Shire Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation	0	1	1	2
Total Flood Warning System (TFWS)	1	3	2	6
Land-use Planning (LUP)	4	3	2	9
Municipal Flood Emergency Plan (MFEP)	4	3	3	10
Total	9	10	8	27

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	1	1	0	2
Total Flood Warning System (TFWS)	3	1	2	6
Land-use Planning (LUP)	8	0	1	9
Municipal Flood Emergency Plan (MFEP)	4	2	4	10
Total	16	4	7	27

Status by Priority	Not yet started	In progress	Completed	Total
High	6	1	2	9
Medium	4	3	3	10
Low	5	1	2	8
Total	15	5	7	27

11.2 Murrindindi Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Acheron River	TFWS	See Buxton.	Low	Completed	Included as part of the <i>Acheron Valley Flood Study</i> .
	LUP	Complete hydrology and carry out flood mapping along the Acheron & Steavenson valleys.	High	Completed	
	MFEP	Incorporate flood intelligence from flood mapping study.	Low	Completed	
Alexandra	Mitigation	Undertake a combined overland and riverine flood management study. Require LiDAR and Survey.	Low	In progress	Part of the <i>Alexandra Flood Scoping Study</i> .
	TFWS	Prepare a Local Flood Guide.	Medium	Not yet started	
	LUP	Part of new study – see mitigation.	High	Not yet started	

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Study/Area	Program	Description	Priority	Status	Comment
	MFEP	Part of new study – see mitigation.	High	Not yet started	
Buxton	Mitigation	Part of Buxton Flood Study	Medium	Not yet started	
	TFWS	Improve flood intelligence, education and awareness, communication and dissemination (Local Flood Guide).	Medium	Complete	Included as part of the <i>Acheron Valley Flood Study</i> .
	LUP	Revise flood overlay controls when Buxton, Marysville and Taggerty Flood Studies are completed.	High	Not yet started	To be guided by the findings of the <i>Acheron Valley Flood Study</i> .
	MFEP	Import flood intelligence into MFEP when Buxton Flood Study is completed.	High	Complete	Included as part of the <i>Acheron Valley Flood Study</i> .
Flowerdale	LUP	See Upper King Parrot Creek Regional Study.	-		
Lower King Parrot Creek	LUP	Carry out a Regional Flood Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study.
	MFEP	Incorporate flood intelligence from Scheme Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study.
Marysville	LUP	Revise flood overlay controls when Buxton, Marysville & Taggerty Flood Studies are completed.	Medium	Not yet started	
	MFEP	Import flood intelligence into MFEP when Marysville Flood Study is completed.	Medium	Complete	Included as part of the <i>Acheron Valley Flood Study</i> .
Mid Goulburn	TFWS	Prepare a fact sheet similar to Local Flood Guide	High	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
	LUP	Revised flood overlay controls from Goulburn and Broken Rivers Flood Study.	Medium	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Flood Study.	Medium	In progress	Part of the <i>Goulburn and Broken River Flood Study</i> .
Strath Creek	LUP	See Lower King Parrot Creek Regional Flood Study.	-		

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Study/Area	Program	Description	Priority	Status	Comment
Taggerty	LUP	Revise flood overlay controls when Buxton, Marysville & Taggerty Flood Studies are completed.	Medium	Not yet started	
	MFEP	Import flood intelligence into MFEP when Taggerty Flood Study is completed.	Medium	Complete	Included as part of the <i>Acheron Valley Flood Study</i> .
Thornton	TFWS	Part of new Goulburn and Broken River Regional Flood Study	-	In progress	Part of the <i>Goulburn and Broken River Flood Study</i> .
	LUP	Introduce and revised flood overlay control from Goulburn and Broken Rivers Flood Study ii	-	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
Upper King Parrot Creek	LUP	Update flood overlay control from completed Flowerdale Study Intelligence and Mapping Study.	High	Not yet started	
	MFEP	Update MFEP	High	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
Yea	TFWS	A revised Local Flood Guide to be prepared consistent with new gauge. Review Flood Class Levels	Medium	In progress	
	MFEP	Update MFEP with addendum Yea Flood Study.	High	Not yet started	
Yea River	TFWS	Review Flood Class Levels at Devlins Bridge.	Low	Not yet started	
	LUP	Carry out a regional Flood Mapping Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.
	MFEP	Incorporate flood intelligence from Regional Study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.

12.1 Strathbogie Shire Council - Stocktake 2018 - 2023

Strategy Action by Program and priority	High	Medium	Low	Very low	Total
Mitigation	3	1	0		4
Total Flood Warning System (TFWS)	2	2	1		5
Land-use Planning (LUP)	4	2	2	1	9
Municipal Flood Emergency Plan (MFEP)	3	3	2	1	9
Total	12	8	5	2	27

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	3	1	0	4
Total Flood Warning System (TFWS)	1	2	2	5
Land-use Planning (LUP)	6	3	0	9
Municipal Flood Emergency Plan (MFEP)	4	4	1	9
Total	14	10	3	27

Status by Priority	Not yet started	In progress	Completed	Total
High	3	6	3	12
Medium	5	3	0	8
Low	4	1	0	5
Very low	2	0	0	2
Total	14	10	3	27

12.2 Strathbogie Shire Council - Action plan status as of 2023

Study/Area	Program	Description	Priority	Status	Comment
Avenel	Mitigation	Floodplain Management Plan required to determine flood mitigation options, flood intelligence and mapping.	Medium	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.
	TFWS		Medium	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.
	LUP		High	Not yet started	
	MFEP		Medium	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program.

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Study/Area	Program	Description	Priority	Status	Comment
Euroa	Mitigation	Augment Castle Creek levee in accordance with Euroa Flood Intelligence and Mapping Study and Urban Levee Audit. Continue maintenance of the Levee Scheme.	High	In progress	
	TFWS	Improve dissemination and communication, and education awareness (e.g. Local Flood Guide and property specific data on web based portal).	High	Complete	
	LUP	Revise zones and flood overlay controls with data from the completed Euroa Flood Intelligence and Mapping Study.	High	In progress	
	MFEP	Incorporate flood intelligence from the completed Euroa Flood Intelligence and Mapping Study.	High	Complete	
Goulburn – Seymour to Shepparton	LUP	Revised flood overlay controls from Goulburn and Broken Rivers Flood Study.	Medium	Not yet started	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
	MFEP	Incorporate flood intelligence from Flood Study.	Medium	In progress	Requires completion of the <i>Goulburn and Broken Rivers Flood Study</i> .
Granite Creeks	TFWS	Deliver Fact Sheet, following completion of the Granite Creeks Regional Flood Study	Low	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
	LUP	Revise flood overlay controls from the completed Granite Creeks Regional Flood Study, which include numerous towns.	Medium	Not yet started	No longer a priority given current flood overlay controls in planning scheme.
	MFEP	Incorporate flood intelligence from Regional Flood Study	Medium	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .
Graytown	LUP	Undertake a scoping study. May require survey.	Very low	Not yet started	Remove from Strategy.
	MFEP	Consider intelligence data from scoping study.	Very low	Not yet started	Remove from Strategy.
Locksley	LUP	See Granite Creeks Regional Area.	-		
Longwood	LUP	See Granite Creeks Regional Area.	-		

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Study/Area	Program	Description	Priority	Status	Comment
Mangalore	LUP	Undertake a scoping study. May require survey.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program (extension to the Avenel project).
	MFEP	Consider intelligence data from scoping study.	Low	Not yet started	Flagged as a possible project for DEECA's 5-year flood study program (extension to the Avenel project).
Nagambie	Mitigation	1. Provision of permanent electric pumps and rising main from Industrial Estate basin to former borrow pit 2. Removal of informal levee and redundant bridge approach ramp at Western end of the Old Chinaman's Bridge, and provide abutment protection	High	Not yet started	Remove from Strategy
	TFWS	Improve education awareness, prepare a Local Flood Guide.	Medium	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
	LUP	Revise zones and Introduce flood overlay controls with data from the completed Nagambie Flood Intelligence and Mapping Study.	High	In progress	
	MFEP	Incorporate flood intelligence from the completed Nagambie Flood Intelligence and Mapping Study.	High	In progress	Part of the 2023 Goulburn Broken Flood Intelligence Project.
Old Longwood	LUP	See Granite Creeks Regional Area.	-		
Strathbogie	LUP	Undertake a scoping study.	Low	Not yet started	
	MFEP	Consider intelligence data from scoping study.	Low	Not yet started	
Violet Town	Mitigation	1. Finalise the Violet Town Water Management Scheme and construct the proposed levee 2. Upgrade the Murray Street rural drain and provide localised bunding or floor raising of houses	High	Not yet started	

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Study/Area	Program	Description	Priority	Status	Comment
	TFWS	Improve dissemination and communication, and education awareness (e.g. Local Flood Guide and property specific data on web based portal.	High	Complete	
	LUP	Revise zones and flood overlay controls with data from the completed Violet Town Flood Study.	High	In progress	
	MFEP	Incorporate flood intelligence from the completed Violet Town Flood Study.	High	In progress	Part of the <i>2023 Goulburn Broken Flood Intelligence Project</i> .

13.1 Whole of Region - Stocktake 2018 -2023

Strategy Action by Program and priority	High	Medium	Low	Total
Mitigation				0
Total Flood Warning System (TFWS)	4			4
Land-use Planning (LUP)	1	1		2
Municipal Flood Emergency Plan (MFEP)	1	2		3
Cross program action (All)		1		1
Total	6	4	0	10

Status by Program	Not yet started	In progress	Completed	Total
Mitigation	0	0	0	0
Total Flood Warning System (TFWS)	1	3	0	4
Land-use Planning (LUP)	0	2	0	2
Municipal Flood Emergency Plan (MFEP)	2	1	0	3
Cross program action (All)	0	0	1	1
Total	3	6	1	10

Status by Priority	Not yet started	In progress	Completed	Total
High	2	4	0	6
Medium	2	2	0	4
Low	0	0	0	0
Total	4	6	0	10

13.2 Whole of Region - Action plan status as 2023

Study/Area	Program	Description	Priority	Status	Comment
Whole of region	LUP	Update Goulburn Broken CMA flood information online to assist with decision making process for land-use planning proposals.	High	In progress	Reports for all completed studies are being uploaded onto the CMA website
	LUP	Prepare regional Development Floodplain Management Principles and Assessment Practices for Land-use and Development.	Medium	In progress	Model Local Floodplain Development Plan have been drafted and subject to external review (planning and legal)
	TFWS	Investigate options to improve community access to website flood risk information to allow communities (and business)	High	In progress	CMA is working to improve the Goulburn Broken Community Flood Intelligence Portal

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Study/Area	Program	Description	Priority	Status	Comment
		to better plan, prepare and respond to major floods.			
	TFWS	Update and maintain flood intelligence in line with State-wide protocols.	High	Ongoing	In accordance with the state's Spatial Data Specification.
	All	Investigation options to improve flood intelligence gathering during and after major floods.	Medium	Ongoing	During the 2022 floods saw expected efforts to capture flood data.
	TFWS	Develop community flood education and awareness products/programs relating to flood risk for high priority areas, to build and maintain community resilience. Examples may include individual flood awareness property charts, pre-recorded flood education videos, interactive interpretational products such as animations of flood behaviour, community signs, gauge boards and local flood guides or other initiatives as identified.	High	In Progress	Local Flood Guides and Goulburn Broken Community Information Portal is an on-going task advance this action.
	TFWS	State Community Observers Network Website enabling the community to provide local knowledge during a flood event using smartphones to collect flood data via an app. Photos can be instantly uploaded to the web page, viewed and shared between agencies and the community. A source of valuable information where there are gaps in telemetered stream data.	High	In Progress	VICSES has advance this action.
	MFEP	Update MFEPs to incorporate school bus runs impacted by flooding where flood mapping is available. Determine approaches to manage changes to school bus routes.	Medium	Not yet started	VICSES is the lead in partnership with local government and Goulburn Broken CMA.
	MFEP	Undertake exercising of MFEPs	High	Ongoing	VICSES
	MFEP	Investigate methods to recognise Aboriginal values before any new proposed floodplain management works, and flood activities, which may include but is not limited to risks to cultural	Medium	Not yet started	There are legislated requirements to protect culture heritage for works. MFEP not yet considered.

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Study/Area	Program	Description	Priority	Status	Comment
		assets after floods, and notification of flood events to relevant Traditional Owner corporations (e.g. MFEPs could include information regarding these risks, including notifying the relevant RAP).			