

Glenelg Hopkins



CMA

Regional Floodplain Management Strategy
Mid-term Implementation Report

Progress Update and Review

2018-2023



Nigretta Falls, April 2016

We proudly acknowledge Traditional Owners and their rich cultural diversity and intrinsic continuing connection to country. We pay our respects to Elders past, present and emerging. We also recognise and acknowledge the contribution, interests and rights that Traditional Owners and Aboriginal communities and organisation have in land and water management. We value our partnerships with them, for the health of people and Country.

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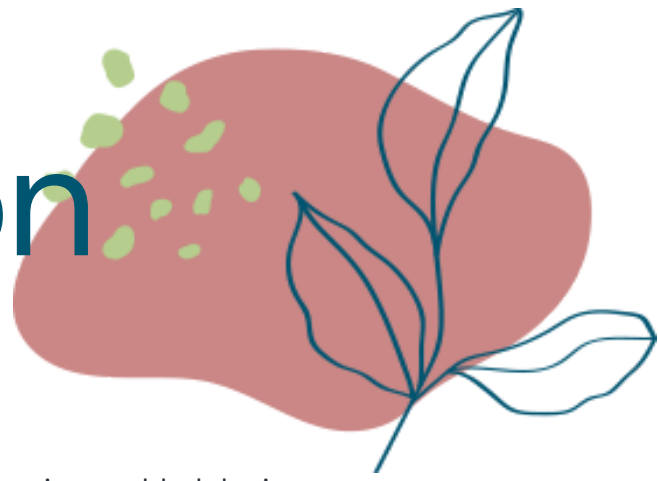
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Introduction



The Regional Floodplain Management Strategy (RFMS) for the Glenelg Hopkins region was released in December 2017. It was developed in consultation with delivery partners including Local Government Authorities (LGA) and other stakeholders to establish achievable floodplain management investment goals for the ten-year period spanning 2018–2028.

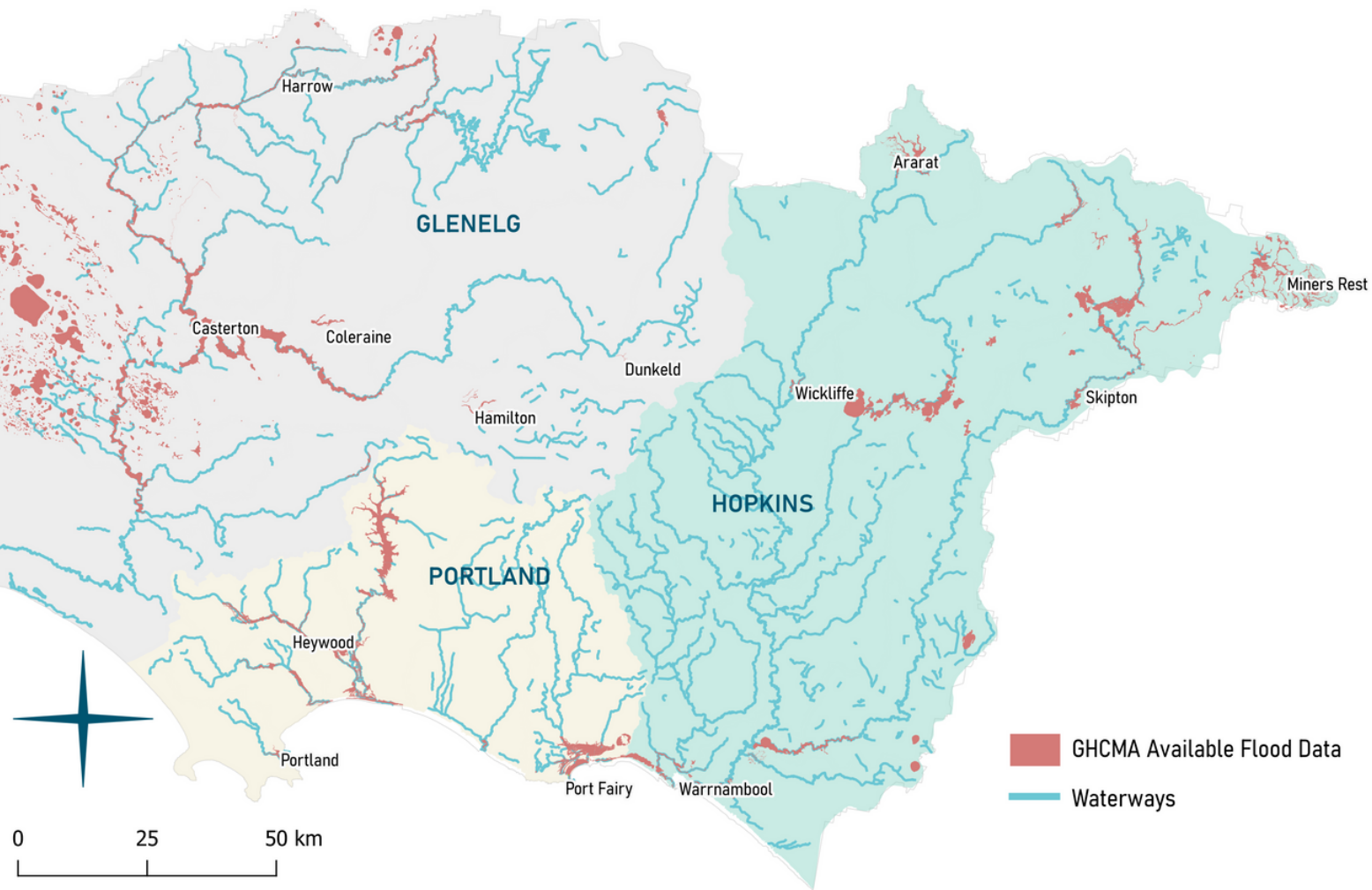
The RFMS expands on the direction set by the 2016 Victorian Floodplain Management Strategy (VFMS). The VFMS provides the foundation for continuous improvement in the delivery of best practice cost effective floodplain management outcomes across the state. The RFMS translates the objectives, policies, and actions of the VFMS into regional actions.

Collaboration enabled the investment priorities to be identified and committed to by the region's key floodplain management stakeholders. Stakeholders have each committed to leading the implementation of actions relevant to the risks identified in their geographical areas of responsibility and according to their respective roles in floodplain management.

We are now 5 years into the implementation of the 10-year RFMS. This midterm implementation summary shows how the strategy rollout is tracking. The summary highlights the major achievements of the last 5 years and the challenges that lie ahead. It also provides a snapshot of new and emerging priorities and how lead agencies can be better supported to deliver constant improvement in floodplain management across the region.

A comprehensive summary of progress toward implementation of each RFMS action is provided on page 17.





The Glenelg Hopkins Region is in the southwest corner of Victoria. Major river catchments include the Glenelg and Hopkins River basins, the Portland Coast Basin and their respective subcatchments. The Grampians mountain range, complex volcanic landscape, extensive wetland systems and 220 kms of rugged coastline are iconic natural features of the region. The regions inland floodplains are characterised by relatively rapid response to large rainfall events. Flash flood risk management is therefore a significant focus for many of the region’s cities and townships.

Major rivers include the Glenelg, Hopkins, Moyne, Merri, Fitzroy and Wannon rivers and the Mount Emu, Darlots and Fiery Creeks. The region is also characterised by significant coastal floodplain areas. These are primarily associated with the Glenelg River, Fawthrop Lagoon, Surry River, Fitzroy River, Moyne River, Merri River and Hopkins River estuaries.

The regions inland floodplains are relatively confined in comparison to other parts of Victoria. This means damaging floods are relatively short and sharp events in comparison to other parts of the state where flooding can last for weeks. The short/sharp nature of flooding in the region adds challenge in designing and implementing fit-for-purpose flood alerting/warning systems and flood response plans. The majority of the region’s streamflow gauges are still in their infancy with 80 years or less of record. Regional estimation methods have therefore been necessary to



estimate design flood flows for a number of the region's flood investigations. Improvements in stream and rainfall gauging have been implemented over the last 5 years but more are required to both improve the foundation for flood risk modelling and flood alerting and warning capabilities.

In the 2019/20 financial year, the region topped the nation in terms of the gross value of agricultural production with \$2.8 billion worth of production. Significant progress has been made across the region in terms of mapping flood risk for towns and cities via investment in comprehensive flood investigations. Joining the dots between these city/township flood investigations with regional flood investigations is an emerging regional priority. These investigations will enable development of comprehensive flood intelligence information that will be used to directly assist farmers to reduce flood impacts on their operations and also to assist the SES and Local Government to direct flood response resources more effectively.

Glanelg River: longest in the South West

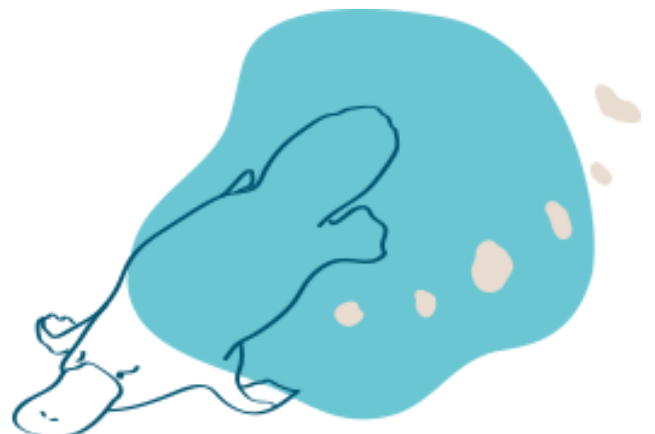
500km





Storm tide - Ocean Drive, Port Fairy, June 2014

The impact of climate change on the frequency of damaging floods has become increasingly evident across the region. Whilst climate change induced increase in frequency of intense rainfall is relevant irrespective of location, the effect of rising sea level is a major issue for the region's coastal floodplains. Coastal floodplains include those associated with the regions estuaries and those that are not associated with estuaries. The degree of flood risk associated with estuary floodplains is influenced by the magnitude of both river and storm tide floods and the interaction of both of these flooding mechanisms. There are also coastal floodplains in the region that are simply low-lying areas where ocean storm tides can run up over the shoreline and cause flooding. The Port Fairy West floodplain is an example of such an area. Comprehensive understanding of the differences between these mechanisms and the relative risks they pose to development in these areas is needed if investment in floodplain management improvement is to be successful in these areas. A key initiative delivered by Glenelg Hopkins CMA has been the development of a comprehensive Guideline for Modelling the Interaction Between Catchment and Coastal Flooding.



Strategy implementation

The RFMS and its priority actions were developed in consultation with the Glenelg Hopkins community and delivery partners including Local Government Agencies, VICSES, Traditional Owners, and other relevant agencies. Priority actions were created through collaboration and commitment from the lead agency that the actions would be completed throughout the life of the strategy.

The CMA will be establishing a RFMS implementation committee comprising of CMA and Local Government staff to keep track of the progress of actions. The implementation committee will be held biannually to discuss the existing progress of actions, assistance required to deliver actions, or to discuss any new actions that may have been identified since the inception of the RFMS. In most cases, the collaboration between the lead agencies and Glenelg Hopkins CMA happens on a more organic level with frequent discussions on floodplain management issues.

The RFMS identified actions on short, medium and long timeframe for completion and the Glenelg Hopkins CMA regional workplan aligns with this. The 2017–2020 regional workplan included in the RFMS identified 25 actions which were considered to be short to medium term priorities where resources were available. Of those 25 actions, 16 are now complete and a further 9 are underway*. The 2020–2024 regional workplan incorporated priority actions which were not complete from the 2017–2020 workplan and other medium-term

priorities, into the updated workplan. Note that this work plan did not include any newly identified actions at the time of development, however further new actions have seen been identified for this action plan. Of the 24 actions in the 2020–2024 regional work plan, 13 are complete or ongoing, 6 are considered in progress, 4 are yet to commence and one is no longer considered a priority to the lead agency.

Funding

To date funding for the completion of actions has come from multiple avenues of State or Federal programs including the Risk and Resilience Grants Program, and the Preparing Australian Communities Grants. While every effort is made to encourage funding, applications are made when opportunities arise, with some lead agencies being limited by the eligibility criteria. For example, the Risk and Resilience Grants Program requires 1/3rd of the funding cost to be funded by the lead agencies. This has not always been achievable, especially in the LGA's and has resulted in some actions being withheld.

**Some 'underway' actions are complete but have not had responses from all agencies due to staff changes.*





80%

Actions
complete

15,000ha

Regional Floodplains
mapped

RFMS

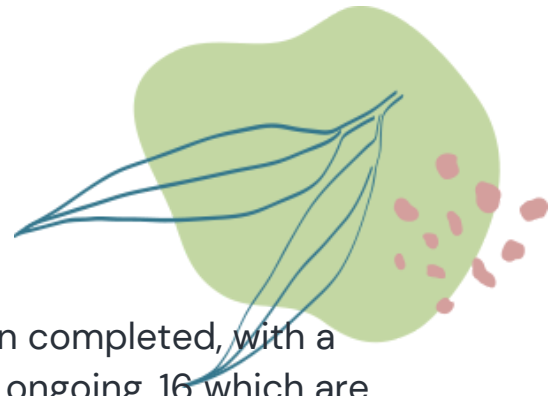
progress

How are we tracking?

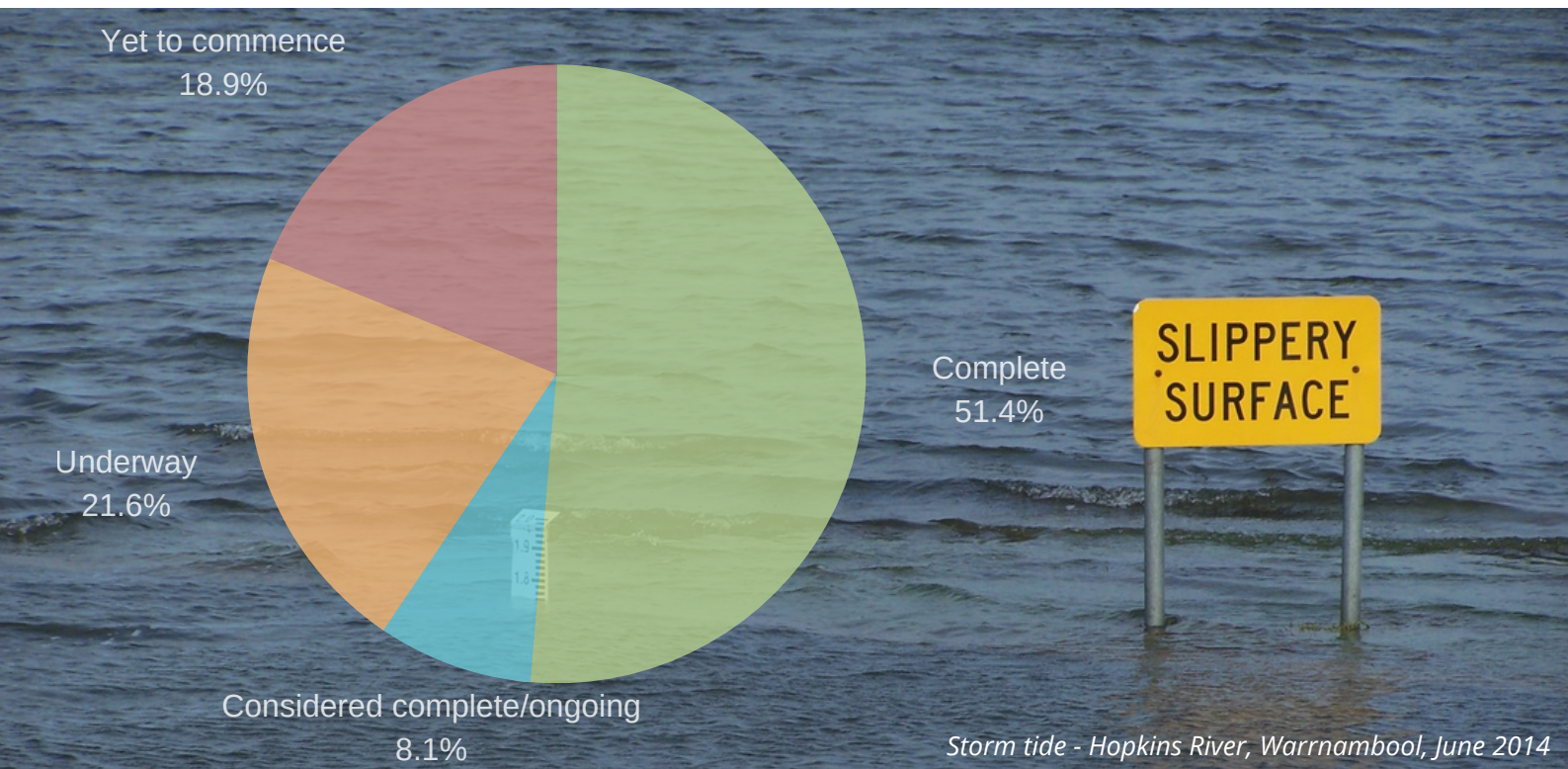
The RFMS identified 74 actions that were considered a priority for investment over the 2018–2028 period within the Glenelg Hopkins region. These 74 actions were split across the following categories:

| Action Category | Total Priority Actions | % Complete or Underway |
|--|------------------------|------------------------|
| Flood Studies/Mapping Projects | 13 | 85% |
| Planning Scheme Updates | 8 | 100% |
| Flood Warning Systems Upgrades | 14 | 60% |
| Emergency Management | 7 | 85% |
| Flood Mitigation Works | 10 | 70% |
| Sharing Flood Information | 9 | 90% |
| Other (eg. Coastal flooding, dam safety, urban stormwater) | 13 | 85% |
| Total Actions | 74 | 80% |

Our actions



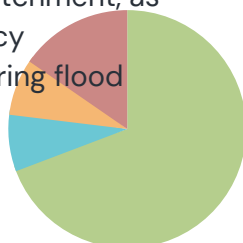
Of the 74 identified actions 38 actions have been completed, with a further 6 being considered to be completed but ongoing, 16 which are underway, and only 14 of the actions not started. Of those 14 not started, 5 are now no longer considered to be priority actions, however there are additional actions that have been identified. See page 17.



Storm tide - Hopkins River, Warrnambool, June 2014

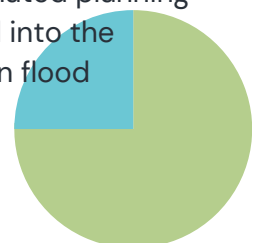
Flood Studies/Mapping Projects

Flood studies and their mapping are integral to floodplain management to identify locations that may be at risk from a varying magnitude of flood events. Knowledge of where floodwaters may impact informs planning and development within the catchment, as well as informing emergency management practices during flood events.



Planning Scheme Updates

One of the most effective mitigation measures for floodplain management is to ensure that development is not unnecessarily placed within the 1% AEP floodplain, and the development that is, is compliant with flood behaviour and designed to minimise impacts. This is achieved through flood related planning controls being introduced into the planning scheme based on flood intelligence.



Flood Warning System Upgrades

Flood Warning Systems help provide a heads up to communities which have a known flood risk before a flood occurs. While ideally there would be a Total Flood Warning System for all at risk communities, this is only achievable through the collection of flood data. The focus of actions under this category is to improve structures and systems where they already exist, or to introduce gauges or flood warning systems in areas that would benefit from them.



Emergency Management

Ensuring that emergency management agencies have access to the right information in a clear and concise is highly important during flood events. This category focuses ensuring emergency plans have the most up to date flood intelligence which includes information such as properties affected and road closures, and how we can better improve emergency management outcomes.



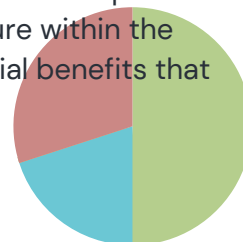
Sharing Flood Information

It is integral that the community is kept informed of, and understand, their flood risk. This category focuses on community education as well as how information can be disseminated during flood events.



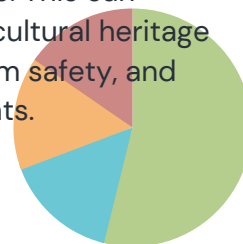
Flood Mitigation Works

Unfortunately, flooding does not always occur where we would like it to. Flood mitigation works investigate the options of changes to infrastructure within the floodplain and the potential benefits that may occur as a result.



Other (eg. Coastal flooding, dam safety, urban stormwater)

This is a catch all category for all other floodplain management considerations that may not fit elsewhere. This can include consideration of cultural heritage sites, coastal flooding, dam safety, and management arrangements.



Since the release of the RFMS in late 2017, the Glenelg Hopkins region has experienced significant flood events, particularly in the Hopkins catchment, which have resulted in shifting priorities across the region. While ideally, floodplain management is a proactive measure, flood events provide us with more information on flood behaviour and characteristics, increasing our knowledge of where flood issues occur and where further flood intelligence or mitigation measures may be required.

These flood events have also resulted in a shift in priority actions, either through new actions that have been identified as a priority, or others that were previously considered a priority now no longer having the same level of importance.

There has also been a change in the priority of actions resulting from the changeover of responsible staff with delivery partners. Staff changeover has been a common theme throughout the life of the strategy to date across several of our delivery partners; this has resulted in a loss of knowledge and / or appetite for actions, as well as delaying the process of actions which are in progress or funding for actions yet to commence.

Please see page 17 for a summary of these actions



Changes to Priority Actions

Additional successes

Modelling guidance for the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways

Glenelg Hopkins CMA was successful in receiving funding through DEECA's Climate Change Adaptation Program to determine tide gauge trigger levels for sea level rise adaptation pathways and subsequent guideline for modelling flood risk associated with Victoria's Coastal Waterways.

Prior to the development of these guidelines there was no consistent framework or policy on how the interaction of catchment flooding and oceanic inundation should be managed in flood investigations. This has been a significant piece of work by Glenelg Hopkins CMA which is now being used across the state.

The interaction of catchment flooding and coastal processes is an important consideration in determining overall flood risk in coastal waterways. The influence of these two factors on flooding varies with ocean level, due to both tidal fluctuations and storm impacts, the condition of the entrance interface between the coastal waterway and the ocean, distance from the ocean, and the size and shape of the waterway and catchment draining to the entrance.

Fitzroy Darlot Planning Scheme Amendment

Priority action 35 of the RFMS was to introduce planning controls for Heywood based on flood modelling from the Fitzroy Darlot Flood Investigation. In addition to Heywood, the entire area modelled as part of the regional flood investigation was incorporated which includes the broader floodplains of the Fitzroy River and Darlot Creek. The CMA assisted Glenelg Shire with preparation of maps, review of documents, responses to submissions and by attending the panel hearing in person. The CMA also provided a submission supporting the amendment.

5353.99ha

Fitzroy Darlot FI data incorporated into the planning scheme

Community education at Skipton market day

An extraordinarily successful Market Day at Skipton organised by the Corangamite Shire and attended by the CMA, SES, BoM and several other agencies resulted in significant engagement and interaction with this community on all matters to do with the floodplain. The successful launch for the Skipton flood warning system was also shared with the with community on this day and came into place a week later when Skipton encountered a minor flood event.

Case Study

The Success of Skipton

The Hopkins River and Mount Emu Creek were devastated with significant widespread flooding in January 2011. While many towns along the two waterways and their tributaries were impacted, the rural township of Skipton was one of the hardest hit.

The Skipton Flood Investigation was funded following the catastrophic event and was finalised in early 2013, producing detailed flood intelligence for the township for the first time. The flood investigation identified that the January 2011 event was in the order of a 1.5% Annual Exceedance Probability (AEP) event; which translates roughly to a flood event likely to occur on average once in a 70-year period. The Investigation produced flood mapping for a variety of flood magnitudes, assessed mitigation options and looked at the feasibility of potential flood warning options.

Following the completion of the Skipton Flood Investigation in 2013 Corangamite Shire Council successfully completed a Planning Scheme Amendment which introduced flood planning controls including a Local Floodplain Development Plan (LFDP) which helps guide allowable development within the designated flood planning controls.

The outputs of the investigation were translated into emergency documentation for flood response and community education. In a collaborative effort involving Corangamite Shire Council, the Victorian State Emergency Service and Glenelg Hopkins CMA, the Skipton local flood guide was developed and released to the community, and detailed flood intelligence was incorporated into the Municipal Flood Emergency Plan.

Despite the 2013 Skipton Flood Investigation concluding that there were no mitigation options identified that would protect Skipton from the impacts of significant floods such as the January 2011 event, Corangamite Shire Council was proactive in ensuring that works were completed to provide relief for any flood event, regardless of the size. The council undertook mitigation works in February 2016 and whilst does not address all the issues of flooding in the township, low flow events have significant benefit.

As part of the RFMS process further works were identified and have since been completed for the township of Skipton. This includes the completion of a community flood marker in the form of a mural on the Glenelg Highway bridge, and the stream gauge at Guthries Bridge upstream of Skipton now telemetered. Perhaps one of the most significant outcomes is that the Bureau of Meteorology are now issuing formal flood warnings for the catchment based on these upgrades, rounding out a fully completed floodplain management cycle.

But Corangamite Shire Council haven't stopped there! They are now in the process of undertaking the Skipton Structure Plan which will consider land use zoning and identify options for encouraging movement out of the town centre to make the resilient township of Skipton more flood resilient.



Glenelg Highway Bridge, Skipton (courtesy ABC Western Victoria)

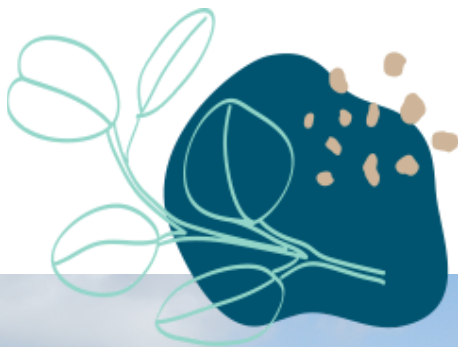
While significant progress has been made against the original actions, there have been several challenges that have either slowed or halted progress or resulted in actions no longer being considered a priority. Some of these challenges are unavoidable, however we are heading into the next half of the RFMS better equipped to handle these challenges.

Staff Changeover

Staff changeover with delivery partners has been a common theme throughout the 5 years of the strategy implementation, which has meant that progress has not always been linear. The high level of staff turnover has meant that we have lost contacts on projects and knowledge of the RFMS, as well as losing momentum. In some instances, a changeover in staff has also resulted in a change of perceived priority of actions, meaning that while there may have been a previous commitment to achieve the action throughout the life of the RFMS, these actions are no longer considered to be significant enough to chase investment opportunities.

Budgeting

The majority of the RFMS actions sit with Local Government as the lead agency, which can cause challenges at a budget forecasting level. Unfortunately, funding opportunities rarely align with Local Government budget processes, therefore a commitment for any given financial year can be difficult to obtain unless there is buy in across the Council.



Challenges



Progressing Policy

Throughout the life so far of the RFMS implementation, there have been several changes in relevant guidelines and policy applicable to floodplain management. In 2019, the revision of Australian Rainfall & Runoff was released which resulted in changes to best practice on how hydrology and hydraulics are determined and applied in flood modelling. While flood intelligence prior to the release of the revised guidelines is still considered the best available information, the revision required a shift in how flood investigations are carried out, since its release.

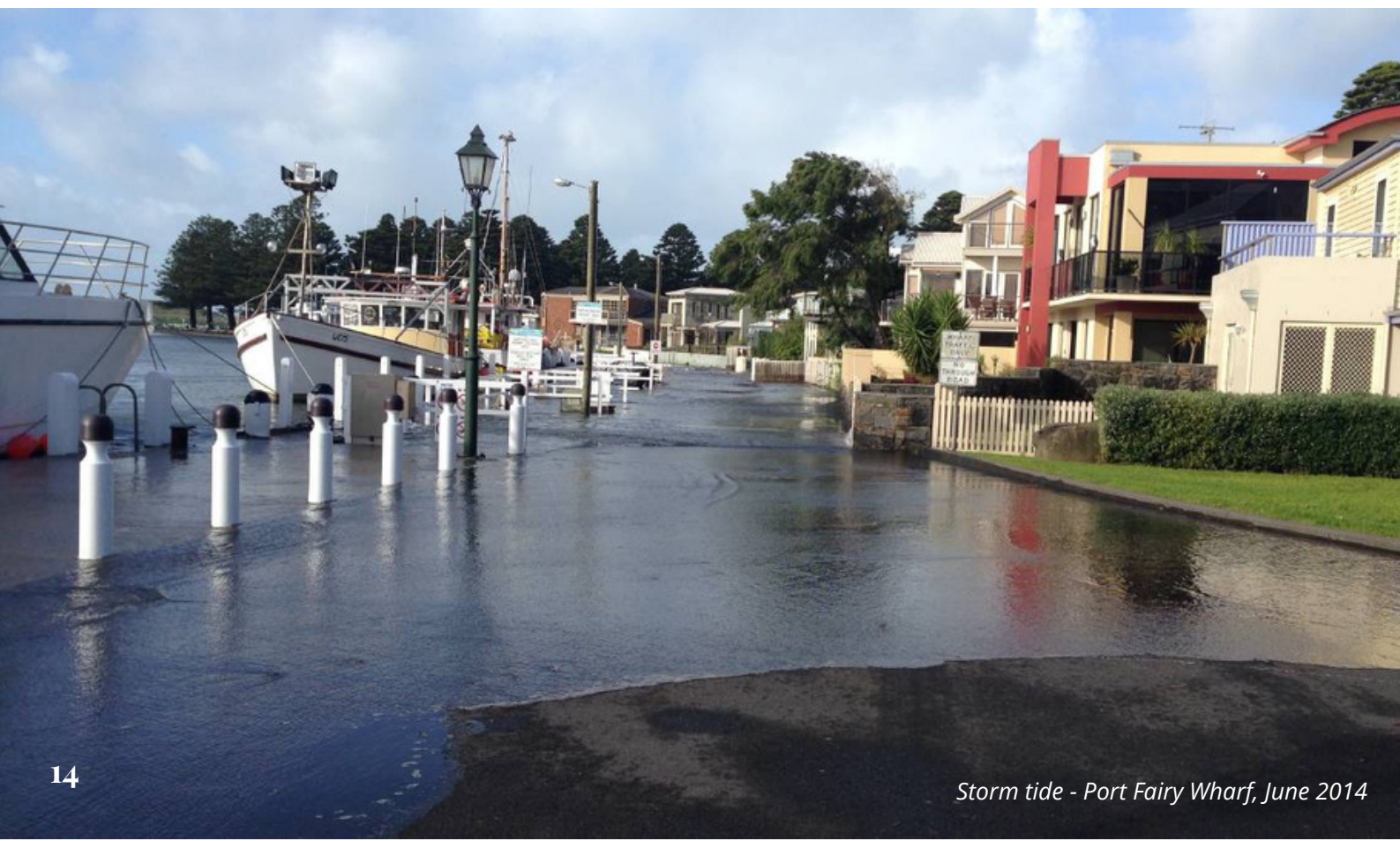
Additionally, in 2019, DEECA released their Guidelines for Development in Flood Affected Areas which provided direction on how development should be considered within the 1% AEP floodplain. There have also been changes in the Victorian Planning Provisions in considering the impacts of climate change and coastal inundation and erosion through risk-based planning.

The Pandemic

Perhaps one of the biggest challenges to the RFMS, and to business as usual for most around the world, was the impact of Covid 19. The pandemic brought with it many challenges including the need to adapt quickly to a working from home environment which included a change of process and resources, changes in staff and / or staff availability, funding limitations, and expenditure increases.

Flood Events

In addition to all the above, flood events have also had an impact on the delivery of RFMS actions – whether this be from an internal GHCMA perspective with a temporary shift in staff focus requiring all hand on deck, or through the shifting in the priorities of actions as new actions are identified as a result of flood impacts.



Case Study

Moving Forward

One of the biggest challenges faced within the Glenelg Hopkins region over the years preceding the 2017 RFMS is the delay that occurs from the completion of flood investigations until the flood intelligence is adopted into the relevant planning scheme. This delay has occurred from several factors including:

- Difficulty in securing funding
- Changes in staffing and loss of knowledge of progress
- Issues identified with the flood model build and / or results
- Changes in policy and / or requirements for climate change modelling

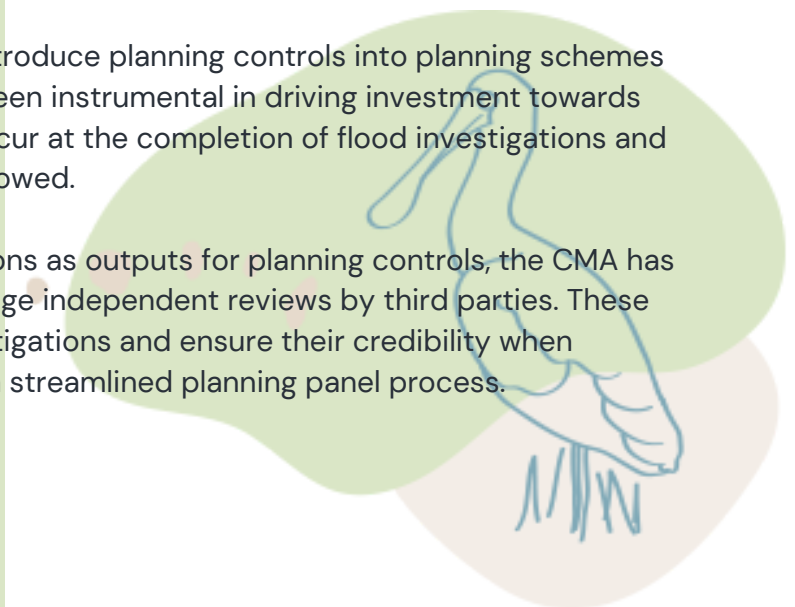
By including flood information as Zones or Overlays in the planning scheme, we implement one of the most effective and cost-efficient mitigation measures available for ensuring that we are reducing risk to life and property into the future. This approach aligns with the VFMS objective of not making things worse. Without the information in the planning scheme through the appropriate planning control, there can be no requirement for a planning permit in some instances, or no requirement for it to be referred to the CMA as the floodplain management authority for comment. This can result in unnecessary development in the known floodplain.

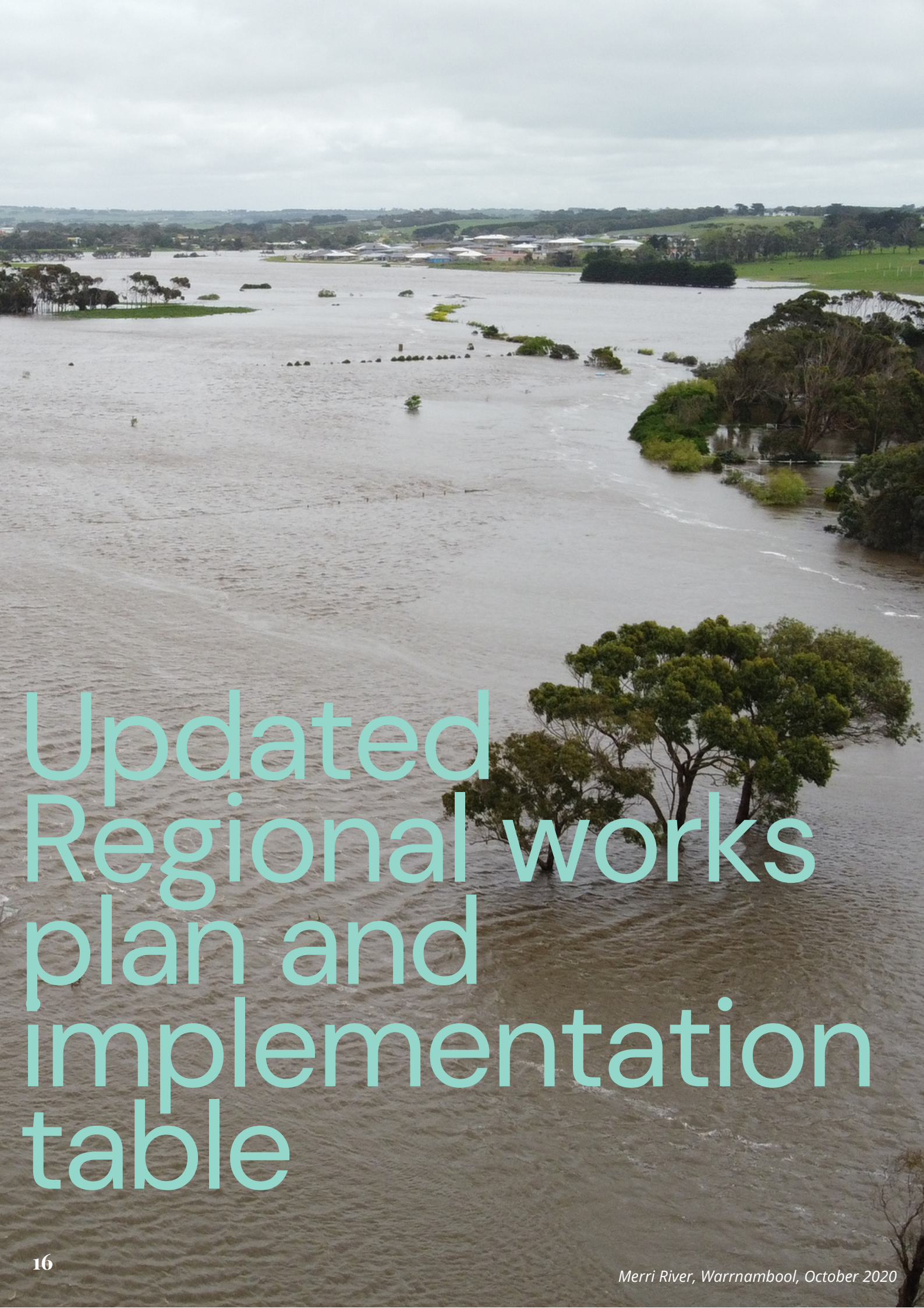
During the development of the RFMS, there were eight (8) planning scheme amendment priority actions identified, of which flood information already existed for at least four (4) of those actions. This has been an ongoing issue for many years in that studies are completed which include required outputs such as draft planning maps, schedules, and documentation, however, the planning scheme amendment process has not immediately followed.

Delays with incorporating flood intelligence into the planning scheme often led to further delays, creating a snowball effect. This could be attributed to policy changes that rendered the flood investigation outputs outdated or changes in responsible staff, resulting in a loss of knowledge and missed funding opportunities.

Including specific actions in the RFMS to introduce planning controls into planning schemes based on flood investigation outputs has been instrumental in driving investment towards ensuring planning scheme amendments occur at the completion of flood investigations and establishing a structured process to be followed.

To ensure the reliability of flood investigations as outputs for planning controls, the CMA has collaborated with delivery partners to arrange independent reviews by third parties. These reviews assess the robustness of the investigations and ensure their credibility when presented to a planning panel, resulting in a streamlined planning panel process.























Updated Regional works plan and implementation table

Revised Action Table


| | | | |
|-----|-----------------|---|--------------------|
| ✘ | Not yet started | 🔄 | Not a priority now |
| »»» | In progress | 🔄 | New priority |
| ✓ | Completed | | |

| Action ID | Action Description | Status | Location | Progress update |
|-----------|---|--------|------------------------|---|
| 1 | Undertake regional flood investigations | ✓ | Glenelg Hopkins Region | This is now considered business as usual with funding applications submitted when there are available resources. |
| 2 | Comply with actions, accountabilities and responsibilities of the 2017 Victorian Rural Drainage Strategy | ✓ | Glenelg Hopkins Region | This is now considered business as usual. |
| 3 | Investigate opportunities for community education on the impact of vegetation in waterways | »»» | Glenelg Hopkins Region | While there is yet to be a specific educative document produced, education is provided as part of responses. A specific document is on the horizon. |
| 4 | Assist councils to develop animations of flood behaviour that can be used in the development of community flood awareness videos | ✓ | Glenelg Hopkins Region | This is now considered business as usual as part of flood investigations where there is sufficient funding to complete. |
| 5 | Assist councils to develop property-specific flood information | ✓ | Glenelg Hopkins Region | This is now considered business as usual as a requirement of flood investigations. |
| 6 | Assist councils to incorporate all flood study information into MFEPs | ✓ | Glenelg Hopkins Region | This is now considered business as usual as a requirement of flood investigations. |
| 7 | Develop a State Community Observers Network Website enabling the community to provide local knowledge during a flood events | »»» | Glenelg Hopkins Region | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 8 | Investigate options to improve community access to website flood risk information to allow people to better plan, prepare and respond to flooding | »»» | Glenelg Hopkins Region | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |

| | | | | |
|----|---|---|------------------------|---|
| 9 | Install community education signs and gauge boards at high-priority locations within the catchment to raise community flood risk awareness and to provide links to websites with more detailed flood risk information |  | Glenelg Hopkins Region | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 10 | Update Municipal Flood Emergency Plans (MFEP) to incorporate the latest flood study intelligence and transport routes impacted by flooding |  | Glenelg Hopkins Region | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 11 | Review of Local Flood Guide to incorporate new housing estates |  | Miners Rest | Local Flood Guide for Miners Rest complete. |
| 12 | Undertake community flood education engagement activities and develop flood awareness products for Harrow and Chetwynd |  | Harrow, Chetwynd | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 13 | Undertake community flood education engagement activities and develop flood awareness products for Ararat |  | Ararat | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 14 | Investigate the installation of gauge boards along major waterways at major highways |  | Glenelg Hopkins Region | This is an ongoing action. |
| 15 | Investigate options for protecting sewer pump stations and sewer pits from flood impacts including reducing the likelihood of sewer contamination to floodwater |  | Glenelg Hopkins Region | This action is no longer considered a priority at this stage. |
| 16 | Undertake Cultural Heritage Due Diligence as part of post-flood remediation works through Natural Disaster Relief and Recovery Arrangements (NDRRA) |  | Glenelg Hopkins Region | This was completed, however further funding has been secured post October 2022 floods and is now business as usual. |
| 17 | Incorporate cultural values assessment as part of the Coleraine Flood Investigation |  | Glenelg Hopkins Region | Coleraine Flood Investigation is now complete. |
| 18 | Incorporate a cultural values assessment as standard practice when undertaking regional flood investigations and assist LGAs in these assessments for urban flood investigations |  | Glenelg Hopkins Region | This is now business as usual as part of an update to the standard flood investigations tender specifications template. |
| 19 | Support DELWP in the development of guidelines to ensure that significant Aboriginal cultural values are considered as part of the incident control arrangements during emergency events |  | Glenelg Hopkins Region | This is an ongoing action with Glenelg Hopkins CMA providing support when requested. |











| | | | | |
|----|--|---|------------------------|--|
| 20 | Explore opportunities to undertake a project identifying structures in the floodplain that may impact cultural heritage sites |  | Glenelg Hopkins Region | This is an important long term priority that is yet to commence. |
| 21 | Ensure Traditional Owners are consulted when floodplain management activities are carried out on areas where Native Title has been determined or where they could impact on cultural heritage. |  | Glenelg Hopkins Region | This is now considered business as usual. |
| 22 | Undertake planning scheme amendment based on mapping from Ararat flood investigation |  | Ararat | Preliminary work has been completed, however due to staffing changes is yet to recommence. |
| 23 | Investigate investment opportunities for structure upgrades to alleviate flooding |  | Ararat and Wickliffe | Preliminary work has been completed, however due to staffing changes is yet to recommence. |
| 24 | Investigate options for flood warning in Ararat |  | Ararat | No longer considered a priority by lead agency due to likely requiring a flash flood warning system. |
| 25 | Complete a regional flood investigation for the Mount Emu Creek catchment |  | Mount Emu Creek | Upper Mount Emu Creek Regional Flood Investigation has been completed. Funding applications have so far been unsuccessful for funding of Lower Mount Emu Creek. |
| 26 | Investigate undertaking a combined stormwater and riverine flooding investigation for Wendouree |  | Wendouree | There has been no progress on this action to date. |
| 27 | Investigate options for potential flood warning for the Burrumbeet catchment |  | Burrumbeet Catchment | There has been no progress on this action to date. |
| 28 | Undertake detailed design for the Burrumbeet high-flow bypass channel and implement works to mitigate flooding of properties on Burrumbeet Creek |  | Burrumbeet Catchment | Design for the Burrumbeet high-flow bypass channel was undertaken and determined to not be cost beneficial. Alternative options are being investigated by lead agency. |
| 29 | Upgrade the Guthries Bridge gauge to a telemetered station and investigate flood warning opportunities |  | Skipton | Gauge has now been upgraded to a telemetered station and flood warning from BOM implemented |
| 30 | Investigate options for a community flood marker within the township of Skipton |  | Skipton | A mural has been painted on the bridge which incorporates flood warning. |

| | | | | |
|----|---|-----|----------------------------|--|
| 31 | Investigate funding for regional flood mapping for the whole shire, identifying key rural flow paths and providing intelligence on where overland flow paths might impact on roads/assets | ✓ | Corangamite Shire | Corangamite Shire self-funded a scoping study to determine costs and outputs which is now complete. Funding has now been secured for whole of shire mapping. |
| 32 | Identify priority areas for undertaking detailed coastal and storm tide flooding investigations through the Barwon South West Regional Local Coastal Hazard Scoping Project | ✓ | Coastal Areas | Barwon South West Regional Local Coastal Hazard Scoping Project is now complete. |
| 33 | Investigate funding opportunities to undertake flood investigations for Dartmoor and Nelson, and subsequent planning controls. | ✓ | Dartmoor and Nelson | Funding has been secured and the Dartmoor and Nelson Flood Investigation is underway. |
| 34 | Investigate establishment of telemetered stream flow gauge on the Glenelg River at Casterton | ✓ | Casterton | A telemetered stream flow gauge has now been installed at this location. |
| 35 | Introduce planning controls for Heywood based on flood modelling from the Fitzroy Darlot Flood Investigation | ✓ | Heywood | Mapping from the Fitzroy Darlot Regional Flood Investigation has been incorporated into the Planning Scheme. |
| 36 | Investigate feasibility of sea wall construction at Bridgewater | ✓ | Bridgewater | Sea wall constructed along Councils Committee of Management Area as funded by State Government. |
| 37 | Investigate opportunities to explore flood warning options for Heywood | ✗ | Heywood | There has been no progress on this action to date. |
| 38 | Replace/repair damaged staff flood gauge at the end of Bond Street, Heywood | ✓ | Heywood | Staff gauge has been replaced. |
| 39 | Develop a Municipal Flood Emergency Plan for Glenelg Shire | ✓ | Glenelg Shire | MFEP for Glenelg Shire has been completed. |
| 40 | Explore opportunities for an investigation into water diversion for Lake Condah and the Tyrendarra Indigenous Protected Area to activate eel traps and structures | ✓ | Lake Condah and Tyrendarra | Lake Condah weir operational rules finalised which targeted reactivating eel traps, and Tyrendarra IPA sandbag water diversion in place. |
| 41 | Develop a floodplain management plan for the shire | ➤➤➤ | Relevant Council Areas | This has been completed in some LGA's, with others to still be funded and developed. |

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| 42 | Investigate opportunities for funding for coastal inundation modelling for Moyne Shire outside Port Fairy |  | Moyne Shire | Not currently considered a priority by lead agency. |
| 43 | Undertake community flood education engagement activities and develop flood awareness products for Port Fairy |  | Port Fairy | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 44 | Undertake planning scheme amendment to amend flooding overlays in Port Fairy based on updated flood information |  | Port Fairy | Port Fairy Planning Scheme Amendment now complete and awaiting finalisation. |
| 45 | Investigate viability of raising level of low areas of Griffiths Street to mitigate access issues associated with flooding |  | Port Fairy | Funding applications have been submitted to undertake works. |
| 46 | Investigate opportunities to implement sea walls in and around Port Fairy |  | Port Fairy and Moyne Shire | Sea walls to be constructed. |
| 47 | Investigate mitigation options for flooding on Ocean Drive |  | Port Fairy | Further investigation is required. |
| 48 | Install flood depth markers along priority flood-affected roads |  | Moyne Shire | Completed at Gipps Street and Woodbine Road, Port Fairy. |
| 49 | Complete the Cudgee Flood Investigation |  | Cudgee | Cudgee Flood Investigation complete and awaiting final sign off. |
| 50 | Investigate alteration to coastal inundation overlays as a result of modelling produced through the Port Fairy Coastal and Structure Planning Project |  | Port Fairy | Complete – combined with Action 44. |
| 51 | Engage stakeholders in a review of the Pyrenees floodplain management plan |  | Pyrenees Shire | Plan updated. |
| 52 | Investigate opportunities for flood mapping of Raglan and Trawalla and subsequent planning scheme update to prevent inappropriate development on the floodplain |  | Raglan and Trawalla | Flood mapping has been complete. Planning Scheme Amendment in preparation stages. |
| 53 | Investigate flood warning options for Beaufort for Yam Holes Creek |  | Beaufort | There has been no progress on this action to date. |

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| 54 | Investigate alteration of flooding overlays on old school grounds on Garibaldi Creek | ✓ | Beaufort | Considered appropriately managed at this stage. Lead agency considering further options. |
| 55 | Identify priority locations for road closure signage during flood events | ✓ | Pyrenees Shire | Completed through Raglan Flood Study. |
| 56 | Complete the Coleraine Flood Investigation | ✓ | Coleraine | Coleraine Flood Investigation complete. |
| 57 | Explore funding opportunities to support a Dunkeld Flood Investigation | ✓ | Dunkeld | Funding has been secured. |
| 58 | Undertake a planning scheme amendment for Hamilton, Coleraine and Dunkeld incorporating available flood information | ✓ | Hamilton, <u>Dunkeld</u> and Coleraine | Planning scheme amendment now complete. |
| 59 | Establish management arrangements for maintenance of the Holden Street levee, Hamilton | ✓ | Hamilton | Management arrangements in place. |
| 60 | Investigate risks and potential solutions for dam safety for Hamilton and Dunkeld water storage facilities | ✓ | Hamilton and Dunkeld | Complete. Risks managed at Hamilton via level control. |
| 61 | Investigate opportunities for stream monitoring upstream of Lake Hamilton for additional flood warning | ✓ | Lake Hamilton | ConnectGH available via the Southern Grampians Shire website. |
| 62 | Investigate opportunities to reduce/eliminate contamination from Branxholme oval septic tanks during flood events | 🔄 | Branxholme | This action is no longer considered a priority at this stage. |
| 63 | Complete flood modelling for 'as constructed' conditions of the Russell Creek flood walls | ✓ | Russell Creek | As constructed mitigation flood modelling complete. |
| 64 | Undertake community flood education engagement activities and develop flood awareness products for Warrnambool | ➤➤➤ | Warrnambool | Unable to confirm status as of publication of this document due to ongoing staff changes within lead agency. |
| 65 | Identify flood prone areas through structure plans for Logans Beach and Allansford and introduce planning controls | ➤➤➤ | Logans Beach and Allansford | Logans beach complete, and Allansford Structure Plan underway. |
| 66 | Consider flood warning options for the Russell Creek catchment | ✓ | Russell Creek | Rain and stream gauges now installed. |

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| 67 | Undertake Part 2 of planning scheme amendment C78 to introduce/modify flood controls in South and North Warrnambool | ✓ | Merri River and Russell Creek | Planning Scheme Amendment completed. |
| 68 | Investigate options for flood mitigation and further development within the urban growth boundary north of Wangoom Road | ✓ | Russell Creek Tributary | Options were investigated and determined to not have adequate cost benefit to proceed. |
| 69 | Explore options for use of Woodford gauge on flood intelligence platforms (either FloodZoom or Ventia Data Vision) | ✓ | Merri River, Woodford | Woodford gauge now available on all online platforms. |
| 70 | Undertake flood modelling for Chetwynd | ✓ | Chetwynd | Chetwynd Flood Modelling now complete. |
| 71 | Amend flood controls in Harrow and Chetwynd through a planning scheme amendment | »»» | Harrow and Chetwynd | Preliminary work has been completed with new staff following up. |
| 72 | Develop a MFEP, incorporating Harrow and Chetwynd flood information and identifying known road closures, as well as providing any potential alternative routes for school buses and large trucks | »»» | Harrow and Chetwynd | Plan complete for Harrow. Unable to confirm status for Chetwynd as of publication of this document due to ongoing staff changes within lead agency. |
| 73 | Investigate options to increase deck height of Mooree Bridge | ⤵ | Mooree | This action is no longer considered a priority at this stage. |
| 74 | Investigate options for rain gauges to inform of potential flooding in the region | ✗ | West Wimmera Shire | There has been no progress on this action to date. |
| 75 | Complete Skipton Structure Plan which will consider land use zoning and encourage movement of the town centre. | ⤵ | Skipton | This new priority is already underway. |
| 76 | Investigation and implement appropriate mitigation measures for Heywood | ⤵ | Heywood | New priority. Funding to be sought. |
| 77 | Streatham Flood Risk Model | ⤵ | Streatham | New priority. Funding to be sought. |

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| 78 | Snake Valley Flood Risk Model |  | Snake Valley | New priority. Funding to be sought. |
| 79 | Review/update Beaufort flood risk model after 2022 flooding and post mitigation works |  | Beaufort | New priority. Funding to be sought. |
| 80 | Portland risk model update |  | Portland | New priority. Funding to be sought. |
| 81 | Heathmere flood risk model |  | Heathmere | New priority. Funding to be sought. |
| 82 | Cavendish flood risk model |  | Cavendish | New priority. Funding to be sought. |
| 83 | Lake Goldsmith mitigation options review |  | Lake Goldsmith | New priority. Funding to be sought. |
| 84 | Sandford flood risk model |  | Sandford | New priority. Funding to be sought. |
| 85 | North Warrnambool to Woodford Flood Investigation |  | Woodford / Warrnambool municipality | New priority. Funding to be sought. |
| 86 | Lake Hamilton weir wall investigation |  | Hamilton | New priority. Funding to be sought. |
| 87 | Investigate options for raising road crossing in Harrow |  | Harrow | New priority. Funding to be sought. |



Glenelg Hopkins



CMA