Flood Warning and Intelligence Project

Community Based Action Plan

Template

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# Preface

This document provides a starting point for the preparation of a Technical Brief to support Council procurement of specialist services to undertake a Community Based Flood Action Plan.

The document is intentionally generic to provide flexibility in study objectives, deliverables, scope, methodology, available study inputs, the flood mechanism and scale. There is an expectation that Council will consider the individual study requirements and tailor the brief as needed. Where required, both QRA and the Peer Review and Advisory Panel are available to provide advice and input. Section 4 provides links to examples and guidance documentation.

The development of this guide has a been directly informed by Australian Rainfall and Runoff (2019) and Australian Disaster Resilience Handbook Collection Handbook 7 (Handbook 7), Managing the Floodplain: Best Practice in Flood Risk Management in Australia, and the Queensland Flood Risk Management Framework (2021) to ensure compatibility with current national best practice.

This brief template does not cover general tendering or contractual matters.

Template text, which requires editing has been indicated as *[enter information specific to study].*

Guidance text that should be removed from the final project brief is indicated as *guidance information for deletion.*

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# Introduction

*[Council]* has received financial support through the Flood Risk Management Program, a jointly funded Australian and Queensland Government funding package managed by Queensland Reconstruction Authority (QRA), to undertake a *[**Community Based Flood Action Plan (or other type of action or evacuation plan)]* for the *[location and/or catchment name]*.

## Project Governance and Stakeholders

Governance and stakeholder arrangements for *[this project]* are shown in *Figure [XX]* and Figure 1 below.

*Please provide a diagram of Council governance arrangements to reflect internal arrangements.*

**Queensland Reconstruction Authority**

Coordinator of funding for Flood Risk Management Program (FRMP)

**Department of Resources**

Responsible for capture of LiDAR as part of FRMP

***Council***

Responsible for completing this Action Plan

**Successful Tenderer**

Responsible for delivering scope of work outlined in this technical brief

Figure 1: Project Stakeholders

## Objectives

*Provide information around the intended study objectives. Provide information regarding how this action plan will improve community preparedness and resilience. The following section provides an example of some objectives. Each Council may have different risks and therefore different objectives.*

*The primary objectives in developing this community-based action plan are to:*

* *Increase flood education and awareness in the community*
* *Develop a trigger based action plan the community can use before, during and after a flood event*
* *Plan for safe and early evacuation*
* *Provide the community with information and tools to support individual preparation*
* *Support the community in implementing risk reduction measures such as property modification, obtaining insurance, evacuation route mapping, planning for animals etc.*
* *Increase capacity and capability within Council.*

# 

# Background

*The following sections should be tailored to the area and support Council’s needs for the action plan. Consider the purpose of the action plan in providing background information. Where a section is not relevant to the project, remove. It may be beneficial to provide corresponding Flood Study and Floodplain Risk Management Study and Plan as an attachment to the project brief.*

## Study Area Overview

*Provide a summary of the following information where available:*

* *The catchment / city / town*
* *Defined area for the community-based action plan*
* *Flood mechanism(s) in the area (riverine, creek, and / or overland flow flooding)*
* *History of development*
* *Any key industries, cultural or community facilities*

*Provide a reference to a map (or maps).*

## Catchment Description

*Provide a summary of the following information where available and relevant:*

* *Catchment size (include a figure if available)*
* *Watercourses*
* *Topography (e.g., steep upper sections, flat flood plain) and any key topographic features*
* *Geology, soils and hydrogeology*
* *Ecosystems of interest and any important (marine and freshwater) water-dependent ecosystems*
* *Receiving waters*
* *Locations of environmental or cultural significance*
* *The general form and extent of drainage and any water sensitive urban design features (WSUD)*
* *The form and extent of residential/commercial/horticultural/other development across the catchment.*

## Socio-political Context

*Provide a summary of the following information where available and relevant:*

* *The local government area(s) involved*
* *The suburbs wholly or partially within the study area*
* *Any specific local government entities within the jurisdiction (e.g., regional subsidiaries)*
* *The relevant emergency services (i.e., State Emergency Service, Queensland Rural Fire Service, LDMGs and DDMGs, other local groups)*
* *Current disaster management plans for the study area.*

## Flood Behaviour Description

*Provide a summary of the current understanding of flood behaviour the area based on previous studies if available including the following information where available and relevant:*

* *Source of flooding (i.e., riverine, creek, tidal, and / or overland flow)*
* *Warning time and catchment response time*
* *Flooding duration (hours, days, months)*
* *Known flooding hot spots in the study area*
* *Areas subject to groundwater flooding (i.e., where the water table can rise above the surface of the ground and pond for periods of time)*
* *Frequently inundated areas and exacerbating factors (e.g., blockage, high tides, antecedent conditions)*
* *Major hydrologic and hydraulic features (including natural or constructed hydraulic controls, dams, bridges) as well as coincident tributary flooding.*

## Flood History Description

*Provide a summary of the following information where available and relevant:*

* *Description of most recent events including warning time, duration and magnitude if known*
* *Largest recorded events (in terms of their peak height and / or flow)*
* *Historic areas of inundation*
* *Impacts to the community (e.g., damage to property and community facilities, loss of life, areas cut off, disruption to community function)*
* *Any notable occurrences (e.g., levee was overtopped, dam was full, bridge was blocked and overtopped)*
* *Data availability such as gauges, flood marks, photographs, videos etc.*

*Where relevant and available it is useful to provide a map of adequate resolution to describe the study area and key features, such as waterways, receiving waters, towns/suburbs, main roads, key infrastructure etc.*

*If practical the map(s) should overlay an aerial image and cadastral information. If this is not feasible due to depth of detail, then separate maps should be provided.*

*The maps(s) should include a legend, appropriate labelling to orient the reader, and should be produced at a minimum of A4 size.*

# Available Information

*Provide a summary of known available and relevant information, data format, known gaps and data which will require collection as part of the development of this action plan. Consider the overall purpose of the action plan in providing background information. Data should be summarised with an attachment, or in table with a brief description, format, author or source, year, etc.*

*Not all data listed below will be required or available for the development of a community based action plan. This should be tailored to each catchment and the action plan requirements.*

*This data will likely include the following where available and relevant:*

* *Previous studies (flood studies, risk management studies, infrastructure studies etc.)*
* *Existing Models*
  + *Hydrologic models (including date, software, ARR methodology)*
  + *Hydraulic models (including date, software, ARR methodology)*
  + *Relevant models would be provided to the successful tenderer including model files, results and associated files and model log*
* *Historical flood information*
  + *Flood level marks and extents*
  + *Gauge data (rainfall, water level, stream flow)*
  + *Photos, videos (preferably with dates and times)*
  + *Antecedent conditions*
  + *Community complaints / comments*
  + *Anecdotal evidence, damage reports*
  + *Number of people / properties affected*
  + *Damage to infrastructure*
* *Spatial Datasets*
  + *Flood hazard overlay extents*
  + *Geographic information system (GIS) layers the Council or any other organisation has including cadastre, waterways, natural environment areas, street names, roads, building footprints, and land-use planning areas etc.*
* *Survey Data* 
  + *Digital Elevation Models (DEMs) or LiDAR data, creek / river cross sections or bathymetric surveys*
  + *Locations, dimensions and invert levels of drainage assets*
  + *Floor level information*
  + *Any survey data for current or existing structures (e.g., bridges, culverts, weirs, levees, irrigation channels, dams, asset management information systems)*

The data listed in Table 1 will be provided, or arrangements made for access prior to commencement of the project.

Table 1: Available information for *[this study]*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dataset | Description | Format | Author / Source | Date | Relevant comments |
| *Previous Studies (flood studies, flood risk management studies etc.)* | *Provide a description of study purpose, outputs, use, gaps etc.* | *Report, hydrologic / hydraulic model availability etc.* | *Previous consultant, or if Council report* | *Date finalised* | *Any comments considered relevant.* |
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*Modify table setup and information as required.*

# Current Guidelines and References

Available guidelines and references that can be used to inform the delivery of the community based action plan, include but not limited to those in Table 2.

Table 2: Current Guidelines and References

|  |
| --- |
| **Reference Documents** |
| Some examples of Action Plans:  Fraser Coast Regional Council - <https://www.frasercoast.qld.gov.au/downloads/file/1116/are-you-prepared-for-a-flood-pdf>  Goondiwindi Regional Council - <https://www.grc.qld.gov.au/downloads/file/649/inglewood-flood-action-guide-v10-final-webpdfpdf>  Southern Downs Regional Council - <https://www.sdrc.qld.gov.au/living-here/disaster-management/before-a-disaster/floods/flood> |
| SES NSW Flood Action Plan Guidance  <https://www.ses.nsw.gov.au/media/2554/flood_action_plans.pdf> |
| Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (Handbook 7) (AIDR, 2017) and all supporting documents  <https://knowledge.aidr.org.au/media/3521/adr-handbook-7.pdf> |
| Public Information and Warnings (AIDR, 2021)  <https://knowledge.aidr.org.au/media/9104/aidr_handbookcollection_publicinfoandwarnings_2021.pdf> |
| Manual 21: Flood Warning (AIDR, 2009)  <https://knowledge.aidr.org.au/media/1964/manual-21-flood-warning.pdf> |
| Australian Rainfall and Runoff (ARR) 2019 - all projects and chapters  <https://arr.ga.gov.au/arr-guideline> |
| Queensland Flood Risk Management Framework (QRA, 2021)  <https://www.qra.qld.gov.au/sites/default/files/2021-06/queensland_flood_risk_management_framework_2021_qfrmf_0.pdf> |
| Flood Communication Toolkit (QRA, 2022)  <https://www.qra.qld.gov.au/sites/default/files/2022-06/a_flood_communication_toolkit_january_2022.pdf> |
| *Local Floodplain Management/Water related Strategies etc* |
| *Relevant Catchment Action Plans* |
| *Local Disaster Management Plans* |

# Scope of Work

The primary purpose of the development of a Community Based Action Plan is to provide the community with clear, concise, actionable information to inform their ability to prepare and respond to floods. To achieve this and satisfy the objectives outlined in Section 1.3, the proposed scope of work to be delivered is outlined below. Tenders are to provide a detailed proposed methodology to deliver this scope of work.

*The scope included below will be dependent on the level of information available. If a Floodplain Risk Management Study and Plan has been completed there may be considerable information available to pull into a community action plan. However, where only a Flood Study has been completed then some initial work will be required to understand risk profiles and hot spots across the study area. In all cases, where the intended audience of the action plan is the community, community consultation or at a minimum community education is recommended. Without this component, community action plans will often fail as the community are either not aware of the plan or how to use and personalise the plan. Consultation should be broad and include the public, businesses, key community groups, not for profits etc. Preparedness and warnings can reduce flood damages, provided the community are well informed prior and understand how to interpret and respond.*

## Data Collection and Review

Available data and information should be collated and reviewed as part of the initial stages of the project. This should aim to identify if all necessary data is available, the quality of data available, if any additional modelling is required (i.e., to further refine triggers) and provide recommendations to Council. Any unexpected work required should be raised with Council early to ensure a suitable methodology for addressing gaps can be identified and agreed.

## Site Visit

A site visit is to be undertaken as part of all studies to ensure the successful tenderer has an appreciation of catchment condition, major hydrologic and hydraulic features, transport network and the community. Expected outcomes of the site visit include:

* Understanding of potential flooding mechanisms and flows paths
* Appreciate the type of development throughout the study area including locations of vulnerable and sensitive uses
* Appreciation of the community in the study area
* Identify major access roads across the study area that either are identified as major evacuation routes or may act as evacuation routes.

The initial site visit can also provide an opportunity for Council to raise any potential issues and highlight areas of interest.

## Assessment of Flood Risk

Prior to the development of the action plan, flood risk should be understood across the study area. This is to ensure appropriate trigger information is included in the plan and ensure any unique risks can be planned for. Where a Floodplain Risk Management Study has been completed, this will likely provide required information to inform the development of the action plan. In this case, this scope item may be simplified to extracting this information and modifying it for use in the plan.

Where a Floodplain Risk Management Study has not been completed, consider the completion of the items listed below. There will always be local context that needs to be incorporated in understanding flood risk across a catchment.

Tenders should include the following items as a minimum in the preparation of their response:

* Detailed description of flood behaviour across the study area including a summary of flood behaviour for design events or historic flood events
* Community vulnerability analysis, which should consider population demographics, mobility and physical vulnerability, social and economic vulnerability and flood awareness and resilience
* Flood emergency response classification including potential low and high flood islands as a minimum
* Assessment of flood risk of evacuation routes and major roads in the study area, this may include either already identified evacuation routes
* Assessment of flood risk of any significant use areas and vulnerable uses in the study area (i.e., town centres, aged care, hospitals etc.)
* Any information relating to inundation extent should linked back to a gauge level to provide a reference
* Description of flood risk to hot spot areas or for key suburbs areas across the study area.

### Identification of Actions

The community need to understand what to do before, during and after a flood event. The tenderer should identify actions that can be taken across each phase to prepare for and respond to a flood event.

#### Trigger Identification

Actions to be taken during a flood event need to be linked back to a trigger such as a river level, rainfall amount, or a particular message from Council or other emergency services. Triggers should be tailored to the study area and community group. Examples of what this may look like include linking level at gauges to road closures, historical flood events, isolation, and depth of flooding at well-known locations across the study area.

Depending on the size of the study area, trigger identification may include personalised triggers for smaller areas. This may include, a gauge level an area should be evacuate, or information about isolation etc. In all cases, provide information and templates for how the community can produce their own triggers (i.e., when do they need to move items, collect sandbags, call family members, evacuate etc.).

## Action Plan Development

*Refer to the examples to understand what is relevant and important for your community.*

Based on the information available, assessment of flood risk and identification and triggers and actions prepare a community-based action plan.

The tenderer should consider the following as a minimum in their response:

* Provision of emergency information including links, phone numbers, details on how the community can obtain sandbags or find their local evacuation centre in an event etc.
* Links to Council’s Disaster Dashboard if available
* Information should be succinct, clear and where possible personalised for the community
* Action Plan should include information on what to do before, during and after an event
* All actions should be linked to triggers
* Description of flood behaviour across the study area. This should be written in a way that can be easily understood by the community and should avoid technical jargon
* Definition of terms people are likely to hear during an event including but not limited to:
  + Minor, moderate and major flooding
  + Flash flooding versus creek or riverine flooding
  + Alert, watch or advice warnings
  + Severe weather warnings
  + Description of what gauge levels mean in reference to flooding across the area
* Flood maps, gauge level reference diagrams, information on flood variability and links to other information if the community would like to learn more
* Templates so the community can personalise the action plan to their individual home or business.

## Community Consultation and Education

*Community consultation has a multitude of benefits and is essential to the success of a community based action plan. The extent of consultation and education required will be different for each catchment. Consider how this information can disseminated to all community members.*

An important part of the development and implementation of a community-based action plan is the community consultation and education process. This process aims to inform the community of the action plan, understand their individual needs with respect to an action plan, educate the community around their flood risk and educate the community how to use the action plan. *This process should be tailored for the study requirements, however, may include the following:*

* Initial public consultation of the Community Based Action Plan
  + This should include supporting information, education or consultation to ensure the community understand how to use the action plan.
* Continuing community education programs including training and drills if necessary.

# Action Plan Review

The action plan should be regularly reviewed regularly to understand the effectiveness, use, limitations, and update with any new information. As part of the review process, community consultation should be completed to understand the communities’ feedback and needs.

# Intellectual Property

All data, models, modelling inputs and results, tools and reports associated with the development of the *Community Based Action Plan* is licensed by *Council* under a Creative Commons Attribution (CC BY) 4.0 international licence. To view a copy of this licence, visit: <https://creativecommons.org/licenses/by/4.0/>

The successful tenderer must provide all required files to ensure Council or future consultants can view, modify and run the hydrologic and hydraulic model. This includes instructions of use, a detailed model log, results and details of post processing to ensure final results can be replicated.

Where internal scripts or tools have been prepared and are required to modify and/or run models, or post process results, these will be provided along with instructions of use.

# Program and Milestones

Under the FRMP funding arrangements there is a requirement that projects be completed by June 2026.

Tenderers are requested to provide a high-level schedule as part of their response outlining how the project will be delivered to meet the timeframe requirements with program dates specified for the milestones documented in Table 4.

Table 4: Draft Project Program

|  |  |
| --- | --- |
| Milestone | Target Date |
| Completion of data collection and review | *Input desired target dates* |
| Assessment of flood risk and trigger development |  |
| Draft Community Based Action Plan |  |
| Community Consultation |  |
| Final Community Based Action Plan |  |

## Peer Review

Formal peer review is not required for Community based Action projects as part of the Floodplain Risk Management Funding Program. However, if Councils would like advice from either QRA or the Technical Advisory Panel this is available. Council may wish to procure their own peer review.

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