NSW STATE EMERGENCY SERVICE

Greater Hume

Local Flood Emergency Sub Plan

FloodSafe

GREATER HUME COUNCIL FLOOD EMERGENCY SUB PLAN

A Sub Plan of the Local Emergency Management Plan (EMPLAN)

Volume 1 of the Greater Hume Council Flood Emergency Sub Plan

Endorsed by the Greater Hume Council Local Emergency Management Committee

2 November 2023
Version 2.0

AUTHORISATION

The Greater Hume Council Flood Emergency Sub Plan is a sub plan of the Greater Hume Council Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the ***State Emergency Service Act 1989*** (**NSW**) and is endorsed by the Local Emergency Management Committee in accordance with the provisions of the ***State Emergency and Rescue Management Act 1989*** **(NSW)**.

Authorised

Signature: _____

NSW SES Local/Unit Commander

Print Name: Daniel Nadebaum

Date: 2nd November 2023

Endorsed

Signature: _____

Chair, Local Emergency Management Committee

Print Name: Michael Oliver

Date: 2nd November 2023

VERSION HISTORY

Version Number	Description	Date
1.0	Greater Hume Flood Emergency Sub Plan	January 2013

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Manager Emergency Planning
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Amendments in the list below have been entered in this plan.

Amendment Number	Description	Updated by	Date

DISTRIBUTION LIST

Available for general use and distribution on the NSW State Emergency Service website www.ses.nsw.gov.au

CONTENTS

1 OUTLINE AND SCOPE

1.1 PURPOSE

1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in the Greater Hume Council Local Government Area (LGA).

1.2 AUTHORITY

1.2.1 This plan is written and issued under the authority of the *State Emergency and Rescue Management Act 1989* (NSW) ('SERM Act'), the *State Emergency Service Act 1989* (NSW) ('SES Act') and the NSW State Emergency Management Plan (EMPLAN).

1.2.2 This plan is a sub plan to the Greater Hume Council Local Emergency Management Plan (EMPLAN) and is endorsed by the Local Emergency Management Committee (LEMC).

1.3 ACTIVATION

1.3.1 This plan does not require activation. The arrangements set out in this plan are always active.

1.3.2 The Greater Hume Council Emergency Management Plan (EMPLAN) is always active in anticipation of the need to coordinate support and resources requested by combat agencies, including the NSW State Emergency Service (NSW SES).

1.4 SCOPE

1.4.1 The area covered by this plan is the Greater Hume Council LGA. The Greater Hume Council LGA and its principal towns, villages, rivers and creeks are shown in Appendix A.

1.4.2 The Council area is in the NSW SES Southern Zone and for emergency management purposes, is part of the Riverina Murray Emergency Management Region.

1.4.3 The plan sets out the Greater Hume Council level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Greater Hume Council LGA.

1.4.4 In this plan a flood is defined as a relatively high-water level which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves (including tsunami) overtopping coastline defences.

1.4.5 This plan outlines the local level arrangements for the management of downstream consequences of flooding due to dam failure, however it does not cover the management of flooding of an underground mine by inrush or other cause, which should be covered by the Mine Emergency Sub Plan for the respective mine.

1.5 GOALS

1.5.1 The primary goals for flood emergency management in NSW are:

a. Protection and preservation of life.

b. Establishment and operation of flood warning systems.

c. Issuing of community information and community warnings.

d. Coordination of evacuation and welfare of affected communities.

e. Protection of critical infrastructure and community assets essential to community survival during an emergency incident.

f. Protection of residential property.

g. Protection of assets and infrastructure that support individual and community financial sustainability and aid assisting a community to recover from an incident.

h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

1.6 KEY PRINCIPLES

1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.

1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

1.7 ROLES AND RESPONSIBILITIES

1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN and NSW State Flood Sub Plan.

1.7.2 Specific roles and responsibilities for agencies, functional areas and organisations in relation to flooding within Greater Hume Council are detailed within this plan, Appendix B and Appendix C.

1.7.3 Any agency with agreed responsibilities in this plan that are temporarily unable, or no longer able to fulfil their responsibilities in response operations must as soon as possible notify:

a. The NSW SES Incident Controller (for local or zone level responsibilities during response operations).

b. The NSW SES Zone Duty Commander (for regional level responsibilities outside of response operations).

1.8 PLAN MAINTENANCE AND REVIEW

1.8.1 NSW SES will maintain the currency of this plan by:

a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.

b. Conduct a minimum of one exercise every five years or within two years of the plan being reviewed.

c. Reviewing the contents of the plan:

- When there are changes which alter agreed plan arrangements.
- When changes to land use strategic plans and policies increase the population at risk.
- After a flood including recommendations from after action reviews, reports, or inquiries.
- As determined by the NSW SES Commissioner.

d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

1.9 SUPPLEMENTARY DOCUMENTS

1.9.1 Supplementary and supporting material of the Local Flood Emergency Sub Plan is maintained on the NSW SES website at: https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/ including:

a. Flood Plan Glossary.

b. NSW SES Dam Failure Notification Flowchart.

c. NSW SES Resupply Flowchart.

2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

2.1 THE FLOOD THREAT

2.1.1 NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Greater Hume Council LGA.

2.1.2 Declared dams in or upstream of the Greater Hume Council Local Government Area.

Dam Name	Owner	High Risk Dam
Hume Dam	Murray-Darling Basin Authority	No
Khancoban Dam	Snowy Hydro Limited	No

3 PREVENTION/ MITIGATION

3.1 INTRODUCTION

3.1.1 The Floodplain Risk Management Manual outlines the NSW Government's Flood Prone Land Policy which details the framework for managing flood prone land in New South Wales. Incorporation of floodplain risk management into land use planning is one of the key means to limit the exposure to flood risks to our communities and help build long term resilience to future flood events.

3.2 LAND USE PLANNING

3.2.1 **Strategy:** Effective land use planning is a key focus for minimising the impacts of flooding. NSW SES will work with land use planning and consent authorities to inform and influence the consideration of the risks arising from flood, storm and tsunami, to prevent the creation of intolerable impacts of these hazards on the community.

Actions:

a. NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk to life and/or property due to flooding.

b. NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk to life and/or property due to flooding.

4 PREPARATION

4.1 INTRODUCTION

4.2 FLOODPLAIN RISK MANAGEMENT

4.2.1 **Strategy**: Advocate for consideration of emergency management in decision making to reduce risks to the existing community and minimise the growth in future, continuing and residual risk due to development through input to the floodplain management program.

Actions:

a. NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation.

b. NSW SES will provide advice, support, technical resources and training for NSW SES representatives to contribute effectively on local Floodplain Management Committees.

4.2.2 Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

4.3 FLOOD EMERGENCY PLANNING

4.3.1 **Strategy**: NSW SES develop, review and maintain Flood Emergency Sub Plans.

Actions:

a. Develop and review this NSW SES Local Flood Emergency Sub Plan as required. Local Flood Emergency Sub Plans outline the specific arrangements for management of flood events within an LGA and may include cross boundary arrangements.

b. Review plans as per Section 1.8.

4.3.2 Local EMPLAN Consequence Management Guides (CMG's) for flood are not required for communities covered by NSW SES Local Flood Emergency Sub Plans however may be utilised in place of Local Flood Emergency Sub Plan if agreed to by NSW SES.

4.4 FLOOD INTELLIGENCE SYSTEMS

4.4.1 **Strategy**: NSW SES develop and maintain a flood intelligence system to identify flood behaviour, its impact on the community and required response actions.

Actions:

a. Gather and assess flood information for the full range of flood types and severities.

b. Collect, collate, and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk.

c. Share flood intelligence information with supporting agencies.

4.5 DEVELOPMENT OF WARNING SYSTEMS

4.5.1 **Strategy**: Develop, maintain and prepare systems for the provision of flood warnings and associated warning services.

Actions:

a. All levels of government work in partnership to develop and maintain flood warning infrastructure.

b. NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9). Gauges of relevance within the Greater Hume Council LGA are also listed in Volume 3 of this plan.

c. NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW and ACT Flood Warning Consultative Committee.

d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required.

e. Dam Owners will provide Dam Emergency Plans (where required) and consult with NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Emergency Plans.

f. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.

g. NSW SES develops and maintains warning and flood information products by:

- Utilising flood intelligence data.
- Developing warning and flood information products.
- Continuously reviewing warning and flood information products.
- Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW and ACT Flood Warning Consultative Committee and maintains Operational Readiness.
- Participating in the development of public information and warning systems.

h. Gauge owners adequately maintain flood warning gauges and systems, including those identified in the 'Service Level Specification' maintained by the Bureau of Meteorology (Bureau) and those identified in the 'Provision and Requirements for Flood Warning in New South Wales' maintained by NSW SES.

4.6 BRIEFING, TRAINING AND EXERCISING

4.6.1 **Strategy**: Ensure NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Emergency Sub Plan and supporting documents.

Actions:

a. NSW SES will consult stakeholders throughout the development of plans.

b. NSW SES will inform stakeholders of content changes after revisions.

c. NSW SES will ensure their facilities and resources are maintained and operationally ready.

d. NSW SES will train personnel for their expected flood operation roles.

e. NSW SES will regularly brief stakeholders on the exercise arrangements contained in the NSW Flood Emergency Sub Plan.

4.7 COMMUNITY RESILIENCE TO FLOODING

4.7.1 **Strategy**: NSW SES provides and maintains a flexible volunteer workforce to support community resilience.

Actions:

a. Ensure ongoing recruitment and training of a diverse range of volunteers.

b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

4.7.2 **Strategy**: NSW SES works with individuals, communities, businesses and government agencies to build flood resilience.

Actions:

a. Partners with and engage communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business FloodSafe), family preparedness (NSW SES Home FloodSafe) and other engagement strategies.

b. NSW SES will collate, assess and disseminate flood information to the community.

c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness and response information.

d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.

e. Collaborate with community sector and recognise the needs of individuals within communities who have an increased susceptibility during floods.

5 RESPONSE

5.1 INTRODUCTION

5.1.1 Flood response operations will begin:

a. On receipt of a Bureau Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge; or

b. On the receipt of a Bureau Flood Watch or Flood Warning; or

c. On receipt warnings for flash flood; or

d. On receipt of a dam failure alert; or

e. When other evidence leads to an expectation of flooding.

5.2 INCIDENT MANAGEMENT ARRANGEMENTS

5.2.1 **Strategy**: Maintain effective control of flood operations across NSW.

Actions:

a. NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response.

b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident.

c. The NSW SES State Controller (or delegate) will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A).

d. The NSW SES Incident Controller, in consultation with participating supporting emergency services and functional areas will determine the appropriate breakdown of an Area of Operations into Divisions and/or Sectors in accordance with the principles of AIIMS.

5.2.2 **Strategy**: Maintain Incident Control Centre(s).

Actions:

a. NSW SES will operate Incident Control Centre(s) as required.

b. The NSW SES Incident Control Centre(s) will:

- Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas.
- Manage Request for Assistance (RFA) tasking and ensure they are actioned in a timely manner.
- Undertake response planning and determine future resourcing requirements.
- Coordinate information flow, including warnings, public information and social media.

5.2.3 **Strategy**: Provide effective liaison between NSW SES and supporting agencies or functional areas in accordance with Local EMPLAN.

Actions:

a. Supporting emergency services and functional areas should provide Liaison Officers to NSW SES Incident Control Centre(s) and/or Emergency Operation Centres as required.

b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

c. Where possible Emergency Operation Centres to be co-located with NSW SES Incident Control Centres for Flood Emergency Response.

5.2.4 **Strategy**: Coordinate resources and logistics support to ensure operational effectiveness.

Actions:

a. The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources.

b. NSW SES may request resources and logistics support directly from a supporting emergency service or functional area.

c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with NSW SES where appropriate.

d. The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

5.3.1 **Strategy**: Ensure flood information is effectively utilised, communicated and collected during and post a flood.

Actions:

a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and functional areas listed under this Plan.

b. All supporting emergency services and functional areas and Council will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.

c. NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information.

d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.

e. NSW SES may request Engineering to assist with the gathering of flood intelligence including (not limited to) maximum flood extents, peak flood heights, recording major flood damage at key high velocity locations and preparation of After-Flood Report.

5.3.2 **Strategy**: Ensure flood intelligence is incorporated into operational decision-making.

Action: NSW SES will use flood intelligence, official forecasts, warnings, and flood scenario products to undertake an assessment of the predicted impact of a flood and to inform operational decision-making.

5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

5.4.1 **Strategy**: Timely and effective warnings are distributed to the community.

Actions:

a. The Bureau issues public weather and flood warning products before and during a flood. These may include:

- Severe Thunderstorm Warnings – Detailed - issued for all capital cities and surrounding areas when individual severe thunderstorms are within range of the capital city radars.
- Severe Thunderstorm Warnings - Broad-based - issued for the entire Australian State or territories affected highlighting broad areas where severe storms may occur within the next 3 hours.
- Severe Weather Warnings with reference to heavy rainfall and/or storm surge.
- Flood Watches.
- Flood Warnings.

b. Dam Owners will utilise the Dam Emergency Plan to provide warnings and information to NSW SES and communities (where appropriate).

c. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:

- Advice
- Watch and Act
- Emergency Warning

d. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.

e. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.

f. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.

g. Road closure information will be provided to the community through the following agencies/methods:

- Local Government Council websites.
- Transport for NSW 'Live Traffic' website: www.livetraffic.com or 'Transport Info Line': 131 500. VMS messaging on roadways may also be used to advise motorists.

h. The Public Information and Inquiry Centre will be established by NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.

i. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

5.5 PROTECTION OF PROPERTY

5.5.1 **Strategy**: Coordinate the protection of property from destruction or damage arising from floods.

Action: NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available, feasible and safe to do so) in:

a. The protection of properties including critical infrastructure through flood protection systems (e.g., sandbagging) to minimise entry of water into buildings.

b. The raising or moving of household furniture and commercial stock/equipment.

5.6 ROAD AND TRAFFIC CONTROL

5.6.1 **Strategy**: Coordinate the closing and re-opening of flood affected roads.

Actions:

a. Greater Hume Council Council will coordinate the closure and reopening of council managed roads once inspections have been carried out by the relevant authority.

b. Transport for NSW will coordinate the closure and reopening of the state road network.

c. NSW Police Force may close and re-open roads but will normally only do so (if the Greater Hume Council Council or Transport for NSW have not already acted and if public safety requires such action.

d. NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

5.6.2 **Strategy**: Coordinate traffic control measures in flood affected areas.

a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989.*

b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Local and Region EMPLAN's contain infrastructure inventories.

5.7.2 **Strategy**: Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy, utility services and lifelines.

Actions:

a. The Transport Services Functional Area is to coordinate the provision of information about the assessment and restoration of transport network infrastructure.

b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).

c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Public Safety Network.

d. The Engineering Services Functional Area is to:

- Coordinate the assessment and restoration of critical public buildings for example hospitals.
- Assessment and operation of flood protection levees.
- Protection of property.
- Construction and repair of levees.
- Dam safety assessment and dam stability.
- Water supply and sewerage operations.
- Other critical infrastructure.

e. The Functional Areas and Council will keep NSW SES informed of the status of utilities and infrastructure.

5.8 EVACUATION

5.8.1 Evacuation is NSW SES's primary response strategy for managing the population at risk of flooding.

5.8.2 Community specific evacuation arrangements are located in Volume 3 of this Plan.

5.8.3 **Strategy**: Conduct planning to ensure all evacuation constraints are considered.

Actions:

a. Evacuations will take place when there is a risk to public safety. Circumstances may include:

- Evacuation of people when their homes or businesses are likely to flood.

- Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.
- Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable.

b. NSW SES will consider the following in evacuation decisions:

- Duration of evacuation.
- Characteristics of the community.
- Numbers requiring evacuation.
- Availability of evacuation routes and transport.
- The ability for existing levees or other flood protection works to fulfil their intended function.
- Time available for evacuation.
- Evacuee management requirements.
- Resources and delivery of evacuation information.
- Length of isolation.

c. NSW SES Incident Controllers, planning and intelligence officers will carefully consider the risks involved in conducting evacuations.

d. All evacuation decisions will be made as per the current NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.

e. Potential Evacuation Centres are located in the Local EMPLAN.

f. NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.4 **Strategy**: Evacuate people pre-emptively from dangerous or potentially dangerous places and or locations created by the flood hazard to safe locations away from the hazard.

a. NSW SES will control and coordinate the evacuation of affected communities.

b. The NSW SES Commissioner (or delegate) will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.

c. The NSW SES Commissioner (or delegate) will order any necessary evacuations and provide information to the community about when and how to evacuate.

d. Support to evacuation operations may be requested from other emergency services and supporting agencies using arrangements in the local EMPLAN and supporting plans.

e. The Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with NSW SES and Welfare Services.

f. School administration offices (Government and Private) will coordinate the evacuation of schools in consultation with NSW SES and Welfare Services, if not already closed.

g. Caravan Park proprietors will inform the NSW SES Incident Controller when caravan park evacuations have been completed.

h. People who are reluctant or refuse to comply with any Emergency Warning will be referred to NSW Police Force.

5.9 EVACUEE MANAGEMENT AND WELFARE

5.9.1 Research and experience in flood operations shows that most evacuees go to family, friends and commercial accommodation outside the impact area.

5.9.2 **Strategy**: Maintain the welfare of communities and individuals affected by the impact of a flood.

Actions:

a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.

b. The Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.

c. Schools Administration (Government and Private) will manage the safety of students directly affected by flooding and will work with NSW SES in the temporary closure of schools and will coordinate with NSW SES, Transport and Welfare Services in the management of school evacuees.

d. Disaster Victim Registration will be controlled and coordinated by NSW Police Force with the assistance of NSW SES and the Welfare Services Functional Area.

e. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.

f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCON may establish Major Evacuation Centres or Mass Care facilities.

g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.

5.9.3 **Strategy**: Coordinate available and accessible health services for flood affected communities.

Action: The provision of environmental health advice, assessment of public health risks and coordination of immediate mental health support will be provided by the Health Services Functional Area.

5.9.4 **Strategy**: Maintain the welfare of animals impacted by a flood.

Actions:

a. The Agriculture and Animal Services Functional Area will coordinate the welfare of livestock, pets, companion animals and wildlife including support to primary producers, animal holding establishments and community members.

b. The Agriculture and Animal Services Functional Area role will coordinate the evacuation, emergency care of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

5.10 FLOOD RESCUE

5.10.1 **Strategy**: Control and coordinate flood rescue of people and domestic animals.

Actions:

a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.

b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.

c. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to NSW SES. Notification arrangements with NSW Police Force are outlined in the State Rescue Board NSW State Rescue Policy.

d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include Large Animal Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through the Animal and Agriculture Services Functional Area.

5.11 RESUPPLY

5.11.1 **Strategy**: Coordinate resupply to towns and villages isolated by flooding to minimise disruption to the community.

Actions:

a. NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.

b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.

c. When isolation occurs, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.

d. NSW SES will endeavour to support the delivery of mail to isolated communities but may not be able to do so according to normal Australia Post timetables.

e. NSW SES will assist hospitals with resupply of linen and other consumables where able.

f. NSW SES may request resupply assistance from supporting agencies.

g. NSW SES may conduct resupply operations as per the designated resupply plan for the event.

h. Where additional supplies are required, Engineering Services Functional Area will be requested to coordinate the supply of goods and services in response to and recovery from the emergency.

5.11.2 **Strategy**: Coordinate resupply to rural properties isolated by flooding.

Actions:

a. When requested, NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties.

b. NSW SES will provide local suppliers with designated loading points. Resupply items are to be packaged by the supplier.

c. Isolated households unable to afford resupply items will be referred to the Welfare Services Functional Area for assistance.

5.12 RETURN

5.12.1 **Strategy**: Coordinate the return of communities to flood affected areas when the immediate danger to life and property has passed.

Actions:

a. The NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations Controller and supporting agencies considering the ongoing risk to public safety.

b. The NSW SES Incident Controller will specify the level of access to affected communities as the following:

- Not suitable for access; or
- Limited access by emergency services and response agencies; or
- Limited access by residents and/or business operators; or
- Full access.

c. The NSW SES Incident Controller will issue an Advice Warning advising "Reduced Threat: Return with Caution" when the immediate danger to life and property has passed for areas.

d. NSW SES will facilitate the return of evacuees to their homes.

5.13 END OF RESPONSE OPERATIONS

5.13.1 **Strategy**: Conclude response operations.

Actions:

a. Response operations will conclude when:

- There is a reduced likelihood of additional flooding within the Area of Operation and flood waters have receded.
- All requests for assistance related to the flood have been completed.
- The need for warning and evacuation no longer exists.
- There is no further likelihood of rescuing people.
- Resupply is no longer required (resupply operations may occur concurrently with the recovery phase).
- Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites).
- All affected areas have had an 'Reduced Threat: Return with Caution' issued.

5.14 POST IMPACT ACTIONS

5.14.1 **Strategy**: Learnings from the event are used to inform recovery and future events.

Actions:

a. NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau, Welfare Services and Greater Hume Council Council representatives.

b. NSW SES will conduct After Action Reviews, at the conclusion of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.

c. NSW SES will provide information and data throughout the emergency response to inform community recovery. A report will be developed at the request of the SERCON at the conclusion of the response within an area. Should a response summary report be required it will include the following:

- The emergency action plan in place at conclusion of the response emphasising any continuing activities including community meetings/ engagement activities.
- Resources allocated to the emergency response and associated exit strategies.
- Details of any areas or situations with potential to re-escalate the emergency.
- A recommendation for the conclusion of NSW SES as lead agency to transition to NSW Reconstruction Authority as the lead agency for Recovery.
- Any actions that are incomplete or outstanding.

- Damage Assessment Data and Information obtained throughout the response phase which will further support the long-term recovery of communities.

d. NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

5.14.2 **Strategy:** Participate in post flood data collection analysis.

Actions: NSW SES works with relevant stakeholders and Greater Hume Council Council(s) on post flood data collection analysis including review of flood intelligence where necessary.

6 RECOVERY OPERATIONS

6.1 INTRODUCTION

6.1.1 Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the Response phase.

6.1.2 Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.

6.2 NSW SES RECOVERY ROLE

6.2.1 **Strategy**: NSW SES will support recovery operations and established Recovery Committees.

6.2.2 **Actions**:

a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase.

b. NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general advice and assistance to the committee as a subject matter specialist and or expert.

c. NSW SES will provide information to NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.

d. NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood.

e. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.

f. NSW SES may coordinate immediate relief in collaboration with SEOCON and SERCON.

7 ABBREVIATIONS

For a full list of abbreviations refer to the NSW State Flood Plan - Abbreviations

8 GLOSSARY

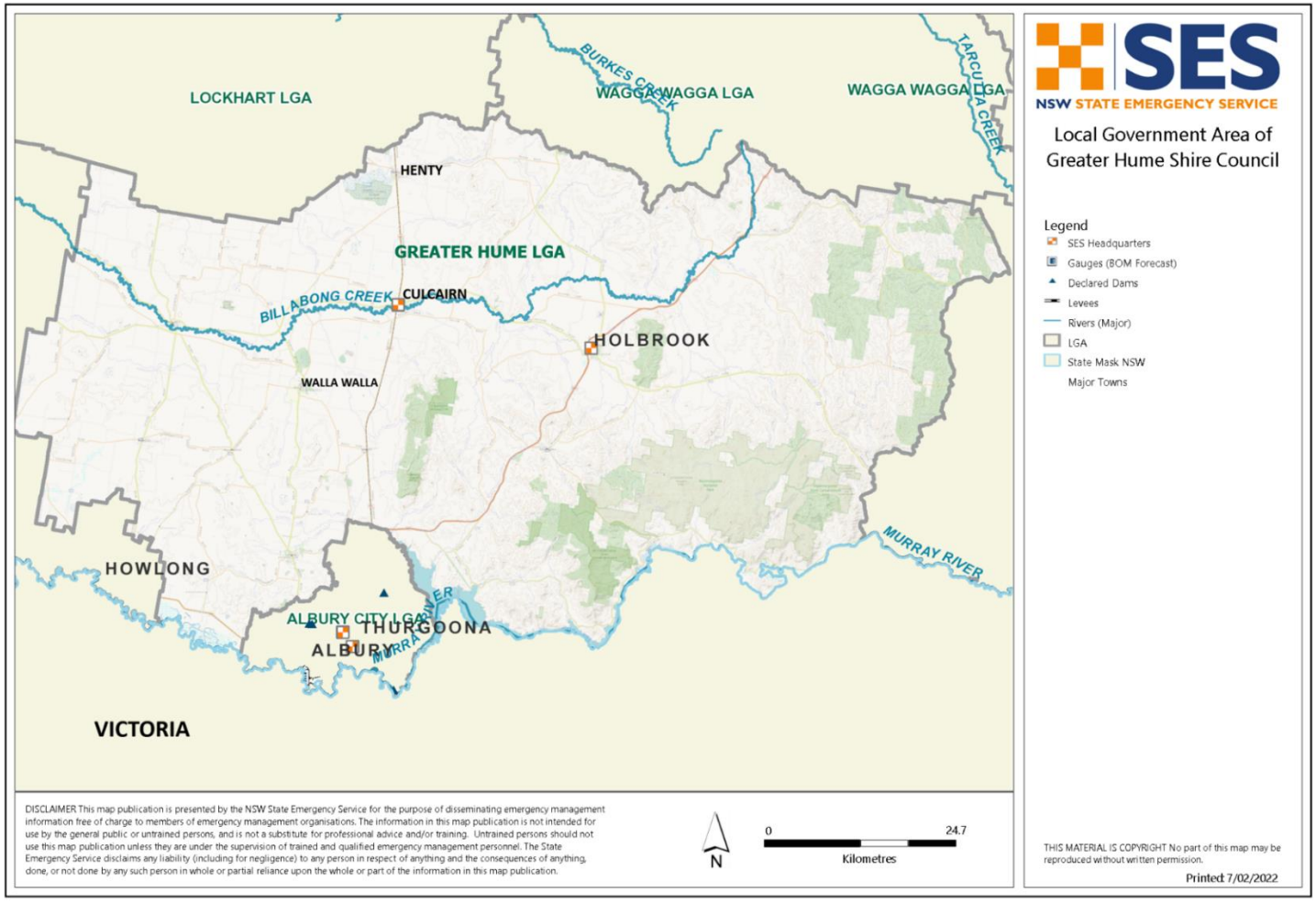
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

Readers should refer to EMPLAN Annex 9 – Definitions.

Refer to the NSW State Flood Plan for a complete glossary of terminology used throughout this plan and within NSW SES Flood Plans.

For a full list of definitions refer to the Supporting Document - State Flood Plan Glossary https://www.ses.nsw.gov.au/media/2650/glossary.pdf

9 Appendix A – Map of Greater Hume Council Council Area



10 Appendix B – Roles and Responsibilities

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	NSW SES is the designated Combat Agency for floods, storms and tsunami and controls response operations. NSW SES roles and responsibilities in relation to floods are outlined in the NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Supporting Plan and NSW State Flood Plan.
Australian Government Bureau of Meteorology	The roles and responsibilities for the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan.
Caravan Park Proprietor(s)	• Prepare a flood emergency plan for the Caravan Park. • Ensure that owners and occupiers of movable dwellings are aware that the caravan park is flood liable by providing a written notice to occupiers taking up residence and displaying this notice and emergency management arrangement within the park. • Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should: – Provide the manager of the caravan park with a contact address and telephone number in case of an emergency. – Leave any movable dwelling in a condition allowing it to be relocated in an emergency (i.e.: should ensure that the wheels, axles and draw bar of the caravans are not removed and are maintained in proper working order). • Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to: – Ensure that they have spare batteries for their radios. – Listen to a local radio station for updated flood information. – Prepare for evacuation and movable dwelling (cabins) relocation. • Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs. • Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers.

AGENCY	RESPONSIBILITIES
	• Secure any movable dwellings that are not able to be relocated to prevent floatation. • Inform NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks.
Childcare Centres and Preschools	• When notified of possible flooding or isolation, childcare centres and preschools should. – Liaise with NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures. – Assist with coordinating the evacuation of preschools and childcare centres.
Dams Safety NSW	The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.
Department of Defence	Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).
Energy and Utilities Services Functional Area	The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN). Roles and responsibilities in addition to the Supporting Plan are: • Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available. • Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: – Provide advice to NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection. – Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation. – Advise the public regarding electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply. – Clear or make safe any hazard caused by power lines or electricity distribution equipment. – Reconnect customers' electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow. – Assist NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
Engineering Services Functional Area	The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Environmental Services Functional Area	The roles and responsibilities for Environmental Services are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan.
Floodplain Management Australia	The roles and responsibilities for Floodplain Management Australia are outlined in the NSW State Flood Plan**.**
Fire and Rescue NSW	The roles and responsibilities for Fire and Rescue NSW are outlined in the NSW State Flood Plan.
Forestry Corporation of NSW	The roles and responsibilities for Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
Greater Hume Council Council	**Preparedness** • Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented. • Develop and implement floodplain risk management plans in accordance with the NSW Government's Flood Prone Land Policy and the Floodplain Risk Management Manual. • Provide levee studies, flood studies and floodplain management studies to NSW SES. • Maintain council-owned flood warning networks and flood mitigation works. • Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub Plans. • Maintain a plant and equipment resource list for the council area. • Contribute to community engagement activities. **Response** • Subject to the availability of council resources, assist NSW SES with flood operations including: – Traffic management on council managed roads. – Provision of assistance to NSW SES (plant, equipment and personnel where able and requested). – Property protection tasks including sandbagging. – Assist with the removal of caravans from caravan parks. – Warning and/or evacuation of residents and other people in flood liable areas. – Provision of back-up radio communications. – Resupply of isolated properties. – Technical advice on the impacts of flooding. – Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise NSW SES, NSW Police Force and people who contact the council for road information.

AGENCY	RESPONSIBILITIES
	– Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected. • Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations. • Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation. • Manage and protect council-owned infrastructure facilities during floods. • Provide advice to NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply. • Advise the Environmental Protection Authority of any sewerage overflow caused by flooding. • Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events. **Recovery** • Provide for the management of health hazards associated with flooding including removing debris and waste. • Ensure premises are fit and safe for reoccupation and assess any need for demolition. • Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.
Health Services Functional Area	The roles and responsibilities for Health Services are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
Local Emergency Operations Controller (LEOCON)	• Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer (LEMO)	• If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.
Manly Hydraulics Laboratory (MHL)	The roles and responsibilities for Manly Hydraulic Laboratory are outlined in the NSW State Flood Plan.
Marine Rescue NSW	The roles and responsibilities for Marine Rescue NSW are outlined in the NSW State Flood Plan.
NSW Ambulance	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission	The roles and responsibilities for NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission are outlined in the NSW State Flood Plan.
NSW Department of Planning and Environment (Environment and Heritage Group)	The roles and responsibilities for NSW Department of Planning and Environment (Environment and Heritage Group) are outlined in the NSW State Flood Plan (referred to as DPIE EES).
NSW Department of Planning and Environment (Water)	The roles and responsibilities for NSW Department of Planning and Environment (Water) are outlined in the NSW State Flood Plan.
NSW Food Authority	The roles and responsibilities for NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
NSW National Parks and Wildlife Services	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
NSW Police Force	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
NSW Reconstruction Authority	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
NSW Rural Fire Service	The roles and responsibilities for NSW Rural Fire Service are outlined in the NSW State Flood Plan.
Owners of Declared Dams within or upstream of the LGA	The roles and responsibilities for Owners of Declared Dams are outlined in the NSW State Flood Plan.
Public Information Services Functional Area	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood. Plan**.**
SEOCON/SEOC	The roles and responsibilities for the SEOCON/SEOC are outlined in the NSW State Flood Plan**.**
Surf Life Saving NSW	The roles and responsibilities for Surf Life Saving NSW are outlined in the NSW State Flood Plan.
Telecommunications Services Functional Area	The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.
Transport for NSW	• Transport for NSW coordinates information on road conditions for emergency services access. • Transport for NSW coordinates the management of the road network across all modes of transport.

AGENCY	RESPONSIBILITIES
	• Transport for NSW in conjunction will assist NSW SES with the evacuation of at-risk communities by maintaining access and egress routes. • Assist NSW SES with the communication of flood warnings and information provision to the public through Live Traffic and Social Media according to the VMS protocols and procedures. • Assist NSW SES with identification of road infrastructure at risk of flooding.
Transport Services Functional Area	The roles and responsibilities for Transport Services are outlined in the Transport Services Functional Area Supporting Plan and NSW State Flood Plan.
VRA Rescue NSW	The roles and responsibilities for VRA Rescue NSW are outlined in the NSW State Flood Plan.
Water NSW	The roles and responsibilities for Water NSW are outlined in the NSW State Flood Plan.
Welfare Services Functional Area	The roles and responsibilities for Welfare Services are outlined in the Welfare Services Functional Area Supporting Plan and NSW State Flood Plan.

11 Appendix C – Community Specific Roles and Responsibilities

Community Members	**Preparedness** • Understand the potential risk and impact of flooding. • Prepare homes and property to reduce the impact of flooding. • Understand warnings and other triggers for action and the safest actions to take in a flood. • Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours. • Have an emergency kit. • Be involved in local emergency planning processes. **Recovery** • Assist with community clean-up if required and able to do so. • Participate in After Action Reviews if required.
Private Companies or other Organisations	• Goodes Grain and Fertilizer - Assists with the provision of loaders and tray back trucks. • Nutrien Ag - Assists with the provision of forklifts and tray back trucks.
Service and Sporting Clubs	• Culcairn Lions Football and Netball Club. • Rand Walbundrie Walla Giants Football and Netball Club.
Communication	• Greater Hume Council Facebook Page. • Culcairn NSW SES Facebook Page. • Holbrook NSW SES Facebook Page. • Greater Hume Radio 2GR. • Border Mail.
Community Assistance Groups	• Red Cross. • Lions Club.

NSW STATE EMERGENCY SERVICE

HAZARD AND RISK IN ALBURY HUME

Volume 2 of the Albury Hume Local Flood Plan

Last Update: July 2003

FloodSafe

ANNEX A - THE FLOOD THREAT

The Area Covered by the Plan

1. The area covered by the plan includes:

   a. The Murray River from Wymah (on the back reaches of Lake Hume) to a point 10 kilometres downstream of Howlong.

   b. A small section of Lake Hume on the NSW side of the State border.

   c. Bowna Creek – a tributary of Lake Hume.

   d. Billabong Creek.

   e. Oddies Creek – which passes through the south eastern part of Albury City.

   f. Bungambrawatha Creek which passes through the centre of the Albury City.

   g. The Murray anabranch which travels through the southern end of Albury.

   h. Majors Creek, which flows into Howlong Swamp to the North of the township of Howlong.

The Murray River Basin

2. The Murray River rises at approximately 1430 metres in the Australian Alps between Mount Pilot and Forest Hill on the NSW/Victorian border and flows 2530 kilometres to enter the Southern Ocean through Lake Alexandrina in South Australia. Near its headwaters, the Murray River is augmented by waters diverted by the Snowy Mountains Scheme and is joined on the Victorian side by the Mitta Mitta River above the Hume Reservoir, and the Kiewa River near Albury.

3. The section of the Murray River from Hume Dam to Corowa is characterised by steep narrow valleys with limited floodplain areas. This reach, while constituting only 2% of the catchment area for the Murray, provides 40% of the River's flow. Major NSW tributaries in this reach include the Geehi, Swampy Plain and Tooma rivers, while the main Victorian tributaries are the Mitta Mitta and Keiwa rivers.

4. Flooding on the Upper Murray reaches (above the Hume Dam) is confined to deep channels or to a floodplain of only a few kilometres in width. Downstream of the Hume Dam, overbank flooding starts at Heywoods Bridge immediately below the dam, but flood waters are also confined to a narrow floodplain up to 2 kilometres wide on either side of the river down as far as Howlong in the Hume Shire. This area is characterised by the broken nature of the land in this reach and many paddocks do not have access across flood drainage lines during periods of high river flows associated with floods.

Flood Behaviour

5. The length of the Murray River, the large catchment area and the volume of water in flood plain storage during flood periods can combine to produce inundation times of up to several months. High and prolonged base flows in wet years can also increase inundation times on the Upper Murray.

6. The significant input to the Murray River system by the various tributaries in both Victoria and New South Wales introduces a degree of complexity. The timing of floods from the various tributaries of the Murray basin depends upon the movement and frequency of the weather systems giving rise to the flooding. Flooding in the catchments of the Victorian tributaries can often intensify Murray River flooding. Further, because of the large catchment area of the Murray River, significant flooding can occur in parts of the Murray River as a result of isolated flooding of the tributaries. Murray River flooding resulting from such isolated events is generally confined to the reach immediately downstream of the tributary confluence, as such floods are usually relatively low-volume, allowing significant channel attenuation of the flood peaks further downstream.

7. The major structures and road crossings on the Murray River floodplain in Albury City council area (the Hume Highway/Lincoln Causeway and the Sydney-Melbourne railway line) and minor road bridges and culverts on water courses other than the Murray River also impact on flow behaviours in Albury.

Local Flooding

8. Albury City also has a localised flooding problem resulting from the inability of the existing drainage system in South Albury to cope with run-off from heavy localised rainfall events.

9. If localised flooding occurs at the same time as riverine flooding, South Albury is potentially at threat of flooding from two directions - the Murray River to the south of the city and the internal South Albury Drainage catchment which has its outlet through Browns Lagoon and then along Mudges Canal (in Hovell Street) to the Murray River at Wodonga Place. The South Albury catchment area in the vicinity of Ebden Street, Olive Street and Butson Avenue forms a basin effect and is one of the lowest areas in South Albury; in fact, it is a natural flood path.

10. Two local flooding events occurred on 17 October 1992 and 18 January 1993. On 17 October 1992, a 5% Annual Exceedence Probability (AEP) rainfall event coincided with a 10% AEP Murray River flood event. On 18 January 1993, an even more severe storm occurred which is assessed to have been in the order of the 3% AEP. Fortunately, on this occasion, the river level was low.

11. The levee system in South Albury has been designed to protect the area from riverine floods up to the 1% AEP level (estimated to be approximately 5.85 metres on the Albury gauge). This levee bank however, also results in South Albury being vulnerable to internal flooding during periods when the Murray River is at a high level and natural drainage from South Albury to the Murray is impeded by high flows in the river itself. When this occurs, storm flows have to be pumped over the levee bank.

12. In addition, the Lavington east and west drain catchments and Bungambrawatha Creek catchment are only partially developed and localised flooding has also been experienced in these areas in recent times.

Storage Dams

13. Dartmouth Dam impounds water from the Mitta Mitta River in Victoria. It is used to supplement the Hume Dam when required, to increase supplies to the Murray River system in dry seasons. The dam has a capacity of 3, 900, 000 megalitres.

14. The Hume Dam impounds the waters of the Upper Murray River (including the Snowy Mountain Scheme diversions) and the Mitta Mitta rivers and has a storage capacity of 3,038,000 megalitres with a full supply level of 192.0 metres. The dam is located downstream of the junction of the two rivers, approximately 16 kilometres east of Albury. It is operated and managed by State Water (the commercial arm of the Department of Infrastructure, Planning and Natural Resources – DIPNR) on behalf of the Murray-Darling Basin Commission (MDBC).

15. Since its construction in 1936, Hume Dam on the Murray River has been operated to store the typically high winter and spring inflows for release during the summer and autumn months, to meet irrigation, town water, industrial, stock and domestic needs downstream. The change to the 'natural' flow pattern has been to reverse the typical seasonal cycle of high flows in late winter and spring and low flows through summer and autumn. The transfer of additional water from the Snowy River has also resulted in higher annual flows than under natural conditions.

16. While the seasonal flow patterns have been changed dramatically, the daily flow variations in the River Murray downstream of Hume Dam has also been changed, as release patterns from the dam are typically constant for weekly or monthly periods. When there is adequate available water and irrigation demands are high, the river is run at nominal channel capacity or full regulated flow (currently 25,000 megalitres per day) which is equivalent to approximately 3.0 metres on the Albury gauge.

17. Hume and Dartmouth dams both play a role in reducing the frequency of flooding and influence the timing of flood peaks in the Murray River, principally in the upper reaches. The overall result is a greater reduction in peak flow for smaller flood events, particularly winter and early spring floods which occur at a time when the dam has the capacity to store these flows. The dams however, also have the effect of extending the duration of high flows. The effects of both dams in mitigating large floods is considered to be negligible, particularly if the dams are at or near full supply level.

18. It is currently understood that the Hume Dam would not be able to safely pass the estimated Probable Maximum Flood (PMF). The maximum flood which can be passed without failure is referred to as the imminent failure flood (IFF). In the case of Hume Dam, the IFF could be as low as 60% of the PMF. Even so, it would be an extreme event with the daily flow rate being about four times that of the 1870 Flood of Record (5.89 metres on the Albury, gauge). This could not occur without considerable warning given that it would require more than a day of intense rainfall across the catchment.

19. Details of the warning and evacuation procedures for potential failure of the Hume Dam are contained in Annex H of this plan.

Weather Systems

20. Flooding in Albury City and the Hume Shire usually results from one of the following three weather mechanisms:

a. **Well developed low-pressure troughs**. The most usual set of meteorological conditions causing flooding is a series of well-developed inland troughs associated with southern depressions crossing the council areas from west to east. These can be associated with thunderstorms and very heavy rain. Sequences of such troughs can produce high rainfall totals over a period of weeks, usually in the winter months.

b. **East coast low-pressure systems**. These systems develop off the coast of NSW and Victoria, usually during the cooler months of the year. They direct moist winds onto the coast and across the Great Dividing Range, often producing very heavy rain. Usually, but not exclusively, they move in a generally southerly direction and can generate floods in the upper reaches of westward flowing streams. East coast lows off the Victorian coast can produce substantial flooding in a number of the tributaries of the Murray River, exacerbating flood conditions on the NSW side of the border.

c. **Sequences of cold fronts**. Fronts crossing the State from west to east can produce flooding in the Murray River catchment during the winter months. The individual fronts are not usually associated with very heavy falls, but the cumulative effect of a series of them over a period of a few weeks may result in flooding. The major floods on the Murray River in 1870, 1917, and 1975 resulted from such systems. On occasion, these fronts may also be associated with low pressure systems at the tail end of the frontal system.

21. The reach of the Murray River within the Albury City and Hume Shires can be categorised as having a warm temperate climate. The mean annual rainfall diminishes rapidly in the downstream direction, varying from about 800mm near Lake Hume to about 600mm around Corowa.

22. Rainfall in this region has a predominant winter/spring pattern and as a result, under natural conditions, the Murray River demonstrated distinct seasonal pulses in the amount of water it carries. It is interesting to note that all of the major floods recorded at the Albury gauge since 1867 have occurred in October and all of the flood peaks above the minor flood level (4.30 metres at the Albury gauge) have occurred between the months of June and November as shown in Figure 1 below.

23. There are also considerable year to year differences in flows in the Murray River consistent with periods of drought. As a result, there have been periods in which numerous flood peaks above the minor flood level have been recorded in a small number of years and also periods where no flooding has occurred for a number of years.

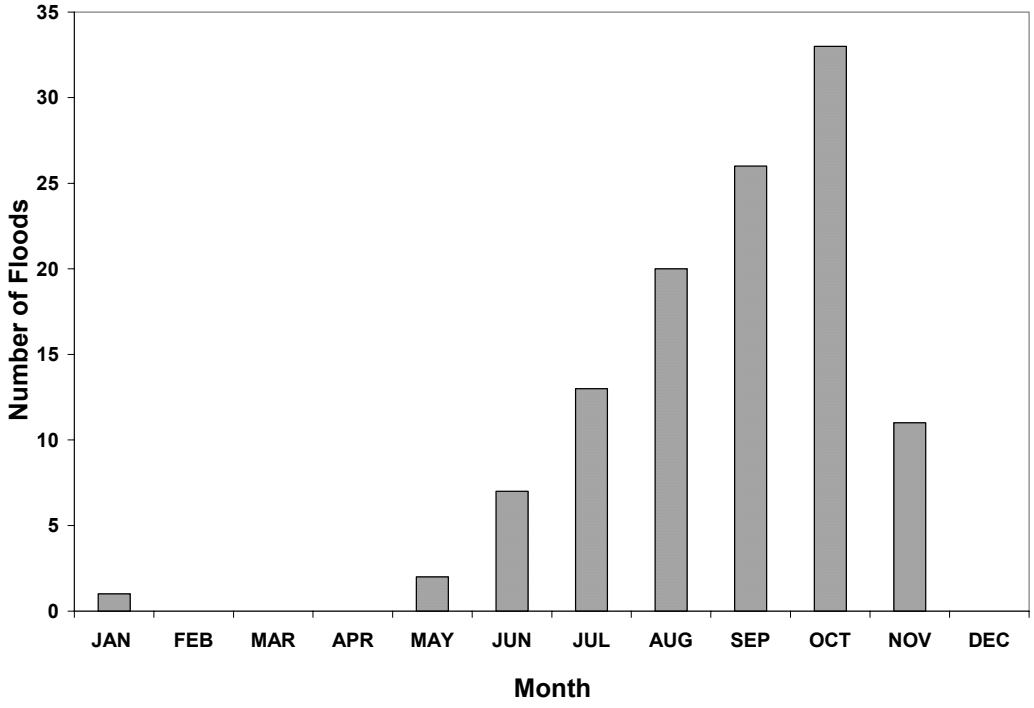


Figure 1: Number of Floods Above the Minor Flood Level (4.30 metres) Recorded at the Albury Gauge since 1867 by Month

The Flood History

24. The Murray River at Albury has a long history of flooding with the worst recorded floods occurring in 1870 (approximately 5.89 metres at the Albury gauge) and 1917 (5.83 metres at Albury). See Figure 1 below for further detail. The 1917 flood peaked just below the 1% AEP flood level at Albury, estimated to be 5.85 metres. Other floods peaking above the major flood height (5.50 metres at the Albury gauge) also occurred in 1867, 1974 and 1975. During the October 1975 flood (5.68 metres on the Albury gauge), the eastern part of the South Albury levee was not complete and part of the city was inundated by flood waters. This is estimated to be approximately the 2% flood in the Murray River.

25. More recently, moderate level flooding (4.90 metres or greater on the Albury gauge) has occurred in the years 1992, 1993, 1996 and 2000.

Indicative Peak Flow Travel Times

26. Indicative flood travel times for the Murray River are as follows:

a. Hume Dam to Albury: 6 hours.

b. Albury to Corowa: 24 hours

27. It must be stressed that these are indicative only and may vary significantly – particularly during extreme flood events. In the event of the failure of Hume Dam (or Dartmouth and Hume Dams) for example, these times would be much shorter. See

Annex H for the warning and evacuation procedures that would apply in the case of failure of Hume Dam.

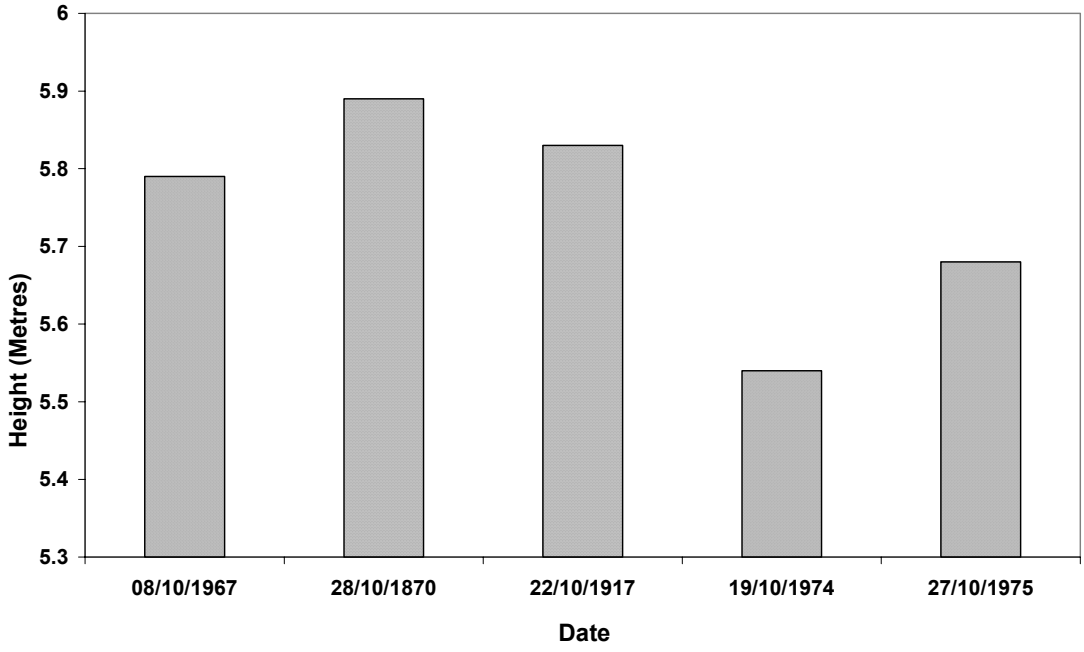


Figure 2: Floods Above the Major Flood Classification Level (5.50 metres) at the Albury Gauge

Flood Mitigation Systems

28. Albury is protected from Murray River flooding by a levee system across the southern perimeter of the city. The total length of the levees is approximately 3.3 kilometres consisting of a levee east of the railway line and protecting East Albury and another levee west of the railway line protecting South Albury. A 600 metre length of railway line embankment serves as a levee connecting the east and west sections of levee.

29. The levee system has been designed to protect against floods up to the 1% AEP (estimated to be approximately 5.85 metres on the Albury gauge) event, however there is no guarantee that the levee can protect the community of Albury against floods above this level. Whilst the levee system has not failed during floods occurring since its completion, the low level Abercorn Street bridge requires sandbagging and monitoring during floods.

30. As noted previously, the levee bank which protects South Albury from Murray River flooding also has the adverse effect of inhibiting the discharge of internal catchment stormwater during localised rainfall events potentially making flood conditions worse inside the levee during such events.

Extreme Flooding

31. The worst floods ever recorded in Albury City and the Hume Shire since European settlement should not be regarded as the most severe which can occur here. Floods much worse than those that have been seen by present residents, are possible

and floods even greater than the Flood of Record in 1870 (5.89 metres at the Albury gauge) can and will occur.

32. It must be remembered that the levee system in South and East Albury has been designed to protect the City from floods up to the 1% AEP or once-in-one-hundred-years event. Once the flood level exceeds 5.85 metres at the Albury gauge (about the 1% AEP flood level) there is a risk that the flood waters could overtop the east levee in the south east corner at Doctors Point. If this occurred, water could then fill the area between the levee and the Railway line (on the eastern side) and then possibly overtop the levee at other locations. Such floods will be rare, but they may reach considerably greater heights than have previously been experienced. In addition, they are likely to be both faster to rise and more dangerous in terms of depth and velocity than previous events.

33. There is also a remote possibility, in an extreme flood event in the Upper Murray catchment, that the Hume Dam could fail. Should this occur, the flooding throughout the course of the Murray River within the Albury City and Hume Shire council areas would be of unprecedented severity. Flood flows would be of much higher velocity than have been recorded in past events on the river, and the flooding would reach much higher levels, more rapidly and cover much greater areas of the floodplain than has ever been experienced in the past. It is also likely that flood waters would remain in the lower-lying rural areas for longer periods than has ever occurred previously.

ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

Introduction

1. Small floods, below the minor flood level of 4.30 metres at the Albury gauge, are generally of a shorter duration but occurs with a frequency of once every two to three years on the Murray River. While communications and public utilities are not usually significantly affected by these events, considerable disruption to rural activities results. In larger events, roads on the flood plain are occasionally cut and in major floods (5.50 metres or greater on the Albury gauge), potential exists for significant interruption to transportation facilities. In the event of a failure or overtopping of the levee system in South and East Albury, hundreds of homes and businesses would be inundated by flood waters.

Effects of Flooding in Albury

2. Albury City Council area covers approximately 106 square kilometres and is located downstream of the Hume dam on the Murray River. The residential population is approximately 44,000, although day time figures will change significantly as many people cross the border to or from Victoria for work.

3. Albury has been severely affected by a number of floods in the past. Levees built in 1968 (East Levee) and 1976 (South Levee) have been designed to protect most of South Albury to the 1% AEP flood level of (estimated to be approximately 5.85 metres at the Albury gauge). In 1975, the upstream levee (East Levee) which was not complete, did not offer full protection and flood waters inundated part of the city. The levee bank system between Doctors Point Road and Wodonga Place was reconstructed in 1995 and 1996 and extensive testing was carried out in this area.

4. A number of industrial premises located outside the levee in South Albury may be inundated by flood waters at heights below the estimated level of the 1% AEP flood (5.85 metres on the Albury gauge). These properties may also be affected by flood water from Oddies Creek (an anabranch of the Murray River).

5. A flood similar to or larger than the Flood of Record in 1870 (5.89 metres on the Albury gauge and approximately a 1% AEP) could overtop the South Albury levees. If this occurred, it is estimated that up to 820 residential premises as well as industrial and business premises located in these areas may require evacuation. Further details on evacuation of residents at risk are contained in Annex F of this plan.

6. During such an event, many roads will also be closed by flood water and the Sydney-Melbourne Railway and the Albury Aerodrome may no longer be available.

7. Within Albury and Lavington, flash flooding can result from local runoff, with the area at most risk being along the Bungambrawatha Creek and parts of South Albury which are affected by poor drainage into the Murray River during heavy local

rainfall events. During local flooding in October 1992 and January 1993, damage to houses and property was extensive.

8. During the 1992 event (estimated to be a 5% rainfall event), when concurrent flooding on the Murray River was occurring (estimated to be approximately a 10% AEP flood), the National Highway at Wodonga Place was flooded and highway traffic had to be diverted to alternate routes. It should be noted that Albury City Council has completed substantial flood mitigation works, as part of the South Albury Flood Mitigation Strategy which will greatly reduce the potential impact of flooding in this area. It is likely that the National Highway will not be affected in future floods at this level, providing the South Albury pumping station is operating correctly.

9. The January 1993 event was even more severe (assessed to have been in the order of the 3% AEP). Fortunately, on this occasion, the river level was low and the Hume Highway remained open, however Doctors Point Road and the Riverina Highway were closed. In addition, a total of 111 residential and seven commercial premises in Charles, Fleming, Hovell, Ebden, Kiewa, Olive, David, McAuley and Bridge streets and Butson Avenue were affected by flooding to varying degrees. Of these, 29 homes were flooded above floor level, 30 homes had water under floors and further properties had garages or substantial outbuildings flooded. The seven commercial properties affected during this event were either partly or wholly inundated.

Effects of Flooding at Howlong

10. The village of Howlong is located on the right (north) bank of the Murray River 30 kilometres downstream of Albury and upstream of Corowa. The village is located in the Hume Shire and has a population of approximately 1100. The limited nature of services in the town points to a strong dependence on and interaction with Albury. The main transport routes are the Riverina Highway running east-west from Albury to Deniliquin and minor roads north to Walbundrie and south across the Murray River to Chiltern. Access is designed to remain open in all directions during major floods, as it did in 1975 (5.68 metres on the Albury gauge). In floods greater than the 1% AEP or once-in-one-hundred-years event, these roads may become closed by floodwater making travel to and from Howlong difficult or even isolating the community entirely.

11. Only the lowest parts of Howlong are inundated by major floods on the Murray River. No buildings were flooded in 1975 (about 0.5 metres below the estimated 1% AEP flood level of 5.85 metres on the Albury gauge) and a repeat of the larger 1870 and 1917 floods would probably have a similar effect. These peak levels generally last only a few days, although the river will often remain in flood for several months.

12. Howlong also experiences local flooding problems within the presently zoned area of the town, although Hume Shire Council have undertaken works to improve town drainage into the Murray River.

Effects of Flooding on Rural Properties

13. Beef cattle have proved to be the enterprise most suited to the flood plain in the reach of the Murray River contained in the Hume Shire. There are two main reasons for this and both relate to the frequent inundation of the floodplain in this area.

Firstly, beef cattle can handle the rank pasture growth conditions and secondly, they are fairly easily mustered and moved in times of flooding. As flood peaks can come at short notice, cattle are able to swim unassisted to high ground. High death rates in young animals are however, likely unless stock movement occurs in advance of flood peaks.

14. The area is generally not well suited to irrigation crops, despite the availability of good soils and ample access to watering points for the following reasons:

a. Broken topography.

b. High risk of damage to plant if left on the flood plain, or alternatively the nuisance value of relocating plant during periods of flood.

c. Difficulty in locating pumps and power sources to cater for flood levels.

d. High risk of crop damage from flooding, particularly in October and November and difficulty with access at other times.

15. Land ownership within the area is such that most properties occupy significant areas of flood-free land operated in conjunction with flood liable land. However, the land adjacent to the river is often the richest and most productive. For this reason, the effects of flooding on rural properties in the Hume Shire are often significant.

16. During minor flooding (4.30 metres on the Albury gauge) the main problems in the Hume Shire are minor road closures and loss of access and inundation of low lying paddocks. Once major flood levels are reached (5.50 metres on the Albury gauge), inundation of significant areas of land occurs on the four large properties on the NSW side of the river.

17. In general, flooding can have the following effects on farms along the Murray River:

a. Damage to cash crops.

b. Death or retardation of pasture growth, particularly for floods with a duration of more than eight days.

c. Possible livestock deaths, particularly small animals such as calves and sheep.

d. Loss of access, when in-stream flows through anabranches and lagoons prevent access to grazing and cropping areas.

e. Intrusion of noxious weeds.

f. Deposition of debris.

g. Damage to improvements such as fences, sheds, bridging, etc.

h. Disruption to livestock grazing and productivity, particularly to intensive operations.

i. Erosion hazard, particularly for cultivated land.

j. Extreme difficulty in improving pastures by conventional cultivation and seeding techniques.

k. Damage to hay, either pre- or post-cutting.

18. The impact of inundation for farmers along the Murray River is dependent on a number of factors which include:

a. The duration of inundation.

b. The type of pastures inundated (improved versus natural).

c. The time of year (impacts increase progressively as the season matures).

d. Frequency and timing of previous inundation events.

19. The effect on grazing/feed loss depends on the time of year in which the flood occurs. The estimated number of weeks of grazing/feed loss by month of flood occurrence for an inundation period of 20 days (as occurred in the 1975 flood) are listed below:

Table 1: Estimated grazing and feed loss by month.

Month of Flood Occurrence	Estimated Weeks Grazing/Feed Loss
July	8
August	10
September	15
October	22
November	18

Effects of Flooding on Transport and Infrastructure

20. **Roads** - Flooding of the Murray River is of sufficient duration and extent to affect a wide range of transport and communications systems including road, rail, air and water traffic as well as telecommunications services. Of those, road transport is the most vulnerable to interruption by flooding.

21. The Bonegilla crossing (downstream of Hume Dam) which services 10-12 farms on an island formed by the Murray River is prone to inundation during a 1% AEP event, particularly on the approach on the Victorian side. The Victorian approach to the Heywoods Bridge (downstream of Hume Dam) and both of the approaches to the old Union Bridge are also flood prone in a 1% flood. An alternative is available for Heywoods crossing, one kilometre upstream at the Hume Dam.

22. The approaches and the deck of the Union Bridge/Lincoln Causeway and the Howlong crossing are both designed to be flood free in a 1% flood event. However, the Hume Highway at Wodonga Place may close earlier during some flood events if heavy local rainfalls have also occurred if the South Albury drainage system is inoperative or malfunctioning.

23. In floods approaching the 1% AEP level, the Riverina Highway may be closed both east and west of Albury. Closure of the highway at four and eight kilometres from Hume Dam, between Wirlinga and Hume Dam village (east of Albury) restricts access to the Hume Dam and long detours by four wheel drive may be required for dam staff.

24. Transport disruptions may occur for people wishing to travel to areas further downstream with many minor roads closing and some Murray River crossings such as the Tocumwal crossing into Victoria closing during floods up to the 3% AEP level. Travellers may be stranded and require alternative accommodation or trips may need to be delayed. This may also cause significant disruption to cross-border transport of goods and services making traffic heavier at the Albury/Wodonga river crossing.

25. Within Albury City, many local roads may be closed by flood water even before the 1% flood level is reached (estimated to be 5.85 metres at the Albury gauge), particularly Doctors Point and Mungabareena roads. This may result in loss of access to a large number of dwellings and business premises and some evacuations may be required before access is lost.

26. **Rail** – The Albury/Wodonga rail crossing lies on the main Melbourne – Sydney link and has been assessed to be flood free to the 1% AEP flood level (estimated to be 5.85 metres on the Albury gauge).

27. **Airports** – The Albury aerodrome has been assessed as being flood free to the 1% AEP flood level and access should remain available during floods up to this height.

NSW STATE EMERGENCY SERVICE

SES RESPONSE ARRANGEMENTS FOR ALBURY HUME

Volume 3 of the Albury Hume Local Flood Plan

Last Update: July 2003

FloodSafe

ANNEX C - GAUGES MONITORED BY ALBURY/HUME SES

Station	AWRC No	Stream	Gauge Type (Manual/ Telemeter)	Flood Classification			Notes
				Min	Mod	Maj	
Jingellic*‡	401201	Murray River	Telemeter	4.0	5.5	7.0	Warnings issued in conjunction with CBM Victoria office.
Heywoods (D/S Hume Weir)	409016	Murray River	Manual	-	-	-	
Doctors Point	409017	Murray River	Telemeter	-	-	-	
Albury*‡	409001	Murray River	Telemeter	4.3	4.9	5.5	
Corowa*‡	409002	Murray River	Telemeter	6.0	7.7	8.6	

Note:

1. The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*).
2. The SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡).

ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

The Murray SES Division Headquarters distributes SES Flood Bulletins and other flood related information (including Flood Warnings) to the following regional media outlets:

Television Stations:

Station	Location
PRIME	Albury
TEN Victoria	Albury
WIN	Albury
ABC	Melbourne

Radio Stations:

Station	Location
ABC Goulburn Murray	Wodonga
FM 102.1	Wodonga
FM 105.7 River	Albury
STAR FM	Albury
2 AY	Albury
3NE 1566 AM	Wangaratta

Newspapers:

Name	Location
The Border Mail	Albury / Wodonga

Other Agencies:

- Albury/Hume SES Local Headquarters.
- State Water Regional Office, Hume Dam.
- NSW Police, Albury Local Area Command Headquarters, Albury.
- Ambulance Service of NSW, Albury.
- VIC SES, North East Regional Office, Benalla.
- National Roads and Motorists Association (NRMA), Albury.
- Royal Automobile Club of Victoria (RACV), Wodonga.
- Roads and Traffic Authority (RTA), Albury and Traffic Management Centre, Sydney.
- Albury City and Hume Shire councils.

ANNEX E - TEMPLATE EVACUATION WARNING MESSAGE FOR ALBURY/HUME

Date/Time of Issue:

Authorised By:

The Bureau of Meteorology has predicted a flood level of [ ] metres at [ ] ***(place)*** at [ ] ***(time).*** This means that [ ] ***(describe areas)*** may be inundated.

It is recommended that you prepare to evacuate/for evacuation within the next [ ] hours. If you leave it later, the roads may be congested or closed.

To prepare for evacuation, you should:

- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. Some items may be able to be placed in ceilings.
- Gather medicines, personal and financial documents and mementos together to take with you.
- Listen to radio stations [ ] for further information and to confirm this warning.
- If possible, check to see whether your neighbours need help.
- Make arrangements for care of pets or companion animals.

If evacuation is necessary:

- Turn off the electricity, gas and water.
- Take three days' supply of clothes with you.
- If you have a car, drive to the evacuation centre at [ ] ***(specify route if appropriate)***.
- If you don't have a car, buses will operate on normal routes. Special transport can also be provided on request if necessary, telephone [ ].
- So that you can be accounted for, it is important that you register at the evacuation centre.
- After registering, you may go to the house of a friend or relative. Alternatively, accommodation will be arranged for you.
- The Police will provide security for your property while you are away.

ANNEX F - EVACUATION ARRANGEMENTS FOR ALBURY CITY AND HUME SHIRE

Situation

1. In most flood events, few evacuations will be required in Albury City and the Hume Shire. In floods greater than the 1% Annual Exceedance Probability (AEP) event (estimated to be 5.85 metres at the Albury gauge), the levee in South Albury may begin to overtop. During such floods, up to 820 residences and a number of industrial and commercial premises in South and East Albury, Doctors Point and the business district could be inundated or isolated by flood water. If this were to occur, evacuation of these areas would be required.

Mission

2. The SES is to arrange and control the evacuation of areas at risk of flooding in order to ensure the safety of residents.

Execution

3. **Control**. During floods, evacuations will be controlled by the Albury/Hume SES Local Controller.

4. **Conduct**. Evacuations will be conducted by Albury/Hume SES Unit members with the assistance of, NSW Police, Rural Fire Service (RFS), NSW Fire Brigade and Albury and Border Rescue Squad (VRA) personnel in four phases:

a. Phase 1 - Warning.

b. Phase 2 – Withdrawal.

c. Phase 3 – Shelter.

d. Phase 4 – Return.

5. **Operational Management**. For the purpose of managing doorknocking and evacuations during severe floods, the southern and eastern parts of Albury City will be divided into three operational sectors as follows and coordinated by a sector manager as directed by the Albury/Hume SES Local Controller. Sectors A, B and C are shown in Map 4 of this plan.

a. **Sector A: Doctors Point and Surrounds** – this sector includes the area bounded by the Sydney-Melbourne Railway line to the west, the Murray River to the South, Bridge and East streets to the north and the extent of residential area to the east. This sector includes approximately 46 residential dwellings.

b. **Sector B: South Albury** – this sector is contained by the Sydney-Melbourne railway line to the east, the Murray River to the south and west and Ebden and Bridge streets to the north. Approximately 600 residential dwellings are located within this sector as well as a number of industrial and business premises.

c. **Sector C: The Smollett Street Area –** The boundaries of this sector are David Street to the East, Ebden Street to the south, the Murray River to the west and Smollett street on the north. Approximately 170 residential dwellings are located in this sector along with many businesses and two schools.

6. **Coordinating Instructions**

a. **The decision to evacuate**. The responsibility for issuing any general evacuation order during flooding rests with the Albury/Hume SES Local Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. However, the decision to evacuate will usually be made after consultation with the Albury/Hume Local Emergency Operations Controller (LEOCON) and the Murray SES Division Controller. For floods predicted to approach or exceed the design height of the Albury levee system (5.85 metres at the Albury gauge), the decision to evacuate will be made in accordance with the following guidelines:

- Where a flood is predicted to peak at a level greater than the design level of the Albury levee system, warning and evacuation of residents from Sectors A, B and C (as described above) shall be carried out at the direction of the Albury/Hume SES Local Controller.

- For flood predictions between 5.55 and 5.85 metres at the Albury gauge, the Albury/Hume SES Local Controller will determine the requirement to evacuate residents from Sectors A, B and C (as described above) as necessary. The Albury/Hume SES Local Controller and/or the Murray SES Division Controller may consult with the Commonwealth Bureau of Meteorology (CBM) and the Albury City Council when making the decision to evacuate.

b. **When evacuation should occur**. As far as possible, evacuation will be carried out before inundation occurs.

c. **Self-motivated evacuation**. Some people will make their own decision to evacuate earlier and move to alternative accommodation using their own transport. These evacuees will be advised, via the media, to inform the NSW Police or SES of their evacuation and their temporary address.

d. **Evacuation triggers**. Evacuation warnings will be issued for homes and businesses in the Albury/Hume Council areas when the following peak heights are predicted at the Albury gauge:

- 4.80 metres - one rural homestead downstream of Albury.

- 5.28 to 5.30 metres – an additional rural residence on the Riverina Highway and one residence in Waterview Road, Albury (Note: this residence required evacuation during the October 1996 flood. Flood Mitigation Works have since been carried out which may reduce the severity of flooding at this height). Businesses and homes in lower Atkins and Townsend streets may also require evacuation before this height is reached if flood waters back up in Oddies Creek.

- 5.50 metres – all residential dwellings and businesses outside the South Albury levee.

- 5.85 metres – a number of properties in Atkins, Schubach and Bridge streets and Doctors Point Road in Albury.

- Between 5.85 and 6.25 metres – hundreds of homes and businesses in Albury City may require evacuation warnings due to the potential overtopping of the South Albury levee between these gauge heights.

- Warnings to evacuate will also be issued in the case of potential failure of the Hume Dam, upon receipt of a dam failure warning from State Water (Red Alert Level at the dam).

7. **Phase 1 – Warning**

a. **Evacuation warnings**. On the receipt of flood warnings predicting peak heights of 4.80 metres and above at the Albury gauge; the Albury/Hume SES Local Controller will consult as necessary to determine the level of the threat and the need to consider evacuations. As soon as possible after the decision to evacuate is made, the Albury/Hume SES Local Controller will issue evacuation warnings to the 'at risk' residents, indicating what people should do before evacuating and when actually doing so.

b. **Content of Evacuation Warnings**. A template guide to the content of evacuation warning messages is at Annex E. These are disseminated via:

- The radio and TV stations listed in Annex D.

- Door-knocks by emergency service personnel.

- Public address systems from emergency service vehicles.

- Telephone.

- Two-way radio.

- Direct access to community radio stations.

- SES Flood Bulletins.

8. **Phase 2 – Withdrawal**

a. **Introduction**. Withdrawal involves the actual removal of the community/individuals from dangerous or potentially dangerous areas to safer areas.

b. **Movement**. Evacuees are to be encouraged to move using their own transport where possible. The Albury/Hume SES Local Controller will arrange transport for those people without their own vehicles.

c. **Phasing**. In a potential levee overtopping flood (5.85 metres or greater at the Albury gauge), evacuations are to proceed according to the sector reference, at the direction of the Albury/Hume SES Local Controller. Residents in Sector A will be evacuated first, then sector B and sector C.

d. **Evacuation routes**. Each of the three sectors described in point 5 above has been designated a separate evacuation route to avoid traffic congestion during the evacuation operation. These evacuation routes are as follows:

- **Sector A: Doctors Point and Surrounds** – evacuation north along Schubach Street then left onto Borella Road and right onto the Hume Highway.

- **Sector B: South Albury** – north along David Street/Waugh Road and right onto Fallon Street.

- **Sector C: The Smollett Street Area –** Evacuees are to proceed north along Keiwa Street.

e. **Large-scale evacuations**. In the case of dam failure flooding, large-scale evacuations will be required in Albury City. Details of the arrangements for warning and evacuation of residents at risk from dam failure flooding are contained in Annex H of this plan.

f. **Animals**. Assistance animals (guide dogs, hearing assistance animals, etc) will remain in the care of their owners throughout the evacuation. This includes transport and access into evacuation centres etc. Due to safety restrictions, it may not be possible to allow companion animals to accompany their owners when being transported via aircraft or flood rescue boats. NSW Agriculture will make separate arrangements for the evacuation and care of companion animals.

g. **Doorknocking**. Field teams conducting doorknocks will record and report the following information back to the Operations Centre:

- Addresses and locations of houses doorknocked and/or evacuated.

- The number of occupants.

- Details of support required (such as transport, medical evacuation, assistance to secure house and/or property and raise or move belongings).

- Details of residents who refuse to comply with the evacuation order

h. **Doorknocking Principles**. In a potential levee overtopping flood, up to approximately 820 residences and many businesses and industrial premises in Sectors A, B and C (described above) may be required. The following principles should be applied to the management of doorknocking operations in Albury City:

- Each doorknocking team should consist of two personnel.

- The time taken to doorknock an individual residence in an urban area is on average five (5) minutes per dwelling or, 12 dwellings per hour. (Note: this figure is based on doorknocking operations conducted during past flood events and exercises. The time taken per dwelling may vary considerably and will be much greater for rural-residential and rural areas where travel times between dwellings is much longer).

  As an example, the time required to conduct a doorknocking operation for sector B in Albury City, using the example of 15 doorknocking teams, can be calculated as follows:

$$\frac{\text{600 dwellings}}{\text{12 dwellings per hour X 15 doorknocking teams}}$$

= 3.3 hours (or approximately 3 hours and 20 minutes)

i. **Refusal to evacuate**. Field teams should not waste time dealing with people who are reluctant or refuse to comply with any evacuation order. These cases should be referred to the LEOCON who will arrange for the NSW Police to ensure their evacuation.

j. **Security**. The NSW Police and other emergency services personnel will provide security for evacuated premises.

k. **Airport**. Access to the Albury Aerodrome airport remains until the 1% AEP flood level (estimated to be 5.85 metres on the Albury gauge) is reached.

l. **Helicopter Landing Points**. Suitable landing points are located at the Albury Airport. An alternative landing point may be available at the Albury Base Hospital.(Latitude: 36° 04' 50.7" Sth Longitude: 146 ° 56' 14.3" Est)

9. **Phase 3 – Shelter**

a. **Evacuation centres**. The usual purpose of evacuation centres is to meet the immediate needs of victims, not to provide them with accommodation.

Evacuees will be advised to go to or be taken to the nearest accessible evacuation centre, which may initially be established at the direction of the Albury/Hume SES Local Controller but managed as soon as possible by the Department of Community Services. Any or all of the following sites may be used as evacuation centres for residents of both Hume Shire and Albury City:

- Albury Sports Stadium and Alexandra Park, Keene Street, Albury.
- James Fallon High School, Fallon Street, Albury.
- Murray High School, Kaitlers Road, Springdale Heights.
- Springdale Heights Primary School, Conargo Road, Springdale Heights.
- Thurgoona Public School, Thurgoona Drive, Thurgoona.
- Hume Primary School, corner of Cheyenne Drive and Parkland Crescent, Albury.
- Riverina Institute of TAFE, corner of Poole and Sackville Street, Albury.
- Glenroy Primary School, corner of Burrows and Logan roads, Glenroy.
- Mirrambeena Community Facility, Martha Mews, Lavington.

b. **Action on arrival**. On arrival, evacuees will be:

- registered;
- medically checked, if necessary; and
- provided with their immediate welfare needs.

c. **Registration**. The NSW Police will ensure that all evacuees are registered on arrival at the designated evacuation centres and details of the registrations are to be sent to the NSW Police, Albury Local Area Command Headquarters, Albury by the quickest means available. Assistance with Disaster Victim Registration will be provided by members of Service and Sporting Clubs in Albury as available at the time of the flood event.

10. **Phase 4 – Return**

a. Once it is considered safe to do so, the Albury/Hume SES Local Controller will authorise the return of evacuees to their normal or alternative place of residence. This decision will be made in consultation with appropriate officers in regard to matters such as the electrical safety of buildings.

b. The return will be controlled by the Albury/Hume SES Local Controller and may be conducted, at his/her request, by DoCS.

Administration and Logistics

11. **Transport and storage**. Transport and storage of furniture from flood threatened properties will be arranged as time and resources permit.

12. **Support provided at evacuation centres**. The expected duration of the evacuation will dictate the need for and level of facilities and support at the evacuation centres. If evacuations are expected to be of a short duration, evacuees may be provided with short-term accommodation at the centres. However, if they are expected to last for longer than 24 hours, evacuees will be encouraged to go to alternative accommodation or stay with friends where possible. Alternatively, accommodation will be arranged for them in hotels, motels or by billetting.

13. **Animal shelter compounds**. Animal shelter compounds will be set up for the domestic pets and companion animals of evacuees. These facilities will be operated or coordinated by NSW Agriculture.

Special Arrangements for Escalating Control

14. **Control**. Small-scale evacuations will be controlled by the Albury/Hume SES Local Controller. Should the evacuations operations escalate beyond the capabilities of local resources control may be handed over to the Murray SES Division Controller. Hand over of control from will be negotiated by the Albury/Hume SES Local Controller and the Murray SES Division Controller.

ANNEX G - ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS AND THE RELOCATION OF CARAVANS

General

1. In most floods, sites within the Howlong Caravan Park in Hume Street, Howlong will not be inundated. However, during major flooding (5.5 metres on the Albury gauge), some low-lying areas may become inundated and access to and from individual sites within the park may be lost.

2. The park is located on the northern bank of the Murray River and has approximately 78 sites including 12 cabins and 12 permanent caravans.

Advising Procedure

3. The Caravan Park proprietor will ensure that the owners and occupiers of caravans are:

a. Made aware that the caravan park is flood liable by:

- Handing a printed notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to flooding and outline the evacuation and van relocation arrangements as detailed in this Annex.

- Displaying this notice prominently in each van.

b. Made aware that if they are expecting to be absent from their vans for extended periods, they must:

- Provide the manager with a key; in a sealed envelope; to the van.

- Provide a contact address and telephone number.

- Inform the proprietor if a vehicle will be required to relocate the van during flood time.

- Leave any mobile van in a condition allowing it to be towed in an emergency, ie:

  - tyres inflated;

  - jacks wound up;

  - personal effects secured; and

  - annexes and lines for water, sewer, electricity and gas readily detachable.

c. Informed when a flood is rising. At this time, occupiers will be advised to:

- Ensure that they have spare batteries for their radios.
- Listen to a local radio station for updated flood information.
- Prepare for evacuation and van relocation.

4. The Albury/Hume SES Local Controller will ensure that the proprietor of the caravan park is advised of flood warnings and the details of any evacuation order.

Evacuation of Occupants and Relocation of Vans

5. When an evacuation order is given:

a. Occupiers of non-movable vans should:

- Secure their vans by tying them down to prevent flotation.
- Isolate power to their vans.
- Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.
- Lift the other contents of their vans as high as possible within the van.
- Move to the evacuation centres listed in Annex F of this plan if they have their own transport, or move to the caravan office to await transport.
- Where possible, vans that can be moved will be relocated by their owners. The caravan park proprietor will arrange for the relocation of mobile vans whose owners do not have a vehicle. Hume Shire Council and SES personnel will assist if required and may be able to provide additional vehicles.

6. Occupants of vans that are being relocated should go to a designated evacuation centre if they have their own transport. Those without their own transport are to report to the caravan park office.

7. The caravan park proprietor will:

a. Ensure that their caravan park is capable of being evacuated within the warning time available (generally over 12 hours before peak flood levels are reached, except in extreme events where warning times may be much shorter).

b. Advise the Albury/Hume SES Local Controller of:

- the number of people requiring transport;
- details of any medical evacuations required, and

- whether additional assistance is required to effect the evacuation.

c. Check that no people remain in non-removable vans that are likely to be inundated.

d. Inform the Albury/Hume SES Local Controller when the evacuation of the caravan park has been completed.

e. Provide the Albury/Hume SES Local Controller with a register of people that have been evacuated.

Return of Occupants and Vans

8. The Albury/Hume SES Local Controller, using council resources as necessary, will advise when it is safe for the caravan parks to be re-occupied.

9. Vans will be towed back to the caravan park by van owners or by vehicles and drivers arranged by the park proprietor. Again, Hume Shire Council and SES personnel will assist if available.

ANNEX H - DETAILS OF THE DAM-FAILURE WARNING AND EVACUATION SYSTEM FOR HUME DAM

TO BE ISSUED

MAP 1 – MURRAY RIVER BASIN

MAP 2 – ALBURY CITY COUNCIL AREA

MAP 3 – ALBURY CITY COUNCIL AREA INUNDATION MAP

MAP 4 - ALBURY CITY EVACUATION SECTORS

MAP 5 – HUME SHIRE COUNCIL AREA

MAP 6 – VILLAGE OF HOWLONG