

Narrandera Shire

Local Flood Emergency Sub Plan



NARRANDERA SHIRE FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the Narrandera Shire Flood Emergency Sub Plan

Endorsed by the Narrandera Shire Local Emergency Management Committee

**10 October 2023
Version 2.0**

AUTHORISATION

The Narrandera Shire Flood Emergency Sub Plan is a sub plan of the Narrandera Shire 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:


Shane Hargrave

Date:

10th October 2023

Endorsed

Signature:



Chair, Local Emergency Management Committee

Print Name:

Fred Hammer

Date:

10th October 2023

VERSION HISTORY

Version Number	Description	Date
1.0	Narrandera Shire Flood Emergency Subplan	June 2015

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Manager Emergency Planning
NSW State Emergency Service
PO Box 6126, Wollongong NSW 2500
nswses.communityplanning@ses.nsw.gov.au

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

This plan is Attribution (CC BY) under the Creative Commons licensing system, unless otherwise indicated. Copyright resides with the State of New South Wales, NSW State Emergency Service unless otherwise indicated.

CONTENTS

NARRANDERA SHIRE FLOOD EMERGENCY SUB PLAN	1
AUTHORISATION	2
VERSION HISTORY	3
AMENDMENT LIST	3
DISTRIBUTION LIST	3
CONTENTS	4
1 OUTLINE AND SCOPE	6
1.1 Purpose	6
1.2 Authority	6
1.3 Activation	6
1.4 Scope	6
1.5 Goals	6
1.6 KEY PRINCIPLES	7
1.7 Roles and Responsibilities	7
1.8 Plan Maintenance and Review.....	7
1.9 Supplementary Documents	8
2 OVERVIEW OF NSW FLOOD HAZARD AND RISK	8
2.1 The Flood Threat.....	8
3 PREVENTION/ MITIGATION	8
3.1 Introduction	8
3.2 Land Use Planning	8
3.3 Floodplain Risk Management	9
4 PREPARATION	9
4.1 Introduction	9
4.2 Flood Emergency Planning.....	9
4.3 Flood Intelligence Systems	9
4.4 Development of Warning Systems.....	10
4.5 Briefing, training and exercising	10
4.6 Community Resilience to Flooding.....	11

5	RESPONSE.....	11
5.1	Introduction	11
5.2	Incident Management Arrangements	12
5.3	Use of Information and Collection of Intelligence.....	13
5.4	Provision of Information and Warnings to the Community.....	13
5.5	Protection of Property.....	15
5.6	Road and Traffic Control.....	15
5.7	Protection of Essential Services	15
5.8	Evacuation.....	16
5.9	Evacuee Management And Welfare.....	17
5.10	Flood Rescue	18
5.11	Resupply	19
5.12	Return.....	20
5.13	End of Response Operations	20
5.14	Post Impact Actions	21
6	RECOVERY OPERATIONS.....	21
6.1	Introduction	21
6.2	NSW SES Recovery Role	22
7	ABBREVIATIONS.....	22
8	GLOSSARY.....	22
9	APPENDIX A – MAP OF NARRANDERA SHIRE COUNCIL AREA	23
10	APPENDIX B – ROLES AND RESPONSIBILITIES	24
11	APPENDIX C – COMMUNITY SPECIFIC ROLES AND RESPONSIBILITIES.....	30

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 Narrandera Shire 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 Narrandera Shire 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 Narrandera Shire Emergency Management Plan (EMPLAN) is active at all times 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 Narrandera Shire LGA. The Narrandera Shire 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 Narrandera Shire level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Narrandera Shire 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 tsunamis) overtopping coastline defences.

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 Narrandera Shire 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 Narrandera Shire LGA.

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.

3.3 FLOODPLAIN RISK MANAGEMENT

3.3.1 **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 PREPARATION

4.1 INTRODUCTION

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

4.2 FLOOD EMERGENCY PLANNING

4.2.1 **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](#).
- 4.2.2 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.

4.3 FLOOD INTELLIGENCE SYSTEMS

4.3.1 **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.

4.4 DEVELOPMENT OF WARNING SYSTEMS

4.4.1 **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).
- 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. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- f. 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.
- g. 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.

4.5 BRIEFING, TRAINING AND EXERCISING

4.5.1 **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.

4.6 COMMUNITY RESILIENCE TO FLOODING

4.6.1 **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.

4.6.2 **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. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
 - Advice
 - Watch and Act
 - Emergency Warning
- c. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.
- d. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
- e. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
- f. 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.
- g. 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.
- h. 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. Narrandera Shire 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 Narrandera Shire 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 **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 the Local EMPLAN.
 - f. NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.3 **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 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 Narrandera Shire 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 Narrandera Shire Council 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 SEOC 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 Narrandera Shire 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)	<ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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: <ul style="list-style-type: none"> – 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
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • When notified of possible flooding or isolation, childcare centres and preschools should. <ul style="list-style-type: none"> – 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	<p>The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).</p> <p>Roles and responsibilities in addition to the Supporting Plan are:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – 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.
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)	<ul style="list-style-type: none"> • Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer (LEMO)	<ul style="list-style-type: none"> • 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.
Murrumbidgee Irrigation	<ul style="list-style-type: none"> • Monitor flood operations. • Collect and maintain flood data including data relating to flood heights, velocities, and discharges. • If requested, coordinate support for the NSW SES Incident Controller.
Narrandera Shire Council	<p>Preparedness</p> <ul style="list-style-type: none"> • 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.

AGENCY	RESPONSIBILITIES
	<p data-bbox="507 248 635 277">Response</p> <ul style="list-style-type: none"> <li data-bbox="507 309 1449 376">● Subject to the availability of council resources, assist NSW SES with flood operations including: <ul style="list-style-type: none"> <li data-bbox="552 405 1190 434">– Traffic management on council managed roads. <li data-bbox="552 450 1449 517">– Provision of assistance to NSW SES (plant, equipment, and personnel where able and requested). <li data-bbox="552 533 1206 562">– Property protection tasks including sandbagging. <li data-bbox="552 577 1294 607">– Assist with the removal of caravans from caravan parks. <li data-bbox="552 622 1449 689">– Warning and/or evacuation of residents and other people in flood liable areas. <li data-bbox="552 705 1142 734">– Provision of back-up radio communications. <li data-bbox="552 750 991 779">– Resupply of isolated properties. <li data-bbox="552 795 1142 824">– Technical advice on the impacts of flooding. <li data-bbox="552 840 1449 943">– 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. <li data-bbox="552 958 1449 1025">– Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected. <li data-bbox="507 1055 1449 1122">● Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations. <li data-bbox="507 1151 1449 1254">● Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation. <li data-bbox="507 1283 1449 1350">● Manage and protect council-owned infrastructure facilities during floods. <li data-bbox="507 1379 1449 1482">● 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. <li data-bbox="507 1512 1449 1579">● Advise the Environmental Protection Authority of any sewerage overflow caused by flooding. <li data-bbox="507 1608 1449 1675">● Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events. <p data-bbox="507 1704 635 1733">Recovery</p> <ul style="list-style-type: none"> <li data-bbox="507 1765 1449 1832">● Provide for the management of health hazards associated with flooding including removing debris and waste. <li data-bbox="507 1861 1449 1928">● Ensure premises are fit and safe for reoccupation and assess any need for demolition. <li data-bbox="507 1957 1449 2024">● Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.

AGENCY	RESPONSIBILITIES
NSW Ambulance	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
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.
SEOCN/SEOC	The roles and responsibilities for the SEOCN/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	<ul style="list-style-type: none"> • Transport for NSW coordinates information on road conditions for emergency services access.

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> • Transport for NSW coordinates the management of the road network across all modes of transport. • 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	<p>Preparedness</p> <ul style="list-style-type: none"> • 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. <p>Recovery</p> <ul style="list-style-type: none"> • Assist with community clean-up if required and able to do so. <ul style="list-style-type: none"> • Participate in After Action Reviews if required.
Service and sporting clubs	<ul style="list-style-type: none"> • Narrandera Imperials Football Club.
Aboriginal organisations or groups	<ul style="list-style-type: none"> • Aboriginal Elders Liaison Committee, Narrandera. • Act as the point of contact between NSW SES and local indigenous communities. • Inform the NSW SES Incident Controller about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to local indigenous communities within the Narrandera LGA.
Community assistance groups	<ul style="list-style-type: none"> • Rapid Relief.

HAZARD AND RISK IN NARRANDERA SHIRE

Volume 2 of the Narrandera Local Flood Plan

Last Update: July 1994 (DRAFT)

THE FLOOD THREAT

GEOGRAPHIC FEATURES OF THE MURRUMBIDGEE RIVER VALLEY

The Murrumbidgee River is 1,600 kilometres long and is the third-longest river in the State. It rises in the Snowy Mountains at an altitude of approximately 1,600 metres in steep high-rainfall country, initially flowing south-eastwards before turning north near Cooma. It flows through the Australian Capital Territory and west into the Burrinjuck Dam storage lake. Numerous tributaries drain the high country and join the river above the dam.

From Burrinjuck Dam the river flows through undulating foothills country to the urban centre of Wagga Wagga, being joined by several tributaries along the way. The most important of these is the Tumut River which contains the Blowering, Talbingo and some minor dams and which enters the Murrumbidgee above Gundagai. Other tributaries entering the river above Wagga Wagga are Jugiong, Muttama, Adelong, Billabong, Hillas, Tarcutta and Kyeamba creeks.

From Wagga Wagga the river traverses open plains country characterised by considerable anabranch and effluent creek development. The main tributaries and anabranches below the urban centre of Wagga Wagga are Houlaghans, Sandy, Bullenbung, Beaver/Old Man and Bundidgerry creeks; of these the Old Man and Bundidgerry rejoin the main channel within Narrandera Shire. The important tributaries of the Bundidgerry are Boggy and Cowabbie creeks which drain the Coolamon and Temora council areas to the east.

Most of the land within the valley of the Murrumbidgee River in the Narrandera Shire is below 160 metres elevation and the river's gradient is very low. Downstream from Berembed Weir, at the shire's eastern edge, the floodplain is in places almost 20 kilometres wide. At Narrandera itself the floodplain narrows to four kilometres in width, a constriction being formed to the south of the channel by the low hills of the Buckingbong Range. Downstream the floodplain widens again and further anabranch development occurs.

The drainage pattern of the Murrumbidgee River within the Narrandera Council area is complex. The Old Man Creek, an anabranch which originates upstream of the shire's eastern boundary, takes water across the southern floodplain and itself creates flow to Sandy Creek during periods of flooding. Poisoned Waterholes and Gillenbah creeks are further anabranches from the main river. The floodplain contains other minor and unnamed anabranches, lagoons and areas of swampland. The northern floodplain contains Bundidgerry Creek.

OTHER CREEKS

The northern part of the council area is drained by Mirrool Creek, a tributary of the Lachlan River. This creek's headwaters are in the Temora, Bland and Coolamon Council areas. The Mirrool flows in a westerly direction across the Narrandera Shire, its channel losing definition south of Barellan and disgorging flood water across a wide floodplain. South of Binya the creek regains its definition and continues to flow westward to the Griffith Council area. In very severe floods, water can flow out of Mirrool Creek to Frying Pan Creek.

Much of the central portion of the shire is drained by the intermittent Frying Pan Creek which flows into Mejum Swamp north-east of Narrandera. Other minor intermittent creeks flow to the west from the Narrandera Range, Mt Misery and Bents Hill.

Yanco Creek, which leaves the river downstream of the urban centre of Narrandera, is an effluent stream which flows north to south across the south-western portion of the shire. This creek is a tributary of Billabong Creek, which it joins in the Conargo Council area.

FLOOD CHARACTERISTICS

The area subject to inundation within Narrandera Shire is very extensive, water movement is slow and inundation can last for some weeks. Warning times for flooding on the Murrumbidgee River within the council area can be in the order of several days to more than a week. Flows from Wagga Wagga to Narrandera usually take four to five days but in very large floods they can take less than three. There is usually a day or two of warning of floods on Mirrool Creek before they enter the shire.

Flood control schemes, involving the building of levee banks in rural areas, provide protection of farmlands from frequent, low-level flooding. Such works are overwhelmed in the more severe floods, however.

RAINFALL, WEATHER SYSTEMS AND FLOODING

The Narrandera Shire is a low rainfall area, most of it having an average annual rainfall of between 400 and 500 mm. Most flooding occurs as a result of rain occurring upstream of the council area.

Four different kinds of weather system can produce flooding within the council area. These are:

1. Airmasses which originate in the southern ocean and move across the Riverina from the south-west. Most of the floods to have been recorded the Murrumbidgee River have resulted from **sequences** of such airmasses and

have caused flooding during the months from April to October. This is the primary flood season within the Narrandera Shire: all but one of the 23 highest floods recorded at Narrandera have occurred in these months (see table).

2. Large depressions moving south from tropical areas in northern and north-western Australia. Such systems can produce very intensive rainfall in the summer and early autumn months and flooding can result. This mechanism occurs only sporadically over the Murrumbidgee river valley and severe summer flooding is not common.
3. Low pressure systems located over the coast of New South Wales can cause heavy rain over the Snowy Mountains and Great Dividing Range in which the headwaters of the Murrumbidgee River rise. Flooding from this mechanism can occur at any time of year and is wholly 'imported' to the Narrandera Shire from upstream areas.
4. Short-duration, high-intensity convective thunderstorms during the summer months can cause localised flooding, rises on small creeks and the surcharging of urban drainage systems. Such flooding is 'flash' flooding, occurring with little or no warning and having no significant impact on water levels in the Murrumbidgee River.

EXTREME FLOODING

The September 1974 flood, which reached 8.99 metres on the Narrandera gauge, is the highest flood to have occurred on the Narrandera gauge since records were first kept in the mid-nineteenth century. More severe flooding must be expected, and extreme flood events could approach levels up to 10.5 metres. Such events would overtop the irrigation channel and cause inundation of a substantial area of central and western Narrandera. Very widespread inundation of the rural parts of the floodplain would also be experienced.

No estimate has been made of the height which could be reached by the Probable Maximum Flood (PMF) at Narrandera or any other location within the council area.

MURRUMBIDGEE RIVER: HISTORIC FLOOD PEAK LEVELS AT NARRANDERA AND SELECTED UPSTREAM LOCATIONS

Date (at Wagga Wagga Gauge)	Burrinjuck Dam		Jugiong	Gundagai	Erringarah	Wagga Wagga	NARRANDERA
	Inflow at: Rivers Wall	Discharge in megalitres Date/Time					
16 Oct 1844				9.15		10.97	
29 June 1852				12.32		10.67	
14 July 1853				12.57		10.90	
31 July 1867				9.56		9.32	
18 July 1869				8.78		9.09	
27 April 1870				12.34		10.67	8.82
15 May 1870				9.76		10.06	
5 June 1870						9.22	
20 Sep 1879				10.97		9.35	
10 Jan 1891				10.36		9.25	
29 June 1891				10.80		10.46	8.79
14 July 1891				9.75 (12)		9.73 (14)	8.64 (16)
23 April 1894				9.40		9.17 (23)	7.73 (27)
7 July 1900				11.73 (5)		9.98 (7)	8.31 (10)
31 July 1922			8.15 (29)	9.65 (30)		9.17 (31)	7.93 (051800)
30 May 1925	1148000	429530 (272300)	10.24 (28)	11.32 (282000)	11.86 (290800)	10.11 (300530)	8.18 (3)
26 June 1931		93600 (270900)	7.29 (25)	9.96 (25)		9.65 (26)	9.71 (29)
28 Oct 1934			6.81 (26)	9.56 (26)		9.14 (28)	7.96 (021400)
25 Mar 1950		373000 (240900)	9.17 (23)	10.45 (232200)	9.85 (24)	10.13 (25)	8.69 (271200)
6 April 1950		89700 (050900)	7.01 (4)	8.83 (5)		9.07 (6)	8.08 (10)
19 June 1952		217280 (170900)	8.61 (180100)	10.13 (181500)	9.45 (19)	9.79 (19)	8.70 (221000)
16 June 1956		121450 (110900)	6.25 (111700)	8.89 (121800)		9.12 (16)	8.11 (192200)
29 June 1956		167280 (260900)	7.50 (261730)	9.46 (281800)	9.30 (29)	9.58 (29)	8.70 (030900)
24 Oct 1959		251480 (220900)	8.93 (221130)	10.00 (23)	8.90 (24)	9.17 (24)	7.38 (010900)
30 Aug 1974	486730	395200	10.14	11.01	10.38	10.75	8.99

Date (at Wagga Wagga Gauge)	Burrinjuck Dam		Jugiong	Gundagai	Erringarah	Wagga Wagga	NARRANDERA
	Inflow at: Rivers Wall	Discharge in megalitres Date/Time					
	474740	(291300)	(291600)	(300030)	(300600)	(302100)	(022230)
7 Sept 1974	129600	66320 (060900)	5.28 (060600)	8.93 (060145)	8.70 (062359)	9.19 (071800)	8.12 (110430)
19 Oct 1974	139060 159260	37170 (181200)	4.06 (190100)	8.67 (181130)	8.68 (181000)	9.22 (191100)	8.32 (231600)
29 Oct 1975	143970 177110	114110 (251400)	6.48 (260100)	9.47 (262115)	9.07 (270000)	9.58 (280300)	8.32 (010930)
20 Oct 1976	170240 160470	75300 (171600)	8.08 (180730)	9.70 (182350)	9.08 (191100)	9.40 (200545)	7.37 (250730)
7 April 1989	169000 157400	137000 (031900)	7.16 (040500)	9.18 (042300)	8.65 (060700)	9.06 (071100)	7.82 (131400)
16 April 1989	114000 126580	11400 (132330)	7.96 (140100)	9.41 (142100)	8.97 (151200)	9.41 (161100)	8.17 (201600)
15 July 1991	335160 318100	22100 (121400)	8.46 (121600)	9.92 (130700)	9.24 (132359)	9.61 (150540)	8.02 (192000)

NOTES

- a. The minor, moderate and major flood classification levels for these gauges are given in Annex C.
- b. Numbers in brackets refer to the date and time of the peak being reached (e.g. 300300 means the 30th of the month, at 0300 hours) or to the date only (e.g. 30).
- c. From about 1925 Burrinjuck Dam became effective in mitigating floods. Note: In the flood of 27 May 1925 at the dam, the average peak inflow for six hours was 890,000 megalitres per day and peak instantaneous outflow was 450,000 megalitres per day.
- d. From about 1968 Blowering Dam became effective in the minor mitigation of floods.
- e. From 1962 the Wagga Wagga main levee had the effect of raising floods at Wagga Wagga. The August 1974 flood was raised about 250 mm to 10.75 m.
- f. The Gundagai gauge was raised 600 mm in 1892 and on 23 February 1916 was lowered 750 mm.
- g. Downstream stations can peak before upstream stations because of intermediate tributary flow (e.g. 7 September 1974: Gundagai peaked before Jugiong).

ANNEX B TO THE
NARRANDERA LOCAL
FLOOD PLAN

SPECIFIC RISK AREAS

Large areas within the Narrandera Council area are prone to flooding. The principal effects are the inundation of farm land and the closure of roads, but the more serious flood events can necessitate some evacuations. Many farm houses have levee protection, however, and even when isolated they rarely need re-supply of essentials. Mass evacuation has never been required and is unlikely even in extreme events.

When flooding occurs, numerous responses are necessary on the part of community members, emergency services and other organisations. Stock rescue operations are sometimes undertaken, animals being moved along canal banks, and fodder supplies are brought in. Pumps and farm equipment must be relocated. In Narrandera itself, sandbagging is necessary to secure floodgates along the irrigation canal and at the aerodrome, and the water pumping station also needs sandbag protection. Because roads around Narrandera are cut by flooding, some assistance is required for people to commute to and from work. This assistance is provided by high-clearance vehicles.

The effects of flooding in particular communities are noted below.

NARRANDERA (1991 census population 4,649)

In minor flood episodes, no roads around the town are closed though there is some floodplain inundation to the immediate south and some overland flow may occur in the Gillenbah area. As floods rise, waters cross and eventually close the Newell Highway (SH 17) at Poisoned Waterholes Creek and also flow into low areas of Gundagai, Beckham and River streets. Further rises cause widespread inundation of the floodplain and the closure of the Sturt Highway (SH14) as well as loss of access from the town to the southern side of the river via the Gillenbah and Euroley bridges. In high-moderate floods, traffic on the Sturt and Newell Highways has to be redirected around Narrandera.

In the 1974 flood, areas around Narrandera were inundated for a long period. All routes out of the town were lost except for the road to Barellan and access to the aerodrome

was restricted to heavy vehicles. The town itself was not flooded, however.

An extreme flood could cause overtopping of the Narrandera irrigation canal, leading to the inundation of parts of central and western Narrandera. This could affect approximately 100 dwellings and some commercial properties. Access to the aerodrome and Barellan would be lost, and Narrandera would be isolated except for helicopter transport.

BARELLAN (1991 census population 422)

Significant floods on Mirrool Creek cause the inundation of large areas of farmland to the south of the town. The town itself is not isolated or subject to inundation, however, although access to Narrandera could be cut in very severe events.

OTHER LOCALITIES

The small settlements of Binya, Kamarah and Grong Grong are not inundated during floods. Some roads may be cut, but they have never been completely cut off and total isolation is unlikely even in extreme floods. Gillenbah, however, was inundated in 1974 and can be cut off from other areas.

ROAD CLOSURES

The following roads are prone to closure during floods:

MR 80 (access to Narrandera Forest, and near Narrandera Aerodrome).

SH 17 (Newell Highway), at Poisoned Waterholes and Gillenbah creeks).

Gundagai Street, Narrandera.

Beckham Street, Narrandera.

River Street, Narrandera.

Council road 211 (Bassetts Road).

Euroley Bridge road (Leeton Council area).

Council road 8 (Buckingbong Road), at Brewarrena Bridge and Fisheries Gate.

SH 14 (Sturt Highway), at Gillenbah and Poisoned Waterholes creeks, at the railway underpass and at Ross Lane at Euroley Bridge.

Woolscour Road.

SES RESPONSE ARRANGEMENTS FOR NARRANDERA SHIRE

Volume 3 of the Narrandera Local Flood Plan

Last Update: July 1994 (DRAFT)

GAUGES MONITORED BY THE NARRANDERA SES LOCAL CONTROLLER

AWRC NUMBER	RIVER/CREEK	STATION	TYPE	OWNER	READ BY	FLOOD CLASSIFICATIONS (metres)		
						MINOR	MODERATE	MAJOR
410004	Murrumbidgee	Gundagai	Telemeter	DWR	DWR	6.1	7.6	8.5
410001	Murrumbidgee	Wagga Wagga	Telemeter	DWR	DWR	7.3	9.0	9.6
	Old Man	Galore	Manual	Private	Local Reader			
	Murrumbidgee	Brewarrena	Manual	Private	Local Reader			
410054	Murrumbidgee	Narrandera	Telemeter	DWR	DWR	6.7	7.3	8.2
410036	Yanco	Yanco Offtake	Telemeter	DWR	DWR			
410146	Mirrool	Sth Barellan	Manual	Council	Local Reader			

GUIDE TO THE CONTENT OF EVACUATION WARNING MESSAGES

1. Time of issue and title of Authorising Officer.
2. Description of the area to which the warning applies and the flood threat to that area.
3. Information to be given to evacuees on:
 - a. Location of and route to evacuation centre.
 - b. Time by which evacuation should take place.
 - c. Arrangements for those without their own transport.
4. Evacuees to be advised to:
 - a. Raise furniture and furnishings above likely flood level.
 - b. Gather medicines, personal documents and mementoes and those belongings that can be fitted within own means of transport (or within a suitcase if travelling by bus).
 - c. Listen to radio for confirmation of message and for further information.
 - d. Assist neighbours if necessary.
 - e. Register their evacuation at a Police Station or evacuation centre.
5. Evacuees to be advised that Police will provide security for properties in the evacuated area.
6. Phone number for confirmation of warnings.

THE DISSEMINATION OF FLOOD WARNINGS AND OTHER FLOOD RELATED INFORMATION

1. During periods of flooding, the Murrumbidgee SES Division Headquarters disseminates SES Flood Bulletins (incorporating Bureau of Meteorology Flood Bulletins, SES Pump and Stock Warnings and Evacuation Warnings) to the following media and other organisations relevant to the Narrandera Shire:

2RG Griffith.
2WG Wagga Wagga.
ABC Radio Riverina.
WIN TV, Wagga Wagga.
Prime TV, Wagga Wagga.
MTN TV, Griffith.
Wagga Wagga Advertiser.
Narrandera Shire Council.
NSW Police Service, Narrandera Patrol Headquarters.
Roads and Traffic Authority, Narrandera.
NSW Agriculture, Yanco.

2. The SES Local Controller forwards SES Flood Bulletins and provides other flood information to the following organisations as appropriate:

Narrandera Flood Wardens.
Narrandera Angus.
NSW Ambulance Service, Narrandera.
Narrandera VRA.
Narrandera Bush Fire Brigades.
NSW Fire Brigades, Narrandera.
Murrumbidgee Electricity, Narrandera.
Telecom Australia, Narrandera.
Narrandera Disaster Welfare Service.
Hanby Bus Company.