NSW STATE EMERGENCY SERVICE

Northern Zone Planning team

Support for emergency management planning

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- NSW SES Northern Zone (NHZ) team
- Other NSW SES teams
- NHZ planning team roles and tasks
- NSW SES tools and products – Flood Action Cards, GEMS, Flood Plans
- Support for emergency management planning

Outcomes

- You are aware of the correct contact details for planning issues
- NHZ Planning is on all relevant committees at your council
- NHZ Planning reviews all relevant documents at the correct stages – DEPs, Flood Studies, Plans
- Understanding of how NSW SES EM Planning operates

Northern Zone Planning team

Lisa Ignatavicius
Coordinator Planning

Mandy Bramble
Planning & Research Officer

Angus Hooke
Planning & Research Officer

Carolyn Storrie
Program Support Officer

Hunter Valley & Hunter Coast

- Central Coast Council
- Lake Macquarie City
- City of Newcastle
- Cessnock City Council
- Maitland City Council
- Dungog Shire Council
- Port Stephens Council
- Singleton Council
- Muswellbrook Shire
- Upper Hunter Shire

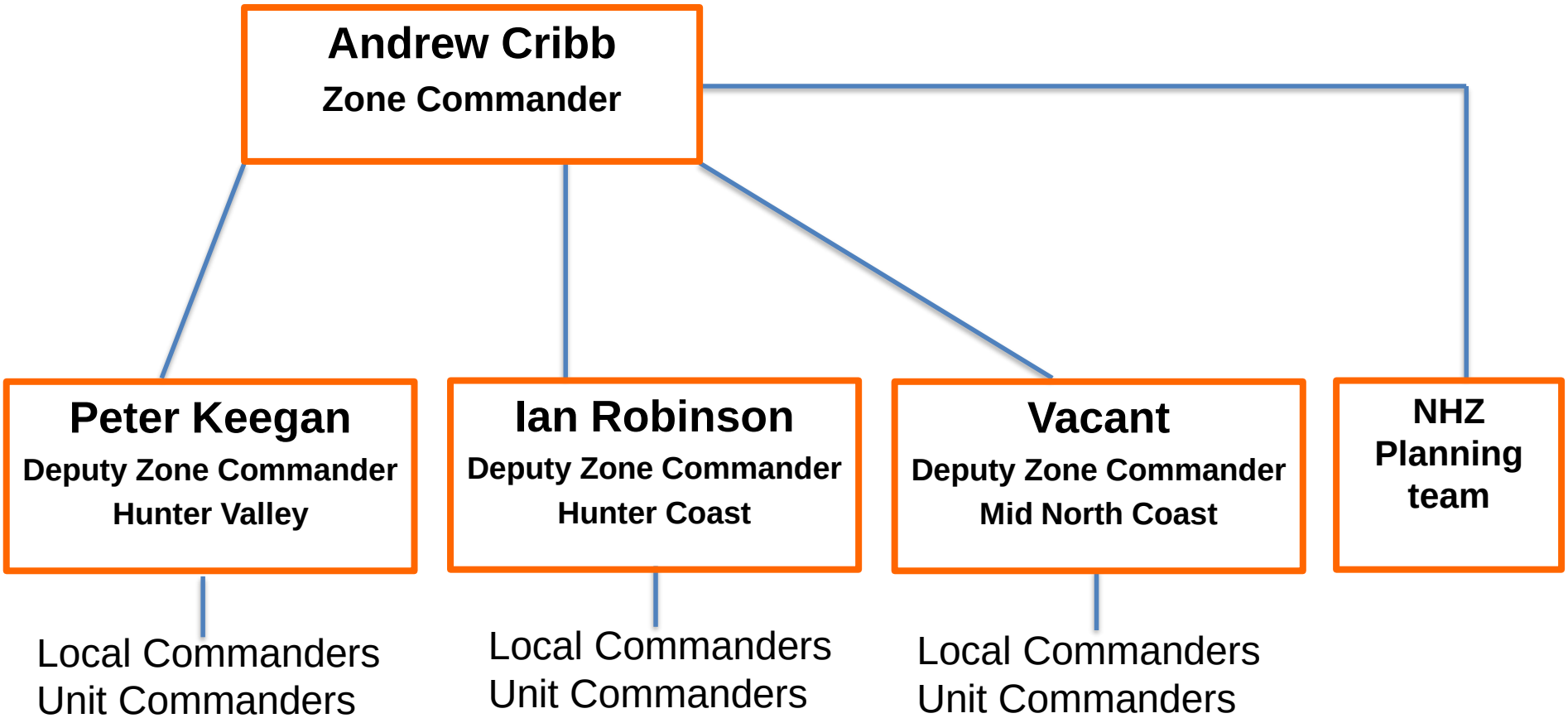
Mid North Coast

- MidCoast Council
- Port Macquarie Hastings
- Kempsey Shire Council
- Nambucca Valley Council

Key focus

To reduce the impact of flooding for at-risk communities through building effective intelligence, planning and response capability.

Northern Zone Operational team



Sits in the zone - Community Capability, Training, Business Services, Volunteer engagement

Other NSW SES teams

Emergency Risk Management team

Manager - Elspeth O'Shannessy

Coordinator – Gillian Webber

rra@ses.nsw.gov.au

→ Future Risk, Strategic advice on land use proposals

Centralised Planning team

nswses.communityplanning@ses.nsw.gov.au

→ Produce the State Plans, Policy and Procedures, templates, state committees

NHZ Planning team - What do we do?

Review

Flood studies, Floodplain Risk Management Studies and Plans, flood modelling, Dam Emergency Plans, Flood Warning Classifications, Coastal Zone Emergency Action subplans

Attend

Dam emergency exercises, Floodplain Risk Management Committees, flood or coastal hazard committees.

Update

Local Flood Plans Volume 1, 2 and 3, Intelligence Products - Flood Action Cards, mapping system GEMS

All reviews please send to:
Community inbox - nswses.communityplanning@ses.nsw.gov.au

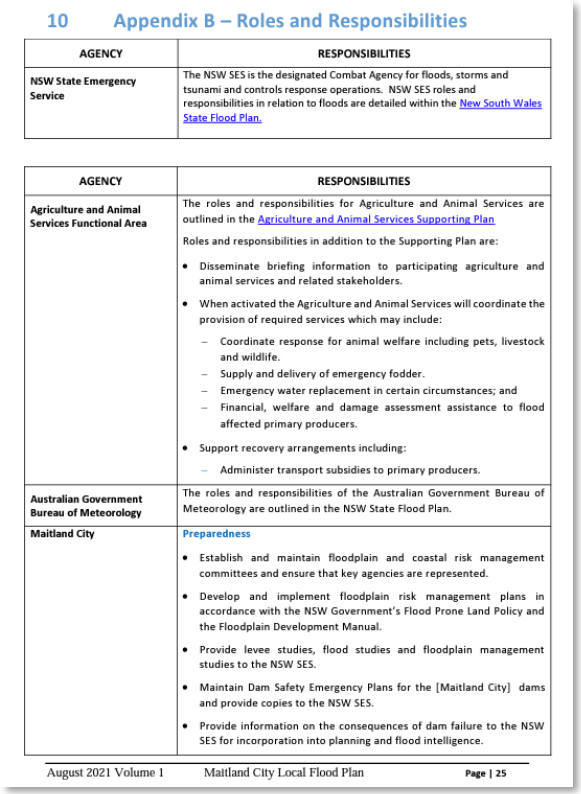
Planning products and tools

Local Flood Plans (LFP)

Volume 1 – Roles and Responsibilities
Volume 2 – Hazard and Risk
Volume 3 – NSW SES response arrangements

The LFP's structure aligns with 4 key stages of EM: prevention, preparedness, response and recovery (PPRR).

It also contains information that can be used to inform community engagement and assist the community with their response based on the flood threat.



10 Appendix B – Roles and Responsibilities

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	The 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 detailed within the New South Wales 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 Roles and responsibilities in addition to the Supporting Plan are: • Disseminate briefing information to participating agriculture and animal services and related stakeholders. • When activated the Agriculture and Animal Services will coordinate the provision of required services which may include: – Coordinate response for animal welfare including pets, livestock and wildlife. – Supply and delivery of emergency fodder. – Emergency water replacement in certain circumstances; and – Financial, welfare and damage assessment assistance to flood affected primary producers. • Support recovery arrangements including: – Administer transport subsidies to primary producers.
Australian Government Bureau of Meteorology	The roles and responsibilities of the Australian Government Bureau of Meteorology are outlined in the NSW State Flood Plan.
Maitland City	**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 Development Manual. • Provide levee studies, flood studies and floodplain management studies to the NSW SES. • Maintain Dam Safety Emergency Plans for the [Maitland City] dams and provide copies to the NSW SES. • Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence.

Update for NHZ

What is a Flood Intelligence Card (FIC)?

FICs are designed to be used by Incident Controllers and hazard planners to support the information contained in flood plans. FICs are developed for the reference area around a stream gauge, both upstream and downstream.

What information does it contain?

- Gauge information (gauge name, number and location, minor, moderate and major flood classifications; levee height, gauge zero and gauge datum)
- Flood heights (the vertical component)
- The flood consequences at specified gauge height e.g. Road closures, isolations, inundations etc
- 1% AEP PMF etc

What is a Flood Action Card (FAC)?

FACs are intended to detail the response actions that need to be carried out by emergency services and supporting agencies to help minimise flood impacts including protecting lives and property. FAC entries are linked to the consequence entry in the FIC.

What information does it contain?

- The action that needs to be carried out related to the consequence E.g. Door knocking, evacuation, sandbagging
- Who will carry out the action (e.g. NSW SES, Council, Transport NSW)
- How long will the action take to complete
- What resources and capability are required to complete the action e.g. 100 sandbags, 2 crews etc

NSW STATE EMERGENCY SERVICE

Flood Action Card - Taree 208410 (208 Manning River)

MINOR:	1.78
MODERATE:	2.38
MAJOR:	3.68
LEVEE OPERATING LEVEL:	4.63
LGA:	Greater Taree LGA
RELEVANT LFPs:	Greater Taree City LFP
BUREAU NUMBER:	60119
STREAM:	Manning River
GAUGE ZERO:	0.00
DATUM TYPE:	AHD
GAUGE TYPE:	Automatic
GAUGE LOCATION:	200m upstream from Martin Bridge

GENERAL NOTES / COMMENTS:

PURPOSE OF THIS FLOOD ACTION CARD: This Action Card is a simplified tactical guide for an Incident Controller or planner to proactivity prepare for and respond to a forecast or imminent flood. The actions noted on this card are associated with flood intelligence specific to a gauge reference area and prepared with reference to the Local Flood Plan.

CONFIDENTIALITY: This card may contain sensitive information about actual or potential effects of flooding on private property. Specific reference to private addresses or businesses must be made directly to owners or other emergency services and NOT via broadcast or print media.

ACCURACY: Use this information as a guide to the possible effects of a flood. The information is based on estimates of flood behaviour, historical records, and models, and particular effects may occur during a range of heights rather than at a specific height. A number of variables impact upon the behaviour of flood waters including rainfall volume, rainfall location, overland runoff, river flow rates, river rates of rise, tides, ocean levels, vegetation and flood mitigation infrastructure.

HOW TO USE THIS CARD:

- This card should be used in conjunction with the relevant Local Flood Plan(s) and evacuation timeline(s) (where available).
  - **For key warning gauges covered by a Bureau of Meteorology flood prediction service (see State Flood Plan):** Review the relevant forecast flood levels and timings published in the Bureau Flood Warning.
  - **For other river level gauges:** In areas for which no formal warning service is provided, the card should be used in conjunction with river level readings and estimated rates of rise, and with local knowledge about flood behaviour.
- The reader should familiarise themselves with the range of consequences and actions up to the predicted heights and beyond, and consider the possibility that timings and sequence may vary.
- The order in which actions are undertaken will be dependent on the time required to undertake the action and the time available in any given flood event.
- All floods are different, the consequences listed in this card do not necessarily occur in sequential order; likewise the actions listed in this card should not necessarily be undertaken in sequential order.

CLASS	HEIGHT (m)	CONSEQUENCES	ACTIONS	Resources Required	Time Required	Actioned	Date/Time
MOD	2.60	TRIGGER POINT PEAK HEIGHT JAN 2012	RHQ: If height to exceed 3.50 issue Evacuation Warnings for- - Florence Street numbers 45, 47, 49 and 6 (John Elliot Machining) - Beeton Parade - Bents Street - Cornwall Street LHQ: If height to exceed 3.50mts commence door knocking for properties in the vicinity of Browns Creek, Railway Street, Endeavour Place and Beeton Parade.			☐	
MOD	3.00	Backwater flooding from Browns Creek commences over High Street restricting access in the vicinity				☐	

Who uses it?

- Local SES units
- Incident Management team – Intelligence, Public Information, Operations

Limitations

There are several limitations with FICs and FACs:

- FICs and FACs relate to specific heights on river gauges of a specified flood gauge reference area and do not apply to ungauged areas.
- Every flood is different and therefore flood consequences and flood actions may need to vary dependent on the actual event
- Flood Actions may need to be carried out well before the height on the gauge that the action is listed against is reached (depending on how long the action will take to complete)
- FICs and FACs primarily relate to riverine flooding and not flash, overland flooding or coastal inundation
- FICs and FACs are confidential internal NSW SES documents and are not easily accessible to other agencies

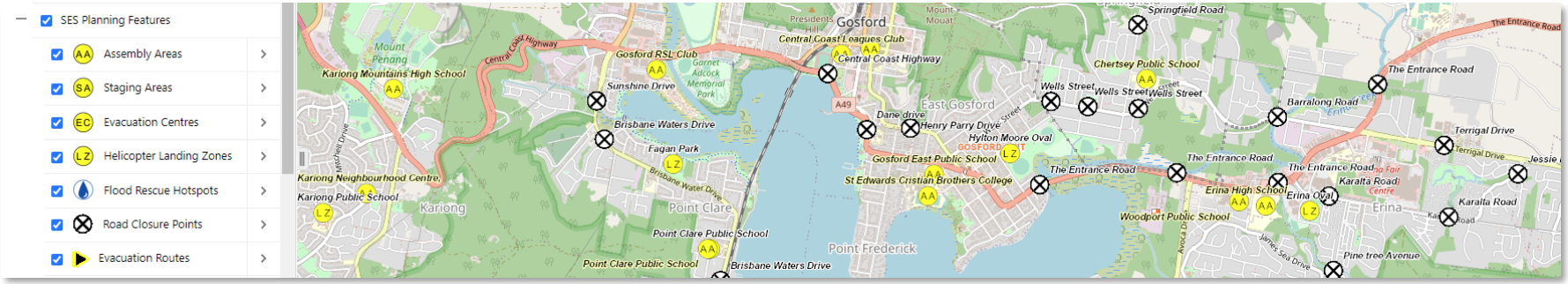
Review process

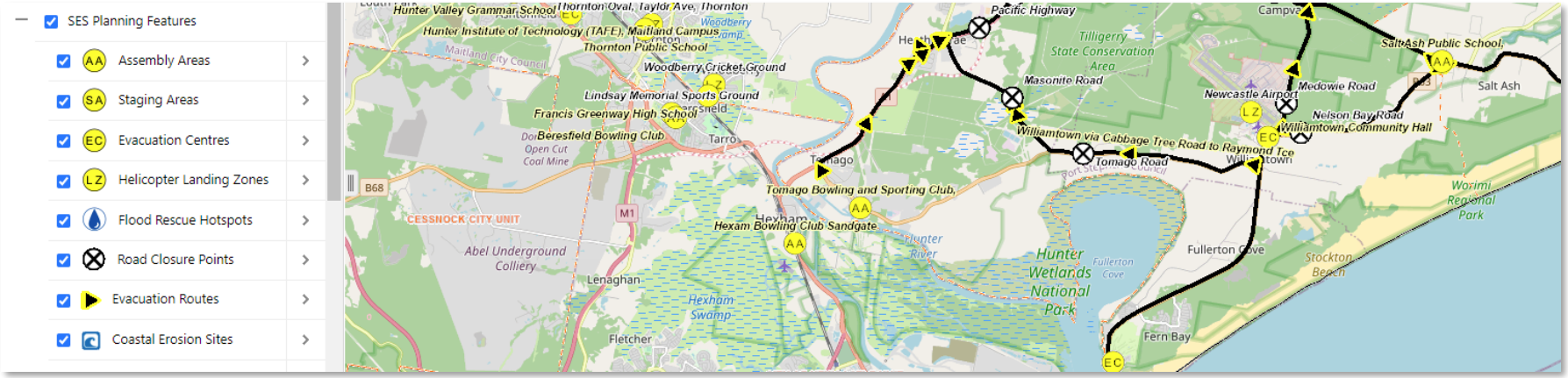
Flood Intelligence should be reviewed regularly.

Update Flood Intelligence:

- After each flood
- When significant changes in land use or community characteristics occur
- When new information regarding flood problems becomes available through **studies**
- When flood control or mitigation works are implemented or altered
- When a flood plan is reviewed

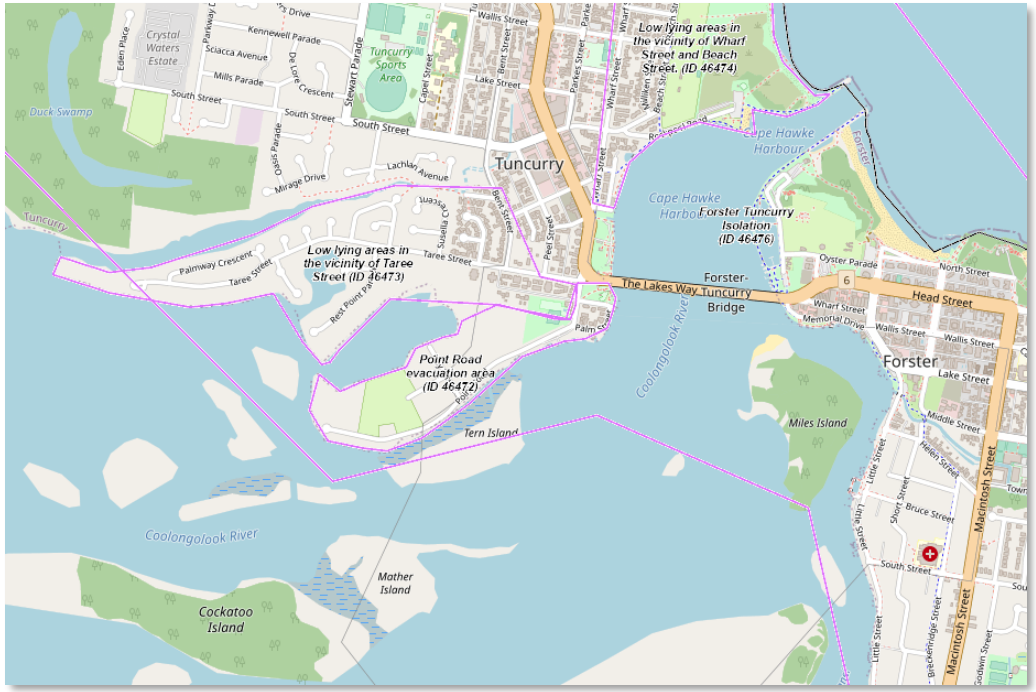
Geospatial Emergency Mapping System (GEMS)

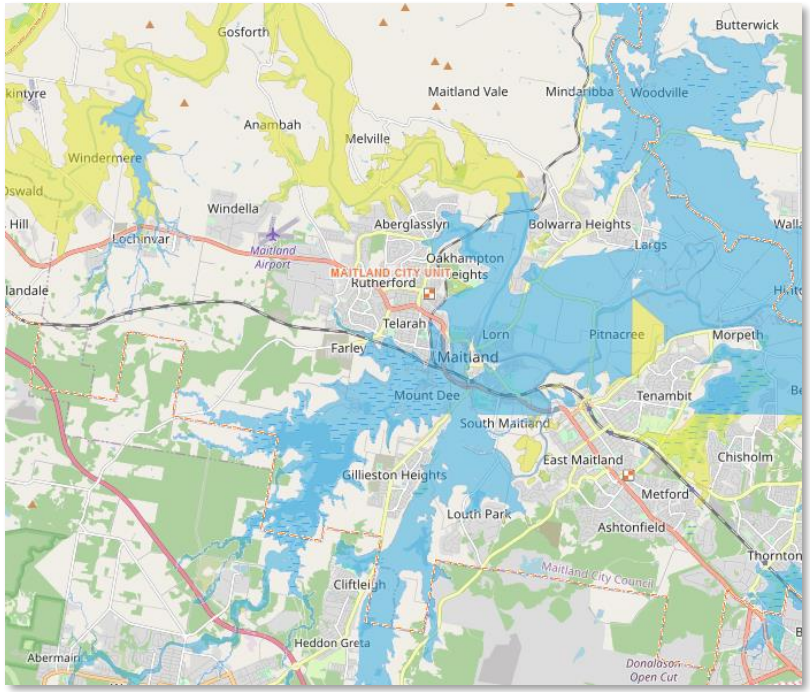




Assembly areas, road closure points, evacuation routes

Flood emergency response classification of communities (FERCCs) – polygons used for a variety of EM planning and decision making.





Flood modelling – All extents available up to the PMF uploaded to the Flood Portal

How can you help?

- By notifying the NSW SES with any changes to infrastructure e.g. temporary bridge heights, new bridge heights
- During an event sharing of intelligence e.g. road closure reports, photos
- Provide survey heights if available
- Quality check our findings
- Include the Northern Zone planning team in councils Floodplain Risk Management meetings.
- Send through flood studies for review

Support for emergency management planning

Include NSW SES into the project scope stage

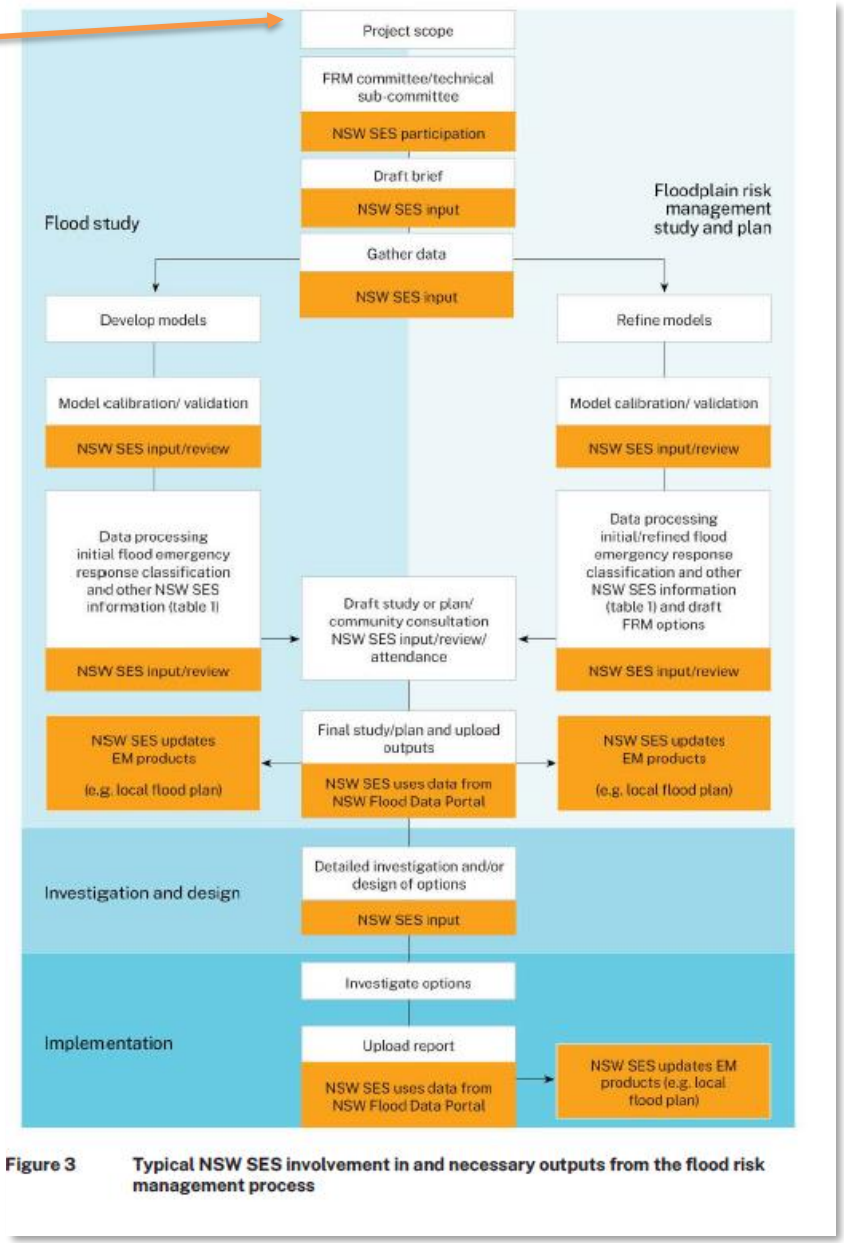


Figure 3 **Typical NSW SES involvement in and necessary outputs from the flood risk management process**

Part B – Emergency management information from the flood risk management process

- This section describes the information we need in the flood studies
- Reference consequences back to the gauge
- Spatial extents for key design events
- Historic information
- Building locations impacted by flood referenced back to the gauge
- Road closures linked back to the gauge height
- Evacuation routes
- FERCCs
- Levee information
- Great examples of tables with the information we need

Table 4 Typical flood emergency response classification of communities: summary information for a flood study

AEP/ tipping point	Gauge height (m)	Emergency response classification area ID	No. of dwellings	Approximate evacuation route closure on gauge/level (m)	Approximate depth over road (m)	Approximate time to road closure (range in hrs)	Time to tipping point isolated access available until closed (hrs)	Period of inundation/ isolation (range in hrs/days)
20%	10.7	e.g. High flood island area 1 / Rising road access area 2						
Min.	11.4	e.g. High flood island area 1 / Rising road access area 2						
Mod.	12.9	e.g. High flood island area 1 / Rising road access area 2						
Maj.	15.8	e.g. Low flood island area 1 / High flood island area 2						
1%	16.5	e.g. Low flood island area 1 / High flood island area 2						
PMF	24.3	e.g. Low flood island area 1 / Low flood island area 2						

Note: Identify whether this has been undertaken with or without detailed survey of road low points.

Table 1 Sources of typical flood information required to inform emergency management planning

Information	Source		
	Flood study	FRM study & plan	Specifically produced for EM
Flood behaviour			
Spatial extents of flooding for key design events and historical modelled events	✓	✓	
Plain English description of flood behaviour for historic and design flood events. This is to include a description and pattern of flood behaviour including depths and velocities	✓		
A spreadsheet of building coordinates, addresses and ground and floor levels for properties impacted by design and historic flood events relative to gauge height where available	✓*	✓*	
Modelling of flood behaviour that defines the variation over time of flood levels, extents and velocities for each of the critical design events. This may require modelling of flood events from the ensemble including short time to onset for 1% annual exceedance probability (AEP) and PMF and long duration events to provide advice on potential response time variations	✓	✓	✓ Australian Rainfall and Runoff (Ball et al. 2019) would cover variations
Spatial identification of properties affected over floor for flood events modelled		✓	
Describe typical range of rainfall intensities and durations or temporal patterns that can lead to key consequences such as isolation or inundation of floor levels for fast responding catchments	✓*	✓	
Flood emergency response classification			
Spatial identification of FERCCs for varying design events and key tipping points where known	✓		✓
Description of specific risk areas in the context of the potential consequences of flooding from more frequent, major and extreme events. The description should be consistent with that identified in the FERCCS used to delineate areas of the floodplain for different scale events	✓		✓
Refined spatial identification of FERCCs based on key tipping points		✓	✓
Updated description of consequences based on FERCC tipping points		✓	✓
Review of existing EM sectorisation in LFP	✓	✓	✓

Part C – Flood emergency response classification of communities (FERCCs)

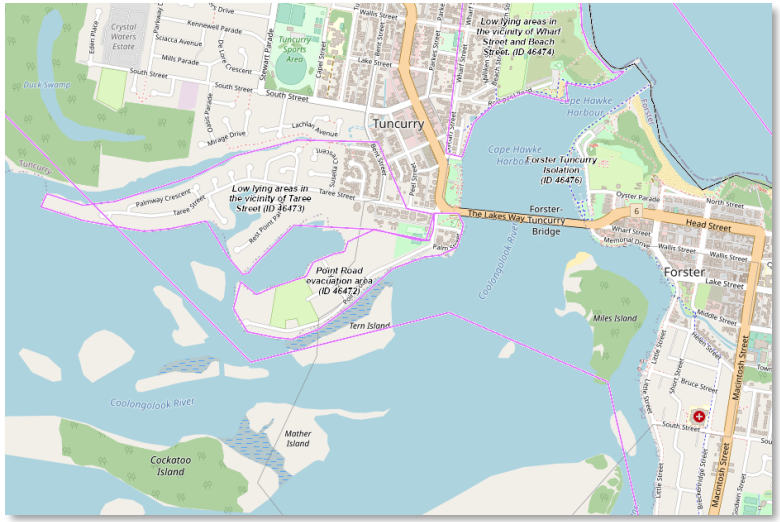
- High flood island, low flood island, low flood island ring levee, high trapped perimeter area, low trapped perimeter area, rising road access, levee with rising road access, overland escape route, indirectly affected areas

- FERCCS should be developed and included in flood studies and floodplain risk management studies. Key deliverables are found on page 47 and 48 of the document.

<u>How do we use FERCCs in EM Planning</u>

Allows us the develop response strategies for affected communities.

Example – Warnings, isolation and for how long, evacuation, pre deploy resources.



Put the FERCCs into our geospatial mapping system and flood plans.

Part D – Considering flood emergency management constraints in decision making

- Involve the right NSW SES members throughout the FRM process
- NHZ Planning team on committees lisa.ignatavicius1@ses.nsw.gov.au
- Providing documents for review nswses.communityplanning@ses.nsw.gov.au
- Send through land use proposals to rra@ses.nsw.gov.au
- NSW SES does not support shelter in place as a strategy

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Thank you