

# Northern Floodplain Risk Management Committee

**Meeting Date:** Wednesday, 07 December, 2022  
**Location:** Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra  
**Time:** 4:00pm

**Please note:** Council's Code of Meeting Practice permits the electronic recording and broadcast of the proceedings of meetings of the Council which are open to the public. Your attendance at this meeting is taken as consent to the possibility that your image and/or voice may be recorded and broadcast to the public.

## Agenda

1. **Apologies**
2. **Confirmation of Minutes**
  - Northern Floodplain Risk Management Committee - 21 March 2022 ..... 1
3. **Declarations of Interest**
4. **Reports**
  - NFM22.6 Notification of Council Resolution - Northern Floodplain Risk Management Committee Re-establishment .....5
  - NFM22.7 Lower Shoalhaven River Final Flood Study.....23
  - NFM22.8 General Update on Flood Projects .....38
5. **General Business**

**Membership**

Clr Patricia White - Chairperson  
All Councillors  
CEO or nominee

## Community representatives:-

John Gould  
David Brawn  
Mark Kielly  
Plaxy Rowe  
Leonard White  
Phil Guy

## Government Agency representatives:-

Local Aboriginal Land Council  
NSW State Emergency Services  
Department of Planning & Environment (DPE)  
Other relevant Government Agency representatives

Quorum – Three (3) provided that a minimum of the Chairperson and two community representatives are present.

Note: Any non-voting Councillor in attendance at any of the above Committees may act as an alternate voting member in circumstances where achievement of a quorum is required.

**Purpose:**

The principal objective of the North Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more floodplain risk management plans for the north area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The north area applies to the following catchments:

- Lower Shoalhaven River;
- Crookhaven River;
- Kangaroo River;
- Broughton Creek;
- Bomaderry Creek;
- Nowra and Browns Creek; and
- Lake Wollumboola.

**Role:**

1. To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under 'Purpose' (see above);
2. To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation;
3. To assist the Council by providing input into known flood behaviour as part of the Flood Study; and
4. Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

## MINUTES OF THE NORTHERN FLOODPLAIN RISK MANAGEMENT COMMITTEE

**Meeting Date:** Monday, 21 March 2022  
**Location:** Council Chambers, City Administrative Centre, Bridge Road, Nowra  
**Time:** 4:07pm

The following members were present:

Clr Patricia White - Chairperson  
Clr Serena Copley (remotely) – left meeting at 6:06pm  
Clr Evan Christen  
Mr John Gould – Shoalhaven Riverwatch  
Mr David Brawn  
Mr Mark Kielly  
Mr Phil Guy  
Mr Michael Roberts - Manager - Environmental Services  
Mr Adam Carney – (remotely) – joined at 4:25pm

Others Present:

Mr James Ruprai – Director City Development  
Mr Michael Roberts - Manager - Environmental Services  
Mr Mark Stone – Senior Floodplain Engineer  
Mr Alexander Aronsson – Floodplain & Stormwater Quality Engineer  
Mr David Whyte – Cardno (remotely)  
Mr Robin Byrne - SES Nowra Unit Flood control (remotely)  
Mr Nathan Pomfret – Department of Planning and Environment (remotely)

### Apologies / Leave of Absence

Apologies were received from Len White and Clr Wells.

### NFM22.5 Election of Chairperson

**RESOLVED** (John Gould / Phil Guy)

Michael Roberts - Manager - Environmental Services assumed the Chair and asked the members present if there were any nominations for the role of Chairperson.

Clr Patricia White was nominated by John Gould for the position of Chairperson, seconded by Phil Guy. There were no additional nominations received.

The Committee agreed the election process was conducted fairly and reasonably. Michael Roberts - Manager - Environmental Services - declared Clr Patricia White as Chairperson.

Clr White resumed the Chair.

CARRIED

## Confirmation of the Minutes

Mark Stone - Senior Floodplain Engineer – advised that there was an error in the Agenda which showed the minutes of the last meeting being held on 19 May 2021. However, the last meeting was held on 25 November 2020. This was noted and the Minutes of the meeting of 25 November 2020 were confirmed.

### **RESOLVED** (Clr White / John Gould)

That the Minutes of the Northern Floodplain Risk Management Committee held on 25 November 2020 be confirmed.

CARRIED

## Declarations of Interest

Nil.

## PRESENTATIONS

### **NFM22.3 Presentation - Purpose of the FRMC and NSW Government Flood Program – Department of Planning and Environment.**

**HPERM Ref:  
D22/107705**

Mark Stone - Senior Floodplain Engineer – advised that this presentation has previously been presented to the FRMC by John Murtagh - Senior Natural Resource Officer, Environment, Energy & Science, Department of Planning and Environment.

Nathan Pomfret - Environmental, Energy & Science - Department of Planning and Environment - made a presentation to the meeting for the benefit of new members on the Committee.

- Council has 13 adopted Flood Studies and 12 adopted Floodplain Risk Management (FRM) Plans which identify risk and management options across the Shoalhaven. The plans are being progressively implemented across the Shoalhaven in a prioritised manner.
- Council has continued to prepare flood studies for unmapped catchments and to review adopted Plans in a prioritised order such as the current review of the Lower Shoalhaven River Floodplain Risk Management Study and Plan.
- Current Works and Studies that are being undertaken are:
  - Maintenance of Lower Shoalhaven River Flood Mitigation Scheme – Annual NSW Government grant to assist with the costs in maintaining existing flood mitigation assets
  - Lower Shoalhaven River Floodplain Risk Management Study and Plan Review
  - St Georges Basin Floodplain Risk Management Study and Plan Review – this will be discussed at the Central Floodplain Risk Management meeting to be held on 30 March 2022.
- The NSW Floodplain Development Manual (2005) is currently under review and on public exhibition until 4 April 2022. The reviewed name is the NSW Flood Risk Management Manual.
- Flood Prone Land Policy – primary objective is to reduce the impact of flooding and flood liability on individual owners and occupiers of flood prone property, and to reduce private and public losses from floods utilising ecologically positive methods, where possible.

The presentation will be forwarded with these minutes to members of the Committee.

Note: Mayor Amanda Findley joined the meeting remotely at 4:45pm.

**NFM22.4 Presentation - Lower Shoalhaven River Flood Study –  
Cardno****HPERM Ref:  
D22/107712**

David Whyte – Cardno – made a presentation to the meeting. The topics covered in the presentation were:

1. Background on the Flood Study process and Study Objectives
2. Model Development – hydrological and hydraulic models
3. Design Event Modelling
4. Results and Impacts of Flooding
5. Next Steps – public exhibition and community consultation, complete the Final Flood Study based on feedback, complete the Floodplain Risk Management Study and Plan including assessment of available flood mitigation options

The presentation will be forwarded with these minutes to members of the Committee.

Note: Cllr Copley left the meeting at 6:06pm.

## REPORTS

**NFM22.1 Lower Shoalhaven River Floodplain Risk Management  
Study and Plan Update****HPERM Ref:  
D22/87287**

Mark Stone - Senior Floodplain Engineer - provided an update on the Lower Shoalhaven River Floodplain Risk Management Study and Plan:

- The Draft Lower Shoalhaven River Flood Study Report has been completed. A Summary Report has also been prepared to assist with community engagement.
- Independent expert peer review of the study has been completed and comments implemented.
- Feedback has been provided by Council, Department of Planning and Environment, and SES.
- Next step is to put the Draft Lower Shoalhaven River Flood Study Report on public exhibition and community consultation to seek input on the report and suggestions for flood mitigation measures to be considered in the FRMS&P.
- Council has received an extension to the DPE funding term completion date to 21 November 2022.

Discussion took place in relation to the various methods to be considered for community engagement phase:

- Cllr White suggested that a webinar option be considered as part of the community consultation process.
- Phil Guy recommended that Council utilise the existing CCB network for the presentation and hold a Q&A session.
- The community engagement phase is suggested to be held for a four week period, which was planned for the end of April but will likely be moved to mid to late-May to ensure any necessary changes are made to the report prior to public exhibition and community consultation and to prepare required community consultation material.
- David Whyte – Cardno – will prepare a video recording of the presentation which will be available on the “Get Involved” page.

**Action: Mark Stone - Senior Floodplain Engineer - to send out the adopted methods and planning for the community consultation process to FRMC members prior to any public exhibition or community involvement.**

**Recommendation**

The Committee receive the draft Lower Shoalhaven River Flood Study report for information and endorse the commencement of public exhibition and community engagement for the Draft Flood Study.

**RECOMMENDATION** (Phil Guy / John Gould)

The Committee receive the draft Lower Shoalhaven River Flood Study report for information and endorse the commencement of public exhibition and community engagement for the Draft Flood Study.

CARRIED

**NFM22.2 General Update on Flood Projects**

**HPERM Ref:  
D22/87503**

The report provided an update on Council's grant funding and the current status of the flood projects.

Clr White advised that most importantly that Council will be conducting a visual audit of all flood mitigation drains and levies during April 2022.

**Recommendation (Item to be determined under delegated authority)**

The Committee receive the General Update on Flood Projects report for information.

**RESOLVED** (Clr White / John Gould)

The Committee receive the General Update on Flood Projects report for information.

CARRIED

There being no further business, the meeting concluded, the time being 6:38pm.

Clr Patricia White  
CHAIRPERSON

## **NFM22.6 Notification of Council Resolution - Northern Floodplain Risk Management Committee Re-establishment**

**HPERM Ref:** D22/483079

**Department:** Business Assurance & Risk  
**Approver:** Michael Roberts, Manager - Environmental Services

**Attachments:** 1. Terms of Reference - North/Central/Southern Floodplain Risk Management Committee [↓](#)

### **Reason for Report**

Advise of Council's resolution in relation to the new members and re-establishment of the Northern Floodplain Risk Management Committee.

### **Recommendation (Item to be determined under delegated authority)**

That the Northern Floodplain Risk Management Committee receive the Notification of Council Resolution – Northern Floodplain Risk Management Committee Re-establishment report for information.

### **Options**

1. As recommended.

Implications: The membership structure as resolved by Council is adopted for the period to 30 September 2023.

2. Propose a different membership arrangement.

Implications: Should the Northern Floodplain Risk Management Committee wish to make an alternative recommendation in relation to membership, this would need to be reported to Council for consideration/endorsement.

### **Background**

Each year, Council reaffirms all Committees for the next 12 months - Council has the option to: reaffirm Committees; make any change to the membership, purpose, delegation, quorum, and the number of meetings required for those Committees; or disband Committees.

This report is provided to inform the Group members of the resolution of the Council. Should the Group wish to make any changes to the above, a recommendation to Council will be required to that effect.

At the Ordinary meeting on 26 September 2022 Council resolved as follows:

<p><u>Meetings per year</u> – As required Commencement time – 4pm</p>	<p>Quorum – Three (provided that a minimum of one (1) Councillor as the Chair or Acting chair and two community representatives are present) Terms of Reference: <a href="#">POL22/28</a> – Amended 1 August 2022 (59952E)</p>
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**NFM22.6**

**Purpose**

The principal objective of the Northern Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more floodplain risk management plans for the north area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The north area applies to the following catchments:

- Lower Shoalhaven River;
- Crookhaven River;
- Kangaroo River;
- Broughton Creek;
- Bomaderry Creek;
- Nowra and Browns Creek; and
- Lake Wollumboola.

**Role of the Committee**

- a) To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under ‘Purpose’ (see above).
- b) To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation.
- c) To assist the Council by providing input into known flood behaviour as part of the Flood Study; and
- d) Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

**Delegation – NIL**

**Chairperson – Appointed by Council**

**2022-2023 Councillor / Staff Membership**

Clr White - Chairperson  
All other Councillors (non-voting members)  
CEO or nominee

Note: Any non-voting Councillor in attendance at any of the above Committees may act as an alternate voting member in circumstances where achievement of a quorum is required.

**Community/Organisational Representatives**

Community representatives (including a maximum of five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) indigenous representative)  
Relevant government agency representatives (Non-voting)

*CARRIED*

**Policy Implications**

Any non-voting Councillor in attendance at the Northern Floodplain Risk Management Committee meetings may act as an alternate voting member in circumstances where achievement of a quorum is required.



# Terms of Reference

## Northern / Central / Southern Floodplain Risk Management Committees

NFM22.6 - Attachmen

<b>Adoption Date:</b>	20/07/2020
<b>Amendment Date:</b>	06/10/2020, 01/08/2022, 26/09/2022
<b>Minute Number:</b>	MIN20.479, MIN20.736, MIN22.509, MIN22.673
<b>Review Date:</b>	01/12/2024
<b>Directorate:</b>	City Development
<b>Record Number:</b>	POL22/28

## Northern Floodplain Risk Management Committee

### 1. Purpose

The principal objective of the Northern Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more Floodplain Risk Management Study and Floodplain Risk Management Plan for the northern area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The northern area applies to the following catchments:

- Lower Shoalhaven River
- Crookhaven River
- Kangaroo River
- Broughton Creek
- Bomaderry Creek
- Nowra and Browns Creek
- Lake Wollumboola

### 2. Interpretation

For the purpose of this document:

*Member* means a member of the committee

*Committee* means Northern Floodplain Risk Management Committee

*Council* means Shoalhaven City Council

*Chairperson / Chair* means the chairpersons of the Committee

*Elected members* means the elected Councillors of Shoalhaven City Council

### 3. Status of the Committee

The Committee provides non-binding advice to Council for consideration.

### 4. Role of the Committee

- a) To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under 'Purpose' (see above).
- b) To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation.

- c) To assist the Council by providing input into known flood behaviour as part of the Flood Study; and
- d) Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

## 5. Delegations

Advisory committees may make recommendations to Council on all matters within the role as outlined above. These recommendations are submitted via the minutes of each meeting to Council for consideration.

Substantial issues and recommendations (possibly including expenditure) raised by the advisory committee will be reported to Council by a separate report from the Manager – Environmental Services.

1. The committee does not have the power to incur expenditure, or the power to bind Council.
- 2.

## 6. Membership

The Committee will be chaired by a Councillor, elected by Council. The committee is expected to act in accordance with the Role of the Committee as defined above in Section 4. The Committee will comprise the following:

- Appointed Chair (Councillor)
- Elected members of Council
- Chief Executive Officer or nominee
- Community representatives
- New South Wales State Emergency Services (NSW SES) representatives
- Department of Planning and Environment (DPE) representatives
- Local Aboriginal Land Council (LALC) representatives
- Other relevant government agency representatives

### ***Councillors Representatives***

Council appoints one (1) Councillor to be the voting Chair of the Committee. All other Councillors are welcome to attend meetings of the Committee as observers and contribute to discussions but are not entitled to vote.

Note: Any non-voting Councillor in attendance at a meeting may act as an alternate voting member in circumstances where achievement of a quorum is required.

If no Councillors are appointed as members, the Chief Executive Officer or nominee represents the elected member to chair the meeting.

### **Local Representatives**

Following an expression of interest process, the Chief Executive Officer appoints a maximum of five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) indigenous representative, that meet the following criteria:

- A broad interest, knowledge and understanding of floodplain management and the areas within the committee’s jurisdiction.
- A commitment to floodplain management in the nominated Council area; and
- Local resident or business person living or working in or near a flood prone area.

Local community representatives have voting rights.

### **Community Member Appointments:**

- Nominations should be advertised throughout the community via an Expression of Interest (EOI) process.
- Appointments to the Committee will be for a three (3) year term with a set commencement and finish date. Vacancies which are filled during the committee’s term will have the same finish date.
- Vacancies will be advertised locally via media and Council communication networks.
- Council will manage the application process; and
- An assessment panel consisting of a Council staff member (Manager – Environmental Services), the Chairperson of the Committee and one (1) suitably qualified independent representative will assess the applications and make recommendations for appointments to Council. Each member of the assessment panel will vote on recommendations with a majority ruling.

### **Council Officers**

Council officers attend meetings to provide specialist professional advice in engineering, strategic planning, development assessment and environmental management. Council officers do not have voting rights.

### **Government Agencies**

The Chief Executive Officer (or nominee) invites a range of State Government agencies to nominate representatives.

The nominated agency representatives provide advice in relation to their functions and areas of expertise, however, are non-voting members.

### **Chair and Deputy Chair**

Council appoints one (1) Councillor to be the Chair of the Committee.  
In the absence of the nominated Chair at a particular meeting, the members elect a Chair for that meeting.

### **Terms of Office**

The term of the Chair will be one (1) year which will be reviewed annually in September. Councillors continue as members of the Committee until the next Local Government election, or until the Committee is disbanded or completes its purpose in accordance with these Terms of Reference.

## **7. Committee Meetings**

### **Agenda**

The agenda will be developed by the Director - City Development with support from the Manager - Environmental Services in view of the prevailing issues. Councillors and members can contribute to the agenda by requesting a report on a particular issue four (4) weeks prior to the meeting, subject to approval of the Chair and the Director- City Development.

### **Quorum**

Three (3) provided that a minimum of one (1) Councillor as chair or acting chair with voting rights and two (2) community representatives are present. If a quorum is not present within 30 minutes of the scheduled commencement time, the meeting lapses.

### **Voting**

It is expected that the committee, and any working group, develop recommendations by consensus. If voting is required, the Chair has a casting vote. Any votes against will be recorded in the minutes.

### **Meeting Schedule**

In general, meeting frequency should be conducted on an as required basis.

### **Minutes**

The Committee provides advice to the Council for consideration. The Committee's advice is posted on the Council website with minutes reported to the elected Council. Following consideration of the advice from the Committee, any resolution determined by Council, will be posted on the Council website.

### **Confidentiality And Privacy**

Members may have contact with confidential or personal information retained by Council. If so, members are required to maintain the security of any confidential or personal information and not access, use, or remove any information, unless the member is authorised to do so.

### **Communication**

3. In relation to the communication functions of the Committee, the following applies:

- Members of the Committee are not permitted to speak to the media as Council representatives of the Committee unless approved by the Chairperson.
- Where approval has been given by the Chairperson, views and opinions expressed are those of the Committee and not of Shoalhaven City Council.
- Where endorsement is required from Shoalhaven City Council, approval must be sought through the formal processes; and
- The Chair of the Committee is the point of contact for communication between Committee members and Council staff.

## **8. Code of Conduct**

All members of the Committee are required to observe the provisions of Council's Code of Conduct and any other policy or requirement applicable to the proper functioning of the Committee.

A breach of the Code of Conduct may lead to the member being expelled from the Committee.

## **9. Document Control**

These Terms of Reference are reviewed at the commencement of each term of Council. Amendments to these Terms of Reference are to be reported to Council for approval. A version history (footnote on front page) is included if amendments have been approved.

## Central Floodplain Risk Management Committee

### 1. Purpose

The principal objective of the Central Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more Floodplain Risk Management Study and Floodplain Risk Management Plan for the central area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The central area applies to the following catchments:

- St Georges Basin (includes Sussex inlet)
- Jervis Bay
- Currambene Creek
- Moona Moona Creek
- Currarong Creek
- Berrara Creek
- Callala Creek
- Swan Lake

### 2. Interpretation

For the purpose of this document:

*Member* means a member of the committee

*Committee* means Central Floodplain Risk Management Committee

*Council* means Shoalhaven City Council

*Chairperson / Chair* means the chairpersons of the Committee

*Elected members* means the elected Councillors of Shoalhaven City Council

### 3. Status of the Committee

The Committee provides non-binding advice to Council for consideration.

### 4. Role of the Committee

- a) To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under 'Purpose' (see above).

- b) To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation.
- c) To assist the Council providing input into known flood behaviour as part of the Flood Study; and
- d) Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

## 5. Delegations

Advisory committees may make recommendations to Council on all matters within the role as outlined above. These recommendations are submitted via the minutes of each meeting to Council for consideration.

Substantial issues and recommendations (possibly including expenditure) raised by the advisory committee will be reported to Council by a separate report from the Manager – Environmental Services.

The committee do not have the power to incur expenditure, or the power to bind Council.

## 6. Membership

The Committee will be chaired by a Councillor, elected by Council. The committee is expected to act in accordance with the Role of the Committee as defined above in Section 4. The Committee will comprise the following:

- Appointed Chair (Councillor)
- Elected members of Council
- Chief Executive Officer or nominee
- Community representatives
- New South Wales State Emergency Services (NSW SES) representatives
- Department of Planning and Environment (DPE) representatives
- Local Aboriginal Land Council (LALC) representatives
- Other relevant government agency representatives

### ***Councillors Representatives***

Council appoints one (1) Councillor to be the voting Chair of the Committee. All other Councillors are welcome to attend meetings of the Committee as observers and contribute to discussions but are not entitled to vote.

Note: Any non-voting Councillor in attendance at a meeting may act as an alternate voting member in circumstances where achievement of a quorum is required.



If no Councillors are appointed as members, the Chief Executive Officer or nominee represents the elected member to chair the meeting.

### **Local Representatives**

Following an expression of interest process, the Chief Executive Officer appoints a maximum of five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) Indigenous representative, that meet the following criteria:

- A broad interest, knowledge and understanding of floodplain management and the areas within the committee's jurisdiction.
- A commitment to floodplain management in the nominated Council area; and
- Local resident or business person living or working in or near a flood prone area.

Local community representatives have voting rights.

### **Community Member Appointments:**

- Nominations should be advertised throughout the community via an Expression of Interest (EOI) process.
- Appointments to the Committee will be for a three (3) year term with a set commencement and finish date. Vacancies which are filled during the committee's term will have the same finish date.
- Vacancies will be advertised locally via media and Council communication networks.
- Council will manage the application process; and
- An assessment panel consisting of a Council staff member (Manager – Environmental Services), the Chairperson of the Committee and one (1) suitably qualified independent representative will assess the applications and make recommendations for appointments to Council. Each member of the assessment panel will vote on recommendations with a majority ruling.

### **Council Officers**

Council officers attend meetings to provide specialist professional advice in engineering, strategic planning, development assessment and environmental management. Council officers do not have voting rights.

### **Government Agencies**

The Chief Executive Officer (or nominee) invites a range of State Government agencies to nominate representatives.

The nominated agency representatives provide advice in relation to their functions and areas of expertise, however, are non-voting members.

### **Chair and Deputy Chair**

Council appoints one (1) Councillor to be the Chair of the Committee. In the absence of the nominated Chair at a particular meeting, the meeting elects a Chair of the meeting.

### **Terms of Office**

The term of the Chair will be one (1) year which will be reviewed annually in September. Councillors continue as members of the Committee until the next Local Government election, or until the Committee is disbanded or completes its purpose in accordance with these Terms of Reference.

## **7. Committee Meeting**

### **Agenda**

The agenda will be developed by the Director - City Development with support from the Section Manager Environmental Services in view of the prevailing issues. Councillors and members can contribute to the agenda by requesting a report on a particular issue four (4) weeks prior to the meeting, subject to approval of the Chair and the Director - City Development.

### **Quorum**

Three (3) provided that a minimum of one (1) Councillor as chair or acting chair with voting rights and two (2) community representative are present. If a quorum is not present within 30 minutes of the scheduled commencement time, the meeting lapses.

### **Voting**

It is expected that the committee, and any working group to develop recommendations by consensus. If voting is required, the Chair has a casting vote. Any votes against will be recorded in the minutes.

### **Meeting Schedule**

In general, meeting frequency should be conducted on an as required basis.

### **Minutes**

The Committee provides advice to the Council for consideration. The Committee's advice is posted on the Council website with minutes reported to the elected Council. Following consideration of the advice from the Committee, any resolution determined by Council, will be posted on the Council website.

### **Confidentiality And Privacy**

Members may have contact with confidential or personal information retained by Council. If so, members are required to maintain the security of any confidential or

personal information and not access, use, or remove any information, unless the member is authorised to do so.

### **Communication**

4. In relation to the communication functions of Committee, the following applies:

- Members of the Committee are not permitted to speak to the media as Council representatives of the Committee unless approved by the Chairperson.
- Where approval has been given by the Chairperson, views and opinions expressed are those of the Committee and not of Shoalhaven City Council.
- Where endorsement is required from Shoalhaven City Council, approval must be sought through the formal processes; and
- The Chair of the Committee is the point of contact for communication between Committee members and Council staff.

## **8. Code of Conduct**

All members of the Committee are required to observe the provisions of Council's Code of Conduct and any other policy or requirement applicable to the proper functioning of the Committee.

A breach of the Code of Conduct may lead to the member being expelled from the Committee.

## **9. Document Control**

These Terms of Reference are reviewed at the commencement of each term of Council. Amendments to these Terms of Reference are to be reported to Council for approval. A version history (footnote on front page) is included if amendments have been approved.

## Southern Floodplain Risk Management Committee

### 1. Purpose

The principal objective of the Southern Floodplain Risk Management Committee is to assist Shoalhaven City Council in the development and implementation of one or more Floodplain Risk Management Study and Floodplain Risk Management Plan for the southern area of the Council. This will need to be in accordance with the NSW Floodplain Development Manual. The southern area applies to the following catchments:

- Lake Conjola
- Narrawallee
- Mollymook
- Ulladulla
- Burrill Lake
- Clyde River
- Lake Tabourie
- Willinga Lake

### 2. Interpretation

For the purpose of this document:

*Member* means a member of the committee

*Committee* means Southern Floodplain Risk Management Committee

*Council* means Shoalhaven City Council

*Chairperson / Chair* means the chairpersons of the Committee

*Elected members* means the elected Councillors of Shoalhaven City Council

### 3. Status of the Committee

The Committee provides non-binding advice to Council for consideration.

### 4. Role of the Committee

- a) To assist the Council in the development and implementation of a Flood Study, Floodplain Risk Management Study and Floodplain Risk Management Plan for the areas listed under 'Purpose' (see above).

- b) To assist the Council monitoring and assessing the effectiveness of the management plans during and after their implementation.
- c) To assist the Council by providing input into known flood behaviour as part of the Flood Study; and
- d) Facilitate broader community consultation and participation in floodplain risk management through informing and liaising with member community groups.

## 5. Delegations

Advisory committees may make recommendations to Council on all matters within the role as outlined above. These recommendations are submitted via the minutes of each meeting to Council for consideration.

Substantial issues and recommendations (possibly including expenditure) raised by the advisory committee will be reported to Council by a separate report from the Manager – Environmental Services.

The committee do not have the power to incur expenditure, or the power to bind Council.

## 6. Membership

The Committee will be chaired by a Councillor, elected by Council. The committee is expected to act in accordance with the Role of the Committee as defined above in Section 4. The Committee will comprise the following:

- Appointed Chair (Councillor)
- Elected members of Council
- Chief Executive Officer or nominee
- Community representatives
- New South Wales State Emergency Services (NSW SES) representatives
- Department of Planning and Environment (DPE) representatives
- Local Aboriginal Land Council (LALC) representatives
- Other relevant government agency representatives.

### ***Councillors Representatives***

Council appoints one (1) Councillor to be the voting Chair of the Committee. All other Councillors are welcome to attend meetings of the Committee as observers and contribute to discussions but are not entitled to vote.

Note: Any non-voting Councillor in attendance at a meeting may act as an alternate voting member in circumstances where achievement of a quorum is required.

If no Councillors are appointed as members, the Chief Executive Officer or nominee represents the elected member to chair the meeting.

### **Local Representatives**

Following an expression of interest process, the Chief Executive Officer appoints a maximum of five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) Indigenous representative, that meet the following criteria:

- A broad interest, knowledge and understanding of floodplain management and the areas within the committee's jurisdiction.
- A commitment to floodplain management in the nominated Council area; and
- Local resident or business person living or working in or near a flood prone area.

Local community representatives have voting rights.

### **Community Member Appointments:**

- Nominations should be advertised throughout the community via an Expression of Interest (EOI) process.
- Appointments to the Committee will be for a three (3) year term with a set commencement and finish date. Vacancies which are filled during the committee's term will have the same finish date.
- Vacancies will be advertised locally via media and Council communication networks.
- Council will manage the application process; and
- An assessment panel consisting of a Council staff member (Manager – Environmental Services), the Chairperson of the Committee and one (1) suitably qualified independent representative will assess the applications and make recommendations for appointments to Council. Each member of the assessment panel will vote on recommendations with a majority ruling.

### **Council Officers**

Council officers attend meetings to provide specialist professional advice in engineering, strategic planning, development assessment and environmental management. Council officers do not have voting rights.

### **Government Agencies**

The Chief Executive Officer (or nominee) invites a range of State Government agencies to nominate representatives.

The nominated agency representatives provide advice in relation to their functions and areas of expertise, however, are non-voting members.

### **Chair and Deputy Chair**

Council appoints one (1) Councillor to be the Chair of the Committee. In the absence of the nominated Chair at a particular meeting, the meeting elects a Chair of the meeting.

### **Terms of Office**

The term of the Chair will be one (1) year which will be reviewed annually in September. Councillors continue as members of the Committee until the next Local Government election, or until the Committee is disbanded or completes its purpose in accordance with these Terms of Reference.

## **7. Committee Meetings**

### **Agenda**

The agenda will be developed by the Director - City Development with support from the Manager - Environmental Services in view of the prevailing issues. Councillors and members can contribute to the agenda by requesting a report on a particular issue four (4) weeks prior to the meeting, subject to approval of the Chair and the Director - City Development.

### **Quorum**

Three (3) provided that a minimum of one (1) Councillor as chair or acting chair with voting rights and two (2) community representatives are present. If a quorum is not present within 30 minutes of the scheduled commencement time, the meeting lapses.

### **Voting**

It is expected that the committee, and any working group, develop recommendations by consensus. If voting is required, the Chair has a casting vote. Any votes against will be recorded in the minutes.

### **Meeting Schedule**

In general, meeting frequency should be conducted on an as required basis.

### **Minutes**

The Committee provides advice to the Council for consideration. The Committee's advice is posted on the Council website with minutes reported to the elected Council. Following consideration of the advice from the Committee, any resolution determined by Council, will be posted on the Council website.

### **Confidentiality And Privacy**

Members may have contact with confidential or personal information retained by Council. If so, members are required to maintain the security of any confidential or personal information and not access, use, or remove any information, unless the member is authorised to do so.

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### **Communication**

5. In relation to the communication functions of Committee, the following applies:

- Members of the Committee are not permitted to speak to the media as Council representatives of the Committee unless approved by the Chairperson.
- Where approval has been given by the Chairperson, views and opinions expressed are those of the Committee and not of Shoalhaven City Council.
- Where endorsement is required from Shoalhaven City Council, approval must be sought through the formal processes; and
- The Chair of the Committee is the point of contact for communication between Committee members and Council staff.

### **8. Code of Conduct**

All members of the Committee are required to observe the provisions of Council's Code of Conduct and any other policy or requirement applicable to the proper functioning of the Committee.

A breach of the Code of Conduct may lead to the member being expelled from the Committee.

### **9. Document Control**

These Terms of Reference are reviewed at the commencement of each term of Council. Amendments to these Terms of Reference are to be reported to Council for approval. A version history (footnote on front page) is included if amendments have been approved.



## NFM22.7 Lower Shoalhaven River Final Flood Study

**HPERM Ref:** D22/466873

**Department:** Environmental Services  
**Approver:** James Ruprai, Director - City Development

**Attachments:** 1. POL22/19 Flood Planning Levels for the Lower Shoalhaven River Floodplain DRAFT [↓](#)

### Reason for Report

To provide the Northern Floodplain Risk Management Committee (FRMC) with an update on the outcomes of the draft Lower Shoalhaven River Flood Study public exhibition and community consultation phase and seek endorsement from the FRMC for adoption of the Lower Shoalhaven River Flood Study and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy.

### Recommendation

That the Committee:

1. Receive the final Lower Shoalhaven River Flood Study (Cardno, 2022) report and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy for information; and
2. Endorse the adoption of the Lower Shoalhaven River Flood Study (Cardno, 2022) and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy.

### Options

1. That the Committee:
  - a. Receive the final Lower Shoalhaven River Flood Study (Cardno, 2022) report and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy for information; and
  - b. Endorse the adoption of the Lower Shoalhaven River Flood Study (Cardno, 2022) and revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy.

Implications: Nil.

2. The Committee could choose to provide an alternative recommendation for consideration by Council.

Implications: This option could delay the progress of the project, result in additional project costs, prevent the completion of the Flood Study and/or delay the commencement of the Floodplain Risk Management Study & Plan Review phase and prevent the utilisation of updated flood intelligence for flood planning purposes.

### Background

The study area comprises the Lower Shoalhaven River floodplain from Burrier to the primary entrance to the Tasman Sea at Crookhaven Heads and the intermittently open and closed entrance at Shoalhaven Heads.

The objective of this study is to improve understanding of flood behaviour and impacts, and better inform management of flood risk in the study area in consideration of best available information and current best practice. The study will also provide a sound technical basis for any further studies.

The previous Floodplain Risk Management Study and Plan (FRMS&P) for the Lower Shoalhaven River was completed in 2011. A review was recommended as per the NSW Floodplain Development Manual. It is noted that the Australian Rainfall and Runoff (ARR) Guidelines were updated in 2019 and this resulted in several changes to input parameters for design event flood modelling such as Bureau of Meteorology design rainfall depths and ARR rainfall losses and design temporal patterns, in addition to significant advancements in computing power and modelling techniques. Hence, the Lower Shoalhaven River FRMS&P update will result in updated contemporary flood intelligence which utilise industry best practice guidelines.

The study outputs will inform decision making for investing in the floodplain, managing flood risk through prevention, preparedness, response and recovery activities, and informing and educating the community on existing and future flood risk and response to floods.

Funding was approved by the NSW Department of Planning and Environment (DPE) for this study in October 2017 and Cardno was engaged to prepare the Lower Shoalhaven River FRMS&P update in June 2018.

The Shoalhaven River entrance behaviour at Shoalhaven Heads has been investigated using a detailed coastal hydrodynamic and morphological numerical model. The objective of this investigation was to better understand the relationship between the Shoalhaven River inflow (from catchment flooding), the rate at which the berm opens, and the maximum width of the entrance under different flow conditions, and what this means for flood levels in the lower reaches of the river. The findings from this modelling were used to inform and improve confidence in the entrance condition assumptions for design flood events in the Lower Shoalhaven River.

### **Public Exhibition and Community Consultation**

The first round of community consultation was undertaken between November 2018 and February 2019. A project Get Involved website was published by Council to inform the community about this project. The website has been developed to provide the community with detailed information about the study and gather information. The website is updated during the duration of the project to provide relevant information at each stage of the study.

Council received endorsement from the FRMC in March 2022 to undertake public exhibition and community consultation of the draft *Lower Shoalhaven River Flood Study (Cardno, 2022)*.

The aim of the public exhibition and community consultation phase was for Council to seek feedback from the community regarding the draft *Lower Shoalhaven River Flood Study (Cardno, 2022)* such that comments could be considered prior to finalisation of the Flood Study. Furthermore, Council requested input regarding specific flood mitigation options to be considered as part of the upcoming FRMS&P Review phase.

The public exhibition and community consultation was held over a five-week period from 6 June to 8 July 2022. The following community consultation was undertaken:

- Media release to inform the community of the public exhibition and community consultation period.
- Notification of the public exhibition and community consultation period in the In Your Neighbourhood Community Newsletter and on Council social media pages.

- Notification of Community Consultative Boards (CCBs) and community groups of the public exhibition and community consultation period.
- Mail out to property owners within the study area, which comprise flood prone land and/or may experience flood isolation or flood evacuation difficulties during extreme flood events. This letter provided a link to the project Get Involved webpage. 3,150 letters were sent.
- Get Involved webpage, including the following:
  - A Summary Report of the Lower Shoalhaven River Flood Study (Cardno, 2022).
  - Lower Shoalhaven River Flood Study (Cardno, 2022) draft report.
  - A Video Presentation that discusses the Flood Study development and key outcomes.
  - Link to an online Community Survey.
  - Lower Shoalhaven River Flood Study Fact Sheet.
  - Option to “Ask a Question”.
  - NSW State Emergency Service (NSW SES) FloodSafe brochure for the Lower Shoalhaven River. This FloodSafe brochure provides useful information on what to do when flooding is likely, how to stay informed during a flood event, flood evacuation information and contact details for emergency services.
- Hard copies of the Flood Study reports were made available at Council for viewing.
- General enquiries via phone calls and community members visiting the Nowra Administration Building throughout the community consultation period.
- No drop-in sessions were held due to uncertainties relating to the COVID-19 pandemic environment at the time.

The following lists some key statistics from the Get Involved webpage for the community engagement period:

- 419 total page visits (13.3% of total mail outs to property owners).
- 3 new registration for project updates.
- 54 surveys completed (1.7% of total mail outs to property owners).
- 4 questions asked using the online “Ask a Question” option.
- 21 participants viewed the community engagement video.
- 27 participants downloaded a document, including:
  - 17 downloads of the Summary Report for the Lower Shoalhaven River Flood Study.
  - 15 downloads of the Lower Shoalhaven River Flood Study draft report.
  - 14 downloads of the Lower Shoalhaven River Flood Study Fact Sheet.
  - 6 downloads of the NSW SES Lower Shoalhaven River FloodSafe Guide.

The general theme of phone calls to Council during the consultation period were predominantly associated with concerns about insurance and property values, vegetation maintenance requests, concerns regarding local stormwater management issues and

comments on entrance management of the Shoalhaven River entrance at Shoalhaven Heads.

It is noted that investigations into any long-term management options associated with the Shoalhaven River entrance at Shoalhaven Heads is being investigated as part of the Lower Shoalhaven River Coastal Management Program.

**Lower Shoalhaven River Flood Study Feedback from Community Consultation and Amendments to Final Flood Study Report**

Below is a summary of the themes of community feedback from the draft Lower Shoalhaven River Flood Study community consultation phase. Details on how these will be addressed by Council are also noted in italics.

The majority of feedback was associated with suggested mitigation measures to be considered during the FRMS&P Review. This feedback is summarised separately later in this report.

- Numerous comments regarding entrance management for the Shoalhaven River – *Not applicable to Flood Study phase. The Shoalhaven River entrance is opened in accordance with the Shoalhaven River Entrance Management Plan (EMP) for Flood Mitigation. In relation to the EMP, Council will undertake a review utilising information from the Flood Study and as a strategic action derived from the future finalisation of the Lower Shoalhaven River Coastal Management Program. This will include a review of the existing trigger levels, amongst other factors. An updated EMP requires approval from the state government before it can be implemented. As such, it is not within Council’s jurisdiction to freely set the trigger levels and procedures for a mechanical entrance opening as there is a reliance on approval and endorsement from various state government agencies.*
- Request to graph:
  - Flood frequency versus level at Nowra Bridge – *The Grassy Gully gauge location was selected for the flood frequency analysis as this is beyond the tidal limits of the Lower Shoalhaven River and associated tailwater level influence. It is therefore technically more challenging to prepare a reliable flood frequency analysis for the Nowra Bridge water level gauge location. The flood frequency analysis was required for comparison against the hydrologic model peak flows. The river flows at the Grassy Gully and Nowra Bridge gauges are similar and therefore an additional flood frequency analysis at Nowra Bridge would not add any further value. No changes to the Flood Study are considered necessary.*
  - Flood frequency versus houses flooded in each village – *Section 11 “Impacts of Flooding on the community” identifies the estimated number of flood affected properties by AEP event and location. Further flood intelligence and emergency management information will be prepared as part of the FRMS&P Review in accordance with the Floodplain Risk Management Guideline - SES Requirements from the FRM Process (DECC, 2007). No changes to the Flood Study are considered necessary.*
  - Height at Tallowa Dam versus level at Nowra Bridge – *The depth of floodwater over Tallowa Dam versus indicative flood level at Grassy Gully and Nowra Bridge are included in Table 11-3 of the Flood Study report. The flood levels at Grassy Gully and Nowra are also influenced by inflows from Danjera Creek which enters the Lower Shoalhaven River downstream of Tallowa Dam. Further flood intelligence and emergency management information will be prepared as part of the FRMS&P Review in accordance with the Floodplain*

*Risk Management Guideline - SES Requirements from the FRM Process (DECC, 2007). No changes to the Flood Study are considered necessary.*

- *Belief that flooding never occurs from the ocean or when the Shoalhaven River entrance is open based on recent flood events – Experience has shown that the major factor determining the degree of flood readiness of a community is usually the frequency of moderate to large floods in the recent history of the area. The more recent the flooding, the greater the community flood awareness and readiness is likely to be. The last moderate to large floods in the Lower Shoalhaven River was in the 1970's and there has been a relatively long period since then of small flood events typically lower than a 10% AEP event. Over the past few years flood events have to date been of a 20% AEP event magnitude for events with an open or closed entrance prior to the flood occurring. The historic flood record includes a number of large to extreme flood events and there is a small chance of these events occurring in any given year. The overall level of flood awareness in the Lower Shoalhaven River catchment is considered to be low and further flood education is required. The Shoalhaven River entrance has also been included in the hydraulic model open as per the findings from the entrance breach modelling. No changes to the Flood Study are considered necessary.*
- *Question regarding why the model is not calibrated against larger flood events – As noted in Section 6 of the Flood Study, the selection of calibration events is influenced by the available historic rainfall and water level records. There is limited historical records for continuous rainfall and water levels at the time of previous larger historic flood events. The March 1978 event was used as a calibration event in the hydrology model (Section 6.6), and this is the fifth largest recorded event since 1978. Extensive time and effort were spent on the model calibration and validation phase of the project and the events were selected based on available information. No changes to the Flood Study are considered necessary.*
- *Question regarding why the Lower Shoalhaven River Flood Study report does not include the Nowra Creek, Browns Creek, and Broughton Creek – The objective of the Lower Shoalhaven River Flood Study is Shoalhaven River flood events. Council has an adopted Flood Study and FRMS&P for the Nowra and Browns Creek, Bomaderry Creek, and Broughton Creek catchments. The Nowra and Browns Creek, Bomaderry Creek and Broughton Creek catchments are included in the Lower Shoalhaven River Flood Study hydrologic and hydraulic models and the results are mapped but with a hatch indicating that the local catchment FRMS&Ps takes precedence in these areas. Section 10 of the flood study report notes that "Whilst results are presented in the Bomaderry Creek, Broughton Creek and Nowra & Browns Creek areas in the mapping, there are limitations with the results due to model grid size being too large to accurately represent smaller tributary creeks and flow calibration/validation has focussed on the mainstream Shoalhaven River. Modelling results from the Bomaderry Creek FRMS&P, Broughton Creek FRMS&P and Nowra & Browns Creek FRMS&P take precedence in these areas." As per the General Update on Flood Projects report at the 21 March 2022 FRMC meeting, Council have requested DPE grant funding to update the Broughton Creek Flood Study. This report also provided a summary of Flood Program priorities associated with new and revised flood investigations, including the Nowra and Browns Creeks and Bomaderry Creek catchments. No changes to the Flood Study are considered necessary.*
- *Comment that the floodgate network was not included in study – Floodgate structures have been included in the hydraulic model as noted in Section 5.2.5 of the Flood Study report. No changes to the Flood Study are considered necessary.*

- Concerns regarding local stormwater drainage issues in road corridors and private property – *Not applicable to Flood Study phase. These details were provided to City Services to investigate.*
- Concerns regarding implications on flood insurance – *Not applicable to the Flood Study phase. The insurance industry utilise their own flood modelling to identify flood prone land and determine insurance premiums.*
- Comments that the PMF mapping should not be shown due to concerns this may have on insurance – *As noted above, the insurance industry utilise their own flood modelling to identify flood prone land. The PMF is used for emergency management planning by the NSW SES and hence cannot be excluded from the Flood Study mapping. It is a requirement of the NSW Floodplain Development Manual to consider the full range of possible flood events.*
- Positive feedback on the Lower Shoalhaven River Flood Study.
- Question regarding the aim of the Flood Study and why It does not include any mitigation measures – *The aim of the Flood Study is included in the project objectives. The report clearly identifies that the completed Flood Study will form the basis of the FRMS&P which includes the identification and analysis of flood risk and floodplain risk management options assessment. The aim of the Flood Study and process in which mitigation measures will be investigated was also clearly identified on the Get Involved website and letter to property owners. No changes to the Flood Study are considered necessary.*
- Feedback on potentially removing existing vegetation and sediment in natural waterways – *Not applicable to the Flood Study phase. However, the potential benefits of some targeted vegetation and/or sediment removal on flood behaviour (level, velocity, hazard etc) can be investigated as part of the Lower Shoalhaven River FRMS&P Review.*
- Comments on maintenance of flood mitigation drains – *Not applicable to Flood Study phase. However, Council has engaged Public Works to undertake a visual audit of all flood mitigation drains. The outcome from this audit of all flood mitigation drains will allow Council to prioritise drain maintenance and repair of any defects. It is noted that Council has encountered difficulties accessing properties over the past two years to undertake flood mitigation drain maintenance due to boggy soils from the wetter than average rainfall experienced.*
- Community feedback on their experience with floods – *No specific feedback on Flood Study phase provided.*
- Question as to why Coomonderry Swamp was not included – *The Coomonderry Swamp catchment has been included in the hydrologic model, but not the hydraulic model extent. This is similar to the Shoalhaven River catchment upstream of Grassy Gully which is also included in the hydrologic but not hydraulic model extent. The hydraulic model extent is sufficient to investigate any potential mitigation measures associated with flows from Coomonderry Swamp to the Lower Shoalhaven River. No changes to the Flood Study are considered necessary.*

The following amendments have been made to the final *Lower Shoalhaven River Flood Study (Cardno, 2022)* report. These changes are both from community feedback and some final Council review comments.

- The report has been updated to be labelled as “Lower Shoalhaven River Flood Study” rather than “Lower Shoalhaven River Floodplain Risk Management Study and Plan” as it will be a standalone Flood Study report. This change occurs on the front cover, document control page, headers, executive summary and introduction sections.

- Report updated to final revision.
- Section 11.1 (Impacts of Flooding). Additional text as follows was added to identify that the Table 11-1 information and the following sub-sections is based on a database of actual and assumed floor levels. *“The number of buildings with predicted overfloor flooding for each design flood event has been calculated based on a database of actual surveyed floor levels which has been supplemented with some assumed floor levels based on building type for buildings where the actual floor level was unknown at the time of this Flood Study preparation. The number of buildings with predicted overfloor flooding for each design flood event can be updated as part of the Floodplain Risk Management Study & Plan following the completion of additional floor level survey.”*
- Appendix J mapping. Section 11.5 of the report identifies locations that are suitable for use as evacuation centres or assembly areas dependent on the scale of the event. The Appendix J mapping legends labels these locations as “evacuation centres”. The legend on Appendix J mapping has been updated from “Evacuation Centre” to “Evacuation Centre or Assembly Area”.
- Section 6.3 (August 2015 Calibration Event). Additional plots included for the August 2015 calibration event at the Grassy Gully gauging location.
- Probable Maximum Flood. Further analysis has been completed for the Probable Maximum Precipitation (PMP) and Probable Maximum Flood event. This included analysis of the AEP of the PMP and comparison against PMF values calculated by WMAwater (as part of the peer review) and WaterNSW. This has resulted in an increase to the Probable Maximum Flood magnitude, depth and inundation extent in the Lower Shoalhaven River. Section 8.1.7, Table 8-4, Table 8.4.2, Section 10, Table 10-1, Table 10-2, Table 10-3, Table 10-5, Section 11.1, Table 1-1, Section 11-4, Table 11-9 and Section 11.4 of the final Flood Study report have all had minor changes based on the increased PMF magnitude. PMF mapping in Appendix G and H have been updated. The flood emergency response classification maps in Appendix J have also been updated based on the increased PMF magnitude.
- The draft report noted in Section 11.3 (Flood Planning Area) that *“However, given the 1% AEP flood level is lower than the previous Flood Study, adopting a higher defined flood event (such as a 0.5% AEP event) for the FPL would maintain a similar FPL to what has currently been adopted across the Lower Shoalhaven River floodplain and could further reduce future flood risk.”* Further analysis has been completed which investigated a 0.5% AEP defined flood event for the Flood Planning Level. The flood planning level from the 1% AEP, 0.5% AEP and currently adopted values (WMAwater, 2011) have been compared. It was found that flood planning levels based on a 0.5% AEP defined flood event result in similar flood planning levels to the currently adopted values (WMAwater, 2011). The report has been updated to recommend a Flood Planning Level based on the 0.5% AEP defined flood event, including sea level rise and RCP 8.5 rainfall increase. Section 11.3 and the Flood Planning Area mapping in Appendix I have been updated in the final Flood Study.
- Minor amendments to the list of Abbreviations.

The recently released NSW Government Flood Prone Land package allows Council's to set local flood planning levels based on the flood behaviour and risk identified in Flood Studies and Floodplain Risk Management Studies and Plans. This allows Councils to adopt higher planning levels in response to higher flood risks.

During the final stages of this Flood Study, the NSW 2022 Flood Inquiry report was released. It is noted that this process is still underway, and the outcomes and consequences of the Flood Inquiry with regard to planning and emergency management are not yet clear. Early indications from the recommendations in the Flood Inquiry report are that there is the

potential for changes to practises and policies related to a number of areas, including the determination of appropriate flood planning levels, particularly for catchments with a high flood risk. The Shoalhaven River floodplain is noted in the Flood Inquiry report as one of the high-risk floodplains within NSW.

The Summary Report for the *Lower Shoalhaven River Flood Study* (Cardno, 2022) has been updated as per the same comments listed above for *the Lower Shoalhaven River Flood Study* (Cardno, 2022). It is noted that the Summary Report for the Lower Shoalhaven River Flood Study was prepared for the public exhibition and community consultation phase only and is not intended to be adopted by Council.

A link to the final *Lower Shoalhaven River Flood Study* (Cardno, 2022) report will be provided with the FRMC meeting agenda.

### **Flood Planning Level for the Lower Shoalhaven River Floodplain Policy**

The *Lower Shoalhaven River Flood Study* (Cardno, 2022) has now been completed which allows Council to move onto the FRMS&P Review phase. Further details on the delivery of this FRMS&P Review are provided in this report.

The Flood Study provides updated contemporary flood intelligence based on industry best practice guidelines and technology and will provide a sound technical basis for the FRMS&P Review.

It is recommended that the 2050 and 2100 scenario Flood Planning Levels from the *Lower Shoalhaven River Floodplain Risk Management Study & Plan – Climate Change Assessment* (WMAwater, 2011) continue to be used until the Lower Shoalhaven River FRMS&P Review has been completed. The Flood Planning Levels in the adopted FRMS&P (WMAwater, 2011) is considered to be the best available information in relation to assessing **flood risk** within the catchment until the completion and adoption of the FRMS&P Review. This is consistent with guidance provided from the NSW Department of Planning and Environment (DPE).

Other information from the *Lower Shoalhaven River Flood Study* (Cardno, 2022) such as hazard and hydraulic category, flood velocities and flood levels are considered suitable for use following the adoption. The adoption of the Flood Study would also allow Council to make the flood model files available for developers undertaking flood impact assessments in accordance with the Development Control Plan requirements.

Therefore, a hybrid approach is recommended in which the *Lower Shoalhaven River Flood Study* (Cardno, 2022) is adopted in addition to some minor amendments to the existing Flood Planning Level for the Lower Shoalhaven River Floodplain Policy. When the FRMS&P Review has been completed it can be adopted in full and the Flood Planning Level Policy rescinded.

A link to the revised Flood Planning Level for the Lower Shoalhaven River Floodplain Policy will be provided with the FRMC meeting agenda.

### **Lower Shoalhaven River Floodplain Risk Management Study & Plan Review Delivery**

As noted at the previous FRMC meeting, Council received a final extension to the DPE funding term completion date for this project. The project funding term completion date is 21 November 2022.

There have been ongoing challenges associated with the delivery of the Lower Shoalhaven River FRMS&P project. Whilst there were challenges with the scope of works from the original grant, *Australian Rainfall and Runoff Guidelines (2019)* implementation and COVID-19 pandemic, a key issue has been the performance of the consultant. The consultant has struggled to retain staff (project managers and flood modellers) throughout the project which has resulted in frequent mobilisation time for new project staff, impacting their ability to



deliver in accordance with project milestones. Furthermore, the consultant's project manager and technical lead left Cardno around the time of the community consultation phase. This has resulted in further delays to update the Flood Study to a final report.

The key impact of these challenges is associated with the ability for the consultant to complete the Lower Shoalhaven River FRMS&P Review within the DPE funding term. This means that any work completed after 21 November 2022 would need to be fully funded by Council.

Council has considered a number of options to complete the Lower Shoalhaven River FRMS&P Review. The outcome from this process was that Cardno have been released from their contract and Council has requested further DPE grant funding as part of the DPE 2022/23 Flood Program to complete the Lower Shoalhaven River FRMS&P Review phase. The outcomes from the new DPE grant funding request should be known later this year. Council applied for a variation to the current DPE grant to exclude the FRMS&P phase, including associated funding, and finalise the grant upon the completion of the Flood Study.

This approach will allow for a fresh start in 2023 following a new procurement process. The costs to complete the FRMS&P Review would be 2/3 funded by DPE (assuming we are successful with the grant application), the increased timeframe will allow a quality FRMS&P Review to be produced and increased confidence within Council and the community of the outcome.

### **Feedback on Flood Mitigation Options from Community Engagement Phase**

As part of the community consultation phase, Council requested input regarding specific flood mitigation options to be considered as part of the upcoming FRMS&P Review.

Whilst not applicable to the Flood Study completion, this feedback is provided below for information:

- Entrance Management Options, including: a permanently open entrance, opening the berm in advance when major flood is predicted by the Bureau of Meteorology, reducing the entrance opening trigger level, automated floodgates at the Shoalhaven River entrance and installing a gate at Berry's Canal to pass more water towards the Shoalhaven River entrance.
- Road raising at Greens Rd and Bolong Rd.
- Raise levee at Numbaa.
- Levee at Broughton Creek near Back Forest Rd.
- Options to improve flooding at Shoalhaven Heads from Coomonderry Swamp outflow.

A number of preliminary mitigation options have also been developed by Cardno and Council prior to the community consultation phase. These were included in the community consultation video and are provided below for information.

- Flood Modification:
  - Review levees – upgrade, maintain, designated overflow from Shoalhaven River through Terara.
  - Greenwell point levees/fill strategy/house raising.
  - Moorhouse Park fill strategy/house raising.
  - Comerong Island levees along south.
  - Hay Avenue/Jerry Bailey Road levees.

- Review Entrance Management Policy as part of Lower Shoalhaven River Coastal Management Program.
- Broughton Creek connectivity improvements to Shoalhaven River.
- Safe refuge mounds.
- Cumulative fill strategy for designated development areas.
- Emergency Management:
  - Greenwell Point Road raising.
  - Raising of Terara Road to ensure that vehicles leaving Terara during a flood can reach high ground at Ferry Lane.
  - Other evacuation route road raising.
  - Flood Education to Improve Flood Awareness and Preparedness.
- Planning and Property:
  - Voluntary house raising, house purchase or land swap.
  - Hay Avenue/Jerry Bailey Road house raising.
  - Greenwell Point fill strategy/house raising.
  - Orient Point, Culburra Beach house raising.
  - Review flood planning levels for future development.
  - Strategic designated cumulative fill policy for future development.

The feasibility of potential mitigation measures, along with preliminary environmental and aboriginal heritage due diligence will be completed for all potential options prior to further assessment in the FRMS&P Review.

Council welcomes any suggestions from the FRMC on potential mitigation measures to be considered in the upcoming FRMS&P Review. Further engagement with the FRMC and community will be held when the Lower Shoalhaven River FRMS&P Review commences.

### Financial Implications

The Lower Shoalhaven River Flood Study is 2/3 funded by DPE and 1/3 funded by Council. This funding has been approved under the NSW State Government 'Floodplain Management Program' on a 2:1 basis.

The Lower Shoalhaven River Flood Study milestone has been completed and all DPE funding paid to Council. As noted earlier in this report, Cardno have been released from their contract following the completion of the Flood Study and Council have requested further DPE grant funding as part of the DPE 2022/23 Flood Program to complete the Lower Shoalhaven River FRMS&P Review phase. The outcomes from the new DPE grant funding request should be known later this year.

The existing DPE grant funding has been acquitted.

This approach will allow for a fresh start in 2023, including an updated budget. The costs to complete the FRMS&P Review would be 2/3 funded by DPE (assuming Council is successful with the grant application), the increased timeframe will allow a quality FRMS&P Review to be produced and increased confidence within Council and the community of the outcome.

### **Policy Implications**

As noted earlier in this report, it is recommended that the *Lower Shoalhaven River Flood Study* (Cardno, 2022) is adopted in addition to some minor amendments to the *Flood Planning Level for the Lower Shoalhaven River Floodplain Policy*. When the FRMS&P Review has been completed it can be adopted in full and the Flood Planning Level Policy rescinded.

A link to the revised *Flood Planning Level for the Lower Shoalhaven River Basin Floodplain Policy* will be provided with the FRMC meeting agenda.

All flood information completed in the Lower Shoalhaven River Flood Study will be provided to the NSW SES.









## NFM22.8 General Update on Flood Projects

**HPERM Ref:** D22/466874

**Department:** Environmental Services

**Approver:** James Ruprai, Director - City Development

### Reason for Report

To provide the Northern Floodplain Risk Management Committee (FRMC) with an update on various flood related projects in the Northern FRMC region.

### Recommendation (Item to be determined under delegated authority)

The Committee receive the General Update on Flood Projects report for information.

### Options

1. The Committee receive the General Update on Flood Projects report for information.

Implications: Nil.

2. The Committee could choose to provide an alternative recommendation for consideration by Council.

Implications: Unknown.

### FRMC Terms of Reference

The Terms of Reference for the Northern, Central and Southern Floodplain Risk Management Committee policy POL22/28 have recently been reviewed. The policy includes some minor amendments to the number of local representatives, with an increase from a maximum of 4 to 5 local community representatives. The policy allows a maximum of five (5) local community representatives, one (1) youth representative between ages 16 and 30, and one (1) indigenous representative.

Each of the Northern, Central and Southern committees have local representative vacancies and Council will look to undertake an Expression of Interest process in the new year to attempt to backfill current committee vacancies.

### DPE Grant Funding

Council has applied for grant funding through the 2022-23 NSW Department of Planning and Environment (DPE) Floodplain Management Program grants round. Grant funding applications were submitted for the following projects:

- Lower Shoalhaven River Floodplain Risk Management Study & Plan Review.
- Broughton Creek Flood Study.
- St Georges Basin Floodplain Risk Management Study & Plan Review.
- Review of Tabourie Lake Floodplain Risk Management Study and Plan and Climate Change Adaptation Study.



The outcomes from these grant funding applications are expected to be known later this year. Two of these projects are included in the northern FRMC region. Technical project briefs will be prepared as soon as DPE funding has been successfully obtained, if applicable. These technical briefs will be shared with the FRMC for comment prior to commencing the procurement process.

### **Federal Grant Funding**

Council has received grant funding through the Federal Government's Preparing Australian Communities – Local Stream Program. This program provides funding for projects that improve the resilience of communities associated with large-scale natural hazards (including bushfire, flooding, and tropical cyclones). This program pays 100% of eligible project expenditure for non-infrastructure projects. The following flood investigations are included in the Shoalhaven Flood Preparation and Emergency Response for Community Resilience project:

- Lower Shoalhaven River & St Georges Basin Catchment Flood Evacuation Capability Assessment and Planning – Focusing on Greenwell Point, Orient Point and parts of Culburra Beach, Sussex Inlet, and rural properties within these floodplains.
- Scoping study for an Intermittently Closed and Open Lakes and Lagoons (ICOLLS) Catchment Flash Flood Warning Network – Covering Lake Conjola, Burrill Lake, and Lake Tabourie.
- Clyde River Flood Study and Floodplain Risk Management Study & Plan.
- Willinga Lake Flood Study and Floodplain Risk Management Study & Plan.
- Floodplain Project Officer – Temporary full time for two years.

Technical briefs are currently being prepared for these projects along with recruitment for the temporary Floodplain Project Officer to assist with the delivery of these projects.

### **Resilience NSW Grant Funding**

Council has applied for grant funding through Resilience NSW to complete targeted floor level survey across the Shoalhaven LGA. The Lower Shoalhaven River, St Georges Basin, Lake Conjola, Burrill Lake and Tabourie Lake catchments are all high priority catchments for floor level survey. This would allow Council to update the existing floor level survey database for use in the Lower Shoalhaven River Floodplain Risk Management Study & Plan Review when assessing the flood risk within the catchment.

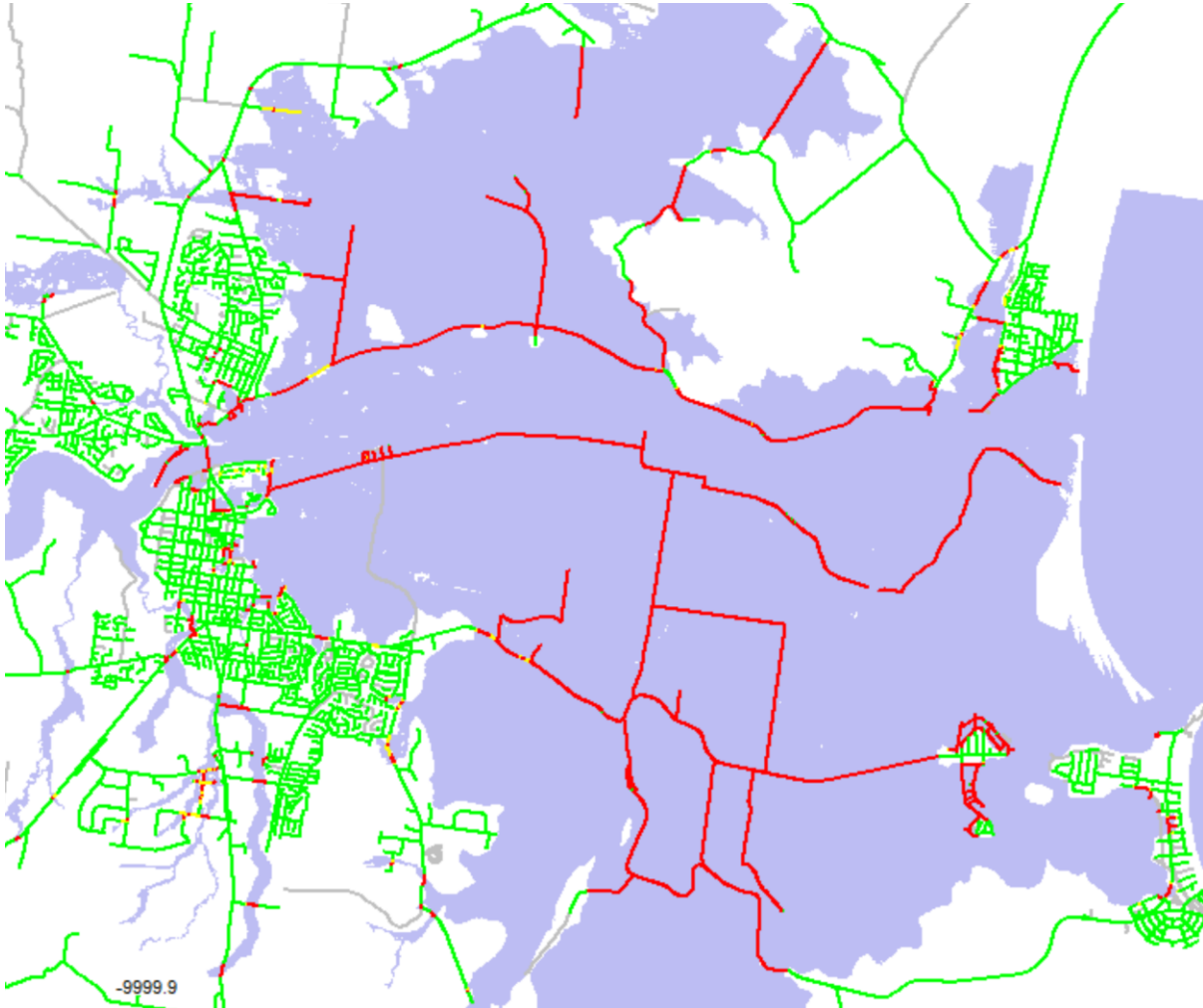
### **Lower Shoalhaven River Flood Forecast Model**

As noted at the March 2022 FRMC meeting, Council engaged a consultant to develop a flood forecast model using the WaterRIDE software for the Lower Shoalhaven River (and St Georges Basin floodplain). These flood forecast models are now complete.

This model includes all the design event results for the full range of events modelled in the Lower Shoalhaven River Flood Study (20% AEP to PMF) and allow a surface to be interpolated from the library of flood layers based on a predicted or actual flood level at the Nowra Bridge water level gauge location.

This software allows roads and floor levels to be included, so when a surface is interpolated based on a predicted flood level, Council has access to flood depth, level, hazard, which roads would be inundated, and which floors would be inundated to assist with flood intelligence and evacuation.

This model will assist Council's Flood Engineers to provide flood intelligence during Lower Shoalhaven River flood events. The models will be provided to the NSW SES.



NFM22.8

**Figure 1** Road Inundation in 1% AEP Event ('green' is flood free, 'yellow' is potentially inundated but to less than 0.3m deep and 'red' is inundated to a depth greater than 0.3m)

### Flood Mitigation Structures

Council has engaged Public Works to undertake a visual audit of all flood mitigation drains on the Lower Shoalhaven River floodplain. The outcome from this audit of all flood mitigation drains will allow Council to prioritise drain maintenance and repair of any defects.

Public Works have completed a visual audit of flood levees and Council is seeking natural disaster recovery funding to repair levee damage identified from this audit.