

Notice of Meeting

Floodplain Management Advisory Committee Meeting

A Floodplain Management Advisory Committee Meeting of
Byron Shire Council will be held as follows:

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 20 February 2025
Time	9:00 AM

Phil Holloway
Director Infrastructure Services

I2025/158
Distributed 13/02/25



BYRON
SHIRE
COUNCIL

CONFLICT OF INTERESTS

What is a “Conflict of Interests” - A conflict of interests can be of two types:

Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person’s spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. “Relative”, in relation to a person means any of the following:

- (a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person’s spouse;
- (b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
 - (a) at any time during which the matter is being considered or discussed by the Council or Committee, or

- (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

Committee members are reminded that they should declare and manage all conflicts of interest in respect of any matter on this Agenda, in accordance with the [Code of Conduct](#).

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- (1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
 - (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
 - (b) not including the making of an order under that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

OATH AND AFFIRMATION FOR COUNCILLORS

Councillors are reminded of the oath of office or affirmation of office made at or before their first meeting of the council in accordance with Clause 233A of the Local Government Act 1993. This includes undertaking the duties of the office of councillor in the best interests of the people of Byron Shire and the Byron Shire Council and faithfully and impartially carrying out the functions, powers, authorities and discretions vested under the Act or any other Act to the best of one's ability and judgment.

BYRON SHIRE COUNCIL

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. MINUTES FROM PREVIOUS MEETINGS

- 3.1 Adoption of Minutes from Previous Meeting 6

4. STAFF REPORTS

Corporate and Community Services

- 4.1 Integrated Planning and Reporting 13

Infrastructure Services

- 4.2 Byron Shire Council Flood Risk Management Plan-Update on Actions and Accomplishments - Post 2022 Flood Priorities 17
- 4.3 Current Status of Flood Resilience Studies and Works 26
- 4.4 Recommended Flood Grant Applications in May 2025 subject to budget allocation 39
- 4.5 Performance of Automatic Warning Signs for Water Over Main Arm Road just west of Sherrys Bridge..... 47

BYRON SHIRE COUNCIL

MINUTES FROM PREVIOUS MEETINGS

3.1

MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 Adoption of Minutes from Previous Meeting

Directorate: Infrastructure Services

5 File No: I2025/136

RECOMMENDATION:

10 That the minutes of the Floodplain Risk Management Advisory Committee Meeting held on 12 July 2024 be confirmed.

<Section5>

Attachments:

15 1 Minutes 12/07/2024 Floodplain Management Advisory Committee Extraordinary, I2024/1025 , page 8  

BYRON SHIRE COUNCIL

MINUTES FROM PREVIOUS MEETINGS

3.1

Report

The attachment to this report provides the minutes of the Floodplain Risk Management Advisory Committee Meeting of 12 July 2024 .

5

Report to Council

The minutes to be reported to Council on 27 February 2024.

Comments

- 10 The reporting of the minutes to Council should have occurred in August 2024 and staff will review internal process to ensure that oversight does not occur in future.

Minutes of Meeting
Extraordinary Floodplain Management
Advisory Committee Meeting

Venue	Conference Room, Station Street, Mullumbimby
Date	Friday, 12 July 2024
Time	10:00 AM



BYRON SHIRE COUNCIL

MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

FLOODPLAIN MANAGEMENT ADVISORY COMMITTEE MINUTES

12 JULY 2024

Minutes of the Extraordinary Floodplain Management Advisory Committee Meeting held on Friday, 12 July 2024

File No: I2024/1025

PRESENT:

Councillors:	Cr M Lyon (Mayor)	Present
	Cr D Dey	Present
Staff:	Phil Holloway (Acting General Manger)	Apology
	Samuel Frumpui (Manager Works)	In Person
	Steve Twohill (Flood and Drainage Engineer)	In Person
	Chloe Dowsett (Coast and Biodiversity Coordinator)	Absent
	James Flockton (Infrastructure Recovery Coordinator)	Apology
	Storm Townsend (Minute Taker)	Present
Invited members:	Scott Moffett (Dept of Planning and Environment)	Zoom
	Martin Rose (Dept of Planning and Environment)	Apology
	Peter Mair (State Emergency Service) – voting member	Present
	Jeremy Carpenter (SES)	Present
Community:	Karl Allen	Present
	Matthew Lambourne	Present
	Steven Harris	Zoom
	Catherine Lane	Present
	Robert Crossley	Zoom
	Rebecca Brewin	Absent
Visitors:	Janet Pettit (SES)	Zoom

Cr Michael Lyon (Chair) opened the meeting at 10:08am and acknowledged that the meeting was being held on Bundjalung Country.

ATTENDANCE VIA AUDIO-VISUAL LINK:

Scott Moffett (DPE), Steven Harris, Robert Crossley and Janet Pettit (SES) attended via audio-visual link.

Floodplain Management Advisory Committee Meeting

page 3

BYRON SHIRE COUNCIL

MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

FLOODPLAIN MANAGEMENT ADVISORY COMMITTEE MINUTES

12 JULY 2024

APOLOGIES:

Apologies were received from Phil Holloway, James Flockton and Martin Rose (Dept of Planning and Environment).

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

There were no declarations of interest.

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 Adoption of Minutes from Previous Meetings
File No: I2024/997

Committee Recommendation:

That the minutes of the Floodplain Management Advisory Committee Meeting held on 14 May 2024 be confirmed subject to the following amendment:

- 1. Removal of the recommendation for Report No. 4.5 'Community Education Strategy and Review of Flood Options / North Byron Flood Investigations - Projects Update' and instead a note added to the minutes to say this item was deferred. (Lyon/Lambourne)**

The recommendation was put to the vote and declared carried.

BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

BYRON SHIRE COUNCIL

FLOODPLAIN MANAGEMENT ADVISORY COMMITTEE MINUTES

12 JULY 2024

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.1 **Community Education Strategy and Review of Flood Options /
North Byron Flood Investigations - Projects Update**
File No: 12024/677

Committee Recommendation:

That Council:

1. **Notes the update on the ‘Community Education Strategy and Review of Flood Options’ project which focuses on some villages in the north of the Byron Shire.**
2. **Thanks the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) for providing the animation graphic models of the 2022 flood event to Council to assist in future community engagement.**
3. **Allocates budget for ongoing community collaboration on flood mitigation options including discussion around the sky pump.**
4. **Supports staff collaborating with members of the Floodplain Management Advisory Committee to prepare a pamphlet for the collaboration mentioned in part 3 above.**
5. **Applies in the next funding round to commence a new Flood Study and Floodplain Risk Management Study and Plan for the whole Brunswick River catchment, which may include collaboration with Tweed Shire because of a shared floodplain.**
6. **Recognises the overlap between flood issues and Council’s project of preparing a Place Plan for the entirety of Ocean Shores, South Golden Beach and New Brighton.** (Dey/Lane)

Janet Pettit left the meeting at 11:00am and did not return.

The recommendation (Dey/Lane) was put to the vote and declared carried.

There being no further business the meeting concluded at 11:47am.

STAFF REPORTS - CORPORATE AND COMMUNITY SERVICES

Report No. 4.1 Integrated Planning and Reporting

Directorate: Corporate and Community Services

5 **Report Author:** Amber Evans Crane, Corporate Planning and Improvement Coordinator

File No: I2025/128

Summary:

10 This report provides an overview of Council’s Integrated Planning and Reporting Framework and invites discussion on priority areas in the arts for inclusion in Council’s delivery program.

15 **RECOMMENDATION:**

That the Floodplain Risk Management Advisory Committee:

1. **Notes Council’s Integrated Planning and Reporting Framework**
2. **Discusses priorities for the 2025 – 2029 Delivery Program**

20

Background to Integrative Planning and Reporting (IP&R)

5 The Integrated Planning and Reporting Framework in NSW requires all councils to adopt a suite of strategic plans. These long-term plans provide transparency and make it possible for Council to plan in a manner which ensures that community needs and priorities are responded to well into the future. Council also has a suite of strategies, plans and policies which help inform operations and decision making, and these policies are adhered to in alignment with the Integrated Planning and Reporting Framework.

The central IP&R documents are outlined in more detail:

10 Year Community Strategic Plan

10 Leading the Council's planning hierarchy, the Community Strategic Plan (CSP) captures the community's vision, aspirations, and expectations for the future. It identifies key social, economic, and environmental priorities and long term strategies to achieve these goals over the next 10 years.

15 The CSP outlines the vision, community objectives and supporting strategies which will guide Council's long-term decision making. Robust engagement with the community about their desires and expectations has guided the long-term future planning to meet the needs and aspirations of the community.

10 Year Resourcing Strategy

20 The resourcing strategy addresses the sustainable long term financial, asset management, and workforce planning requirements. This is the point where Council assists the community by sorting out who is responsible for what, in terms of the issues identified in the Community Strategic Plan.

4 Year Delivery Program

25 The delivery program translates the community strategic plan goals into actions. It is Council's commitment to the community, outlining what it intends to do toward achieving the goals of the community strategic plan during its term of office. The Delivery Program is the single point of reference for all principal activities undertaken by Council. All plans, projects, activities, and funding allocations must be directly linked to the four-year delivery program.

30 Annual Operational Plan

35 The Delivery Program is supported by an annual Operational Plan which details the individual projects and activities that will be undertaken each year to achieve the commitments of the Delivery Program. The Operational Plan is supported by a detailed budget and a statement of revenue policy, which also sets the fees and charges for that year.

Advisory Committee Input into IP&R

The key IP&R documents described in the Background section are in the process of review as is the requirement following a local government election.

5 The current Community Strategic Plan (CSP) 2032 has been reviewed and the next iteration, the CSP 2035, was placed on public exhibition at the 28 November 2024 Ordinary Council meeting with submissions open until 9 February 2025. The revised CSP will be presented back to Council for adoption in April 2025. The draft can be found on Council's website at www.byron.nsw.gov.au/communityplan.

10 Adjacent to this, the Delivery Program 2025 – 2029 and Operational Plan 2025/26 are being developed. Both documents will be presented to Council in April 2025 and placed on public exhibition for public feedback.

The Committee will be presented with draft priorities for the next four years relevant to floodplain risk management for discussion whilst the documents are still in the development phase. These priorities include:

- 15
- Floodplain management
 - Coastal Management
 - Stormwater
 - Water sensitive urban design

Strategic Considerations

20 **Community Strategic Plan and Operational Plan**

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
1: Effective Leadership	1.1: Enhance trust and accountability through open and transparent leadership	1.1.4: Performance Measurement and Reporting - Embed a robust performance management system through the development of an outcomes measurement framework	1.1.4.4	Prepare the 2025-2029 Delivery Program

Statutory Considerations

Integrated Planning and Reporting is governed by:

- 'Local Government Act 1993'.
- 5
- 'Local Government (General) Regulation 2021'.
 - Integrated Planning and Reporting Guidelines for Local Government in NSW': outlines the statutory planning and reporting requirements that councils, county councils and joint organisations must meet.

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.2 **Byron Shire Council Flood Risk Management Plan-Update on Actions and Accomplishments - Post 2022 Flood Priorities**

5

Directorate: Infrastructure Services
Report Author: Euan Rose, Project Officer
File No: I2025/73

10 **Summary:**

Council has adopted three sets of Flood Risk Management Studies (FRMS) and Plans (FRMP) for the shires three main catchments. These are:

- Brunswick River Catchment (North Byron, includes Marshalls Creek)
- Tallow Creek Catchment
- 15 • Belongil Creek catchment

As per resolution 22-349, the Flood Advisory Committee conducted a workshop on the 12th August 2022 to update priorities of flood mitigation works. A summary of prioritised actions was prepared based on the outcomes of the three adopted Flood Risk Management Plans which was adopted at October 11 2022 Flood Advisory Committee.
20 The adopted priority list of 64 items is referenced in Attachment 1 (E2022/89966).

This report provides an update on what works have been undertaken since the flood mitigation program was adopted in October 2022 – refer Attachment 2 (E2025/10640).

This report provides an update on the status of the work completed and underway of the 64 items prioritised. The works undertaken will underpin the Flood Study and associated
25 Floodplain Risk Management Study and Plans for these three (3) shire catchments.

- Belongil Creek catchment
- Tallow Creek Catchment
- Brunswick River Catchment (North Byron)

Update investigations have already commenced for the Belongil and Tallow Creek
30 catchments with an estimated completion by March 2026. The Brunswick River (North Byron) update is subject to applying for the annual Flood Grant rounds by the NSW

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.2

Department of Climate Change, Energy, the Environment and Water (DCCEEW) in April/May 2025.


5

RECOMMENDATION:

The Floodplain Management Advisory Committee recommend:

10 **That Council note and endorse the update on the 2022 Byron Shire Council Flood Mitigation Program, Attachment 2 (E2025/10640).**

Attachments:

15 1 Update Works Completed-E2022 89966 Flood Mitigation Program Oct 2022, E2025/16812 , page 23 [↓](#) 

Report

Council has adopted three sets of Flood Risk Management Studies and Plans (FRMS and FRMP) for the shires three main catchments. These are:-

- Brunswick River Catchment (North Byron)
- 5 • Tallow Creek Catchment
- Belongil Creek catchment

The Brunswick River Catchment is drained by three major tributaries, Marshalls Creek (North Arm), Simpsons Creek (South Arm) and the Brunswick River (West and Main Arm).

10 A North Byron flood study and subsequent FRMS and FRMP were developed and adopted in 2020. The FRMP listed 25 recommended actions with associated priority rankings.

15 The Tallow Creek Catchment is drained by Tallow Creek and receives a large proportion of the urban Suffolk Park district runoff. A flood study and subsequent FRMS and FRMP were developed and adopted in 2009 with an update being adopted in 2015. The FRMP listed 24 recommended actions with associated priority rankings. Tallow Creek opens to the ocean and is known as an intermittently closed and open lagoon system (ICOLL).

20 The Belongil Creek Catchment is drained by Belongil Creek and receives a large proportion of the urban Byron Bay central business district runoff in addition to wetland and agricultural runoff. A flood study and subsequent FRMS and FRMP were developed and adopted in 2015. The FRMP listed 10 recommended actions with associated priority rankings. Belongil Creek opens to the ocean and is known as an intermittently closed and open lagoon system (ICOLL).

25 An updated summary of prioritised actions has been prepared based on the outcomes of the three adopted Flood Risk Management Plans, in addition to the outcomes from a workshop held by the Floodplain Management Advisory Committee on 12th August 2022 and 11th October 2022, as per attachment 1.

This report provides an update on the status of the work completed and underway of the 64 items prioritised. The works undertaken will underpin the Flood Study and associated Floodplain Risk Management Study and Plan/s for these three (3) shire catchments

- Belongil Creek catchment
- 30 • Tallow Creek Catchment -
- Brunswick River Catchment (North Byron)

35 Upgrade investigations have already commenced for the Belongil and Tallow Creek catchments with an estimated completion by March 2026. The Brunswick River (North Byron) update is subject to applying for the annual Flood Grant rounds by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) in April/May 2025.

Key issues

Several key issues have been identified that will impact the delivery of the flood mitigation program. These include, however, not limited to:

- 5 • Available budget-Council budgets are limited. Grant funding will be required to financially assist Council with delivery
- 10 • Timing and community expectations - following the recent 2022 floods and natural disaster the community expect a quick delivery of the actions. Realistic delivery programs will need to be communicated effectively with the community highlighting budgetary and resource constraints
- 15 • Local Council and State responsibilities - following the recent 2022 flood and natural disaster the community has an expectation that Council can undertake any and all works. This is sometimes not the case with many actions the responsibility of various state departments such as SES, Crown Land, Marine Parks, Fisheries and the National Parks and Wildlife Services. Realistic delivery programs will need to be communicated effectively with the community highlighting budgetary and resource constraints.

Next steps

Budget sourcing and delivery program development.

20 Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
Community Objective 1: We have infrastructure, transport and services which meet our expectations	1.1: Provide a road network which is safe, accessible and maintained to an acceptable level of service	1.1.6: Provide stormwater infrastructure to manage flood mitigation, social and environmental outcomes	1.1.6.1	Review and update 10 year Stormwater Levy program

Recent Resolutions

22-349

Legal/Statutory/Policy Considerations

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.2

5 Council has a general duty of care to provide reasonable infrastructure, as resources and priorities permit. Where existing infrastructure becomes known to be inadequate for any reason within the control of Council, repair, renewal and upgrade of drainage assets for the provision of stormwater drainage / flood mitigation is a fundamental component of meeting Council's obligations.

10 Provision of stormwater drainage / flood mitigation infrastructure is a legitimate function of local government under the Local Government Act 1993. To the extent that the provision of infrastructure protects public roads, other infrastructure, Council land, Crown land, private land and the community. Council is also responsible for drainage under the Roads Act 1993.

Financial Considerations

Grant funding will be required to financially assist Council with delivery of the flood mitigation program.

- 5 The most likely source of funding is via the Department of Planning and Environment grant program <https://www.environment.nsw.gov.au/topics/water/floodplains/floodplain-management-grants>

This program requires Council to fund one third of any funding application. Therefore, Council still needs to be finding funding solutions for its share. These are significant costs that Council have limited resources to fund at this time.

10

BYRON SHIRE COUNCIL

Byron Shire Council - 2022 0 Whole Shire Flood Mitigation Works Program							
Floodplain Management Plan			Original Priority	Responsibility	Approx Value	Comments	Updated Priority 2022
1	North Byron	Implement debris control measures for Federation Bridge and Billinudgel Railway Bridge.	Design underway	BSC - IPT	\$100,000	Grant funded for design phase only received,	1
		Implement debris control measures for Billinudgel Railway Bridge.				Grant Application Successful, Project Scope being resolved with DCCEEW - tender Jan/Feb 2025- Completion Date 31/8/2025	1
2	North Byron	Further investigate raising eligible residential properties to reduce flood damages.	Moderate	BSC - IPT	Staff Time	Proposed as part of VHR/VHP scheme taken over by NSW Reconstruction Authority	1
3	Belongil Creek	Preferred Byron Drainage Strategy Construction.	High	BSC - IS A&MP	\$15,000,000	Grant awarded for design phase only. Contract award by August 23. Construction planned for May-November 2025	1
4	North Byron	Develop a whole of catchment drainage model and overland flow path investigation.	High	BSC - IPT	\$250,000	Grant Application Successful, Tendered & Contract Awarded - Completion Date 12/12/2025	2
5	North Byron	Undertake more detailed assessment of properties which may benefit from property level protection.	High	BSC - IPT	\$50,000	Will form part of the scope of Shire overland flow path study	2
6	Belongil Creek	Voluntary House Raising Scheme.	Medium	BSC - IPT	\$8,550,000	Grant submitted May 22 for 2/3 funding for up to 2 houses. Total Scheme is 57 houses at \$150K per house. Project taken over by the NSW RA	3
7	North Byron	Implement the recommendations of the South Golden Beach levee audit.	Low	BSC - IPT	\$200,000	Funding awarded, Program to be delivered by NSW Public Works Dept - expect commencement May 2025	4
8	Tallow Creek	Upgrade Broken Head Road Crossing of South Tallow Creek.	Medium	BSC - IPT	\$355,000	Options Report received Dec2024, Grant Application Successful - Flood Study & Design Tendered, Contract Awarded - Completion Date 30/6/2025	5
9	Tallow Creek	Upgrade Coogera Circuit Detention.	Medium	BSC - IPT	\$380,000	90% Complete Grant Application Successful - Funded by NSW Reconstruction Authority & Council - Flood Study & Design Tendered, Contract Awarded & Completed - Emergency Construction underway Completion Date 30/3/2025	5
10	Belongil Creek	Drainage Infrastructure Maintenance.	High	BSC - Operations	\$1,092,400	Completed post 2022 flood - One-off clean of main drains in Byron Bay	6
11	North Byron	Further detailed assessment of Saltwater Creek upgrade assessment and mitigation options for Mullumbimby. (incl. influence of structures)	Moderate	BSC - IPT	Refer to item 6	Will form part of the scope of the North Byron Flood Study and Risk Study and Plan Updates	Will form part of the scope of the North Byron Flood Study and Risk Study and Plan Updates
12	North Byron	Undertake an Evacuation Assessment for Mullumbimby.	High	SES (tech intel from IPT)	Staff Time	Underway by SES	8
13	North Byron	Identify key roads and implement automatic warning signs and depth indicators.	High	BSC - IPT	\$100,000	Grant Application Successful - 3 Auto Flood Signs installed at Myocum, Main Arm and Mullumbimby	9
14	Belongil Creek	Community Flood Awareness.	Immediate	BSC - IPT / Comms	\$10,000	Funding to be sought	10
15	North Byron	Consider establishing a Voluntary House Purchase scheme for eligible properties.	Complete	BSC - IPT	Staff Time	Will form part of the scope of the North Byron Flood Study and Risk Study and Plan Updates	
16	North Byron	More detailed assessment of potential raising of River Street to provide improved flood immunity and evacuation.	Low	BSC - IPT	Refer to item 6	Will form part of the scope of the North Byron Flood Study and Risk Study and Plan Updates	
17	North Byron	Further consider viable options to implement the recommendations of the New City Road drainage assessment.	Low	BSC - IPT	Refer to item 6	Will form part of the scope of Shire overland flow path study N.B. drain clearance works have not been completed along entire length of drain. Council have not been able to access one property to complete drainage clearance works. Access to this property by owners has not been granted even after multiple contact/access request attempts.	Grant submitted
18	Tallow Creek	New Byron Local Environment Plan to more robustly protect existing development from increased flooding impacts resulting from future development and update to be in line with NSW Floodplain Development Manual (2005).	Complete	Complete	Staff Time	Complete	Grant submitted
19	Staff Recommended Not Supported By A Plan	SGB Flood Pump Generator.	High	BSC - IPT	\$140,000	Protection from power failures.	High
20	Staff Recommended Not Supported By A Plan	Investigate Options for SGB Flood Gate Upgrades.	High	BSC - IPT	\$30,000	Alternate solutions - flood gates with automated knife valves for full closure as an example	High
21	Staff Recommended Not Supported By A Plan	Design SGB and Fern Beach Flood Levy Upgrades.	High	BSC - IPT	\$100,000	Levy overtopped in 2022. Propose to raise Levy. Public Works now investigating.	High

BYRON SHIRE COUNCIL

22	Staff Recommended Not Supported By A Plan	Investigate Flood Levy for Western SGB.	Medium	BSC - IPT	\$30,000	Need Completion - Post 2022 flood, investigate the benefits of a levy for west of Capricornia Canal. Propose to request Public Works investigate as part of Levy program	High
23	Staff Recommended Not Supported By A Plan	Post Event Shire-wide Flood Planning Level Review.	Medium	BSC - IPT	\$30,000	Proposed action following post event report	High
24	North Byron	Council and the SES to update the Local Flood Plan based on findings of the FRMS.	Moderate	SES (tech intel from IPT)	Staff Time	Underway by SES	Moderate
25	North Byron	Engage with the community to prepare an ongoing flood education program, with appropriate evaluation by Council and SES following implementation.	Moderate	SES/BSC - IPT / Comms	\$20,000	Funding to be sought	Moderate
26	North Byron	Further consideration of Avocado Court drainage modification.	Moderate	BSC - IPT	Refer to item 6	Will form part of the scope of Shire overland flow path study & updated North Byron Flood Study and Risk Study and Plan	Moderate
27	North Byron	Develop a sediment transport model to investigate modification to the rock walls, as part of the Coastal Management Program for the Brunswick Estuary.	Moderate	BSC - SEE / IPT	\$150,000	Being considered as part Coastal Management Plan	Moderate
28	North Byron	Further consideration of Billinudgel infrastructure improvements.	Moderate	BSC - IPT	Refer to item 6	Will form part of the scope of Shire overland flow path study	Moderate
29	North Byron	Develop guidance on the design and installation of fencing traversing waterways and channels.	Moderate	BSC - IPT	\$15,000	Needs to be addressed in the updated North Byron Flood Study and Flood Risk Study & Plan plus the Belongil and Tallow equiv	Moderate
30	North Byron	Flood Planning Levels revised based on the recommendations of the FRMS.	Complete	Complete	Staff Time	Complete	N/A
31	North Byron	Section 10.7 (5) certificates to provide further detail of flood behaviour. Consideration to providing property-level flood information via an online GIS platform.	Complete	Complete	Staff Time	Needs to be addressed in North Byron Flood Study and Risk Study and Plan Update	N/A
32	North Byron	Byron Shire Council and SES to consider the findings and recommendations of the FRMS in the development of the Flood Warning Network for North Byron.	Complete	Complete	Staff Time	Complete	N/A
33	North Byron	Changes to land use zoning should consider flood compatibility based on the recommendations of the FRMS.	Complete	Complete	Staff Time	Needs to be addressed in North Byron Flood Study and Risk Study and Plan Update for Housing Strategy	N/A
34	North Byron	Form a committee, comprising council, state, emergency services and community member representatives to oversee the implementation of the FRMP.	Complete	Complete	Complete	Complete	N/A
35	Tallow Creek	Commence undertaking to rezone the land identified as high flood hazard for the 1 in 100 year ARI flood to preclude these areas from future development.	Complete	Complete	Staff Time	Complete	N/A
36	Tallow Creek	Adopt FPLs as part of the DCP 2002 as the extent of flood prone land in the Tallow Creek catchment that consider climate change conditions (Scenario 4).	Complete	Complete	Staff Time	Complete	N/A
37	Tallow Creek	Adopt prescribed areas of fill exclusion.	Complete	Complete	Staff Time	Complete	N/A
38	Tallow Creek	Ensure future developments within the catchment utilise on-site stormwater detention measures to maintain predevelopment peak runoff characteristics.	Complete	Complete	Staff Time	Complete - is part of BSC DCP	N/A
39	Tallow Creek	Update 149 certificates and any lots with additional controls over them, including add 1495 certificates for lots effected by PMF and not within the FPL.	Complete	Complete	Staff Time	Complete	N/A
40	Tallow Creek	Adopt new version of the hydraulic model to allow for assessment of all proposed development.	Complete	Complete	Staff Time	Complete	N/A
41	Tallow Creek	Establish relationship between flood return period, sand bar levels and flooding conditions in Tallow Lake to assist in SES flood evacuation planning.	Underway	BSC - IPT	\$15,000	Contract awarded. Meeting with SES 18/12/2024	N/A
42	Tallow Creek	Install flood gauge at Broken Head Road culvert showing example flood levels.	Underway	BSC - IPT	\$500	Sign ready to be installed	N/A
43	Tallow Creek	Install lake level and rainfall monitoring station on Tallow Lake and connect to Council's flood warning system.	Complete	Complete	-\$25,000	Complete	N/A
44	Tallow Creek	Raise footpath at Tallow Lake footbridge to ensure trafficable up to a lake level of 2.5mAHD.	Complete	Complete	-\$44,000	Complete	N/A
45	Tallow Creek	Develop and implement asset management and maintenance plan.	Complete	Complete	-\$20,000	Complete	N/A
46	Tallow Creek	Implement interim management plan through water level and quality monitoring.	Complete	Complete	-\$100,000	Complete	N/A
47	Tallow Creek	Develop data collection program for variables such as sand bar and lake stored level, to support development of long-term management plan.	Complete	Complete	Staff Time	Complete	N/A
48	Tallow Creek	inspect the sand bar and record its level every year prior to the onset of the rainfall season.	Complete	Complete	Staff Time	Complete	N/A
49	Tallow Creek	Monitor the level of the opening during the rainfall season and undertake maintenance earthworks to restore the level as per the accepted Interim Sandbar Management Strategy.	Complete	Complete	Staff Time	Complete	N/A
50	Tallow Creek	Update Council Geographic Information Systems (GIS) to include outputs of this plan and update any lots with additional controls over them.	Complete	Complete	Staff Time	Complete	N/A
51	Tallow Creek	Ensure authority uses the GIS layers to prepare property reports.	Complete	Complete	Staff Time	Complete	N/A
52	Tallow Creek	Add adopted document to Council's website, plus additional A1 pdf of FPL.	Complete	Complete	Staff Time	Complete	N/A
53	Belongil Creek	Preferred Byron Drainage Strategy.	Immediate	BSC - IPT	\$1,300,000	Grant awarded for design phase only	N/A
54	Belongil Creek	Development Controls.	Complete	Complete	Staff Time	Complete	N/A
55	Belongil Creek	Emergency Planning (SMS Messaging).	Complete	Complete	-\$220,000	As part of flood warning network and emergency dashboard	N/A
56	Belongil Creek	Flood Information Dataset.	Complete	Complete	-\$220,000	As part of flood warning network and emergency dashboard	N/A
57	Belongil Creek	Belongil Creek Entrance Strategy.	Complete	Complete	-\$125,000	Complete	N/A
58	Belongil Creek	Flood Gauges.	Complete	Complete	\$75,000	95% Complete - Need Rainfall Gauge intalled at Main Arm, plus BOM to accept and create IDs for new installed s Ongoing	N/A
59	North Byron	Revise the Flood Planning Area based on the recommendations of the FRMS.	Complete	Complete	Staff Time	Complete	
60	North Byron	Council consider updating the DCP to incorporate the recommendations detailed in the FRMS; Provide more detailed guidance on the principles of wet proofing, appropriate design and materials, with direct reference to available guidelines; include a requirement for an assessment of property level protection as part of the DCP2014 planning matrix criteria FL4; Implement the recommendations regarding appropriate fill areas in the DCP2014.	Partially complete	BSC - SEE / IPT	Staff Time	To be discussed with SEE	
61	North Byron	Byron Shire Council compliance team investigate illegal builds south of North Heads Road.	Ongoing	BSC - SEE	Staff Time	To be discussed with SEE	

BYRON SHIRE COUNCIL

62	Tallow Creek	Implementation of design measures and evacuation plans to minimise impacts on future planned community uses as identified in the DCP No. 9	Medium	BSC - SEE	Staff Time	To be discussed with SEE		
63	Tallow Creek	Prepare a section contribution plan for all civil works in this plan.	Complete	Complete	-\$20,000	This proposal was not supported or adopted by previous Council		
64	Tallow Creek	Support SES in inclusion of Suffolk Park in Flood Response Plan.	Complete	BSC (tech intel form BSC)	Staff Time	To be discussed with SES		
					Total Program Value	\$27,218,900		

Report No. 4.3 Current Status of Flood Resilience Studies and Works

Directorate: Infrastructure Services

Report Author: Euan Rose, Project Officer

5 **File No:** I2025/74

Summary:

Ongoing flood resilience studies and works include:

- 10 • **Broken Head Road – Evacuation Route** (2:1, DCCEEW:BSC funded): JBP have been engaged to develop a detailed design (construction ready) to improve flood mitigation and evacuation at the intersection of Broken Head Rd and Beech Dr in Suffolk Park. The project is currently at the optioneering stage and is expected to be finalised in Oct 2025.

- 15 • **Belongil and Tallow flood risk management study and plan (FRMSP) update** (2:1, DCCEEW: BSC funded): WMS have been engaged to update both the Belongil and Tallows FRMSP's. The projects will improve and modernise the modelling used and revisit mitigation measures for the catchment areas. The project is currently at the model calibration stage and is expected to be finalised in October 2025.

- 20 • **Byron Shire overland flow path study** (2:1, DCCEEW: BSC funded): Engeny have been engaged to produce LGA wide flood models to assess overland flow paths in regional areas and undertake comprehensive overland flood studies for the following focus locations:
 - 25 ○ Ocean Shores
 - New Brighton
 - South Golden Beach
 - Billinudgel
 - Brunswick Heads
 - Mullumbimby
 - Ewingsdale
 - 30 ○ Byron Bay
 - Bangalow

- Federal Village

The project is currently at the model development stage and is expected to be finalised in December 2025.

- 5 • **Billinudgel rail bridge debris options study and implementation** (2:1, DCCEWW:BSC funded): Council have released a select tender to 5 trusted organisations to develop and select preferred options for debris control measures for Billinudgel Railway Bridge to mitigate in associated flood issues. The project is expected to commence in late Feb 2025 and to be completed by Aug 2025.

10 The project has 3 key milestones to be achieved, being:

- 1 - Establish Site Characteristics and Preliminary Options
- 2 - Options Analysis & Recommendations
- 3 - Implementation Plan

- 15 • **Bangalow Flood Study** (wholly funded by Council): Council has commissioned Wilde – Engineering Consulting to conduct a comprehensive flood study for Bangalow, NSW. This study is crucial for developing a thorough understanding of flood behaviour and risk in the area, which will, in turn, inform government systems, decision-makers, and the community at large. The primary outcome of the flood study is to inform floor planning levels in Bangalow, which are currently unguided.

20 The Stage 2 report which documents model calibration and validation have been submitted and reviewed by Councils technical staff, who have approval for the project to commence the third and final stage. Pending a review from DCCEEW.

25 The project has is currently at the model development stage and is expected to be finalised in August 2025.

- 30 • **South Golden Beach Levee Works** (funded and run by NSW Public Works). As part of the NSW Flood Levee Repair Project, Public works are constructing a maintenance access track to the western South Golden Beach Levee and undertaking remediation works on the levee. Construction is set to commence August 2025.
- 35 • **Coogera Basin Upgrade Project** (90% funded by NSW reconstruction Authority) Emergency flood protection works on Coogera Detention Basin have been completed, improving protection for properties in Coogera Circuit, Teatree Place, Beech Drive, and Bottlebrush Crescent areas from 20% AEP to 2% AEP. Additional improvements are planned for Beech Drive, including a shallow swale drain along the eastern boundary, with design completion expected within two weeks and initial contractor pricing already received. The concept cost estimate of the proposed swale is \$146,000, \$13,000 more than the available grant funding of \$133,000.
- 40 • **Preferred Byron Drainage Strategy** The Byron Bay Drainage Upgrade Strategy is a Floodplain Management Measure in the Belongil Creek Floodplain Risk Management Plan (2015) adopted by Council.

Project is funded by the "Preparing Australian Communities" grant to develop the drainage strategy through Concept Design to Detailed design stage.

The scope of works for the design of drainage upgrades to concept stage includes the following catchments/regions of the current Preferred Byron Bay Drainage Strategy (BMT, 2015):

- 5 ○ **“Town Centre” Catchment**
- **“Marvel Street” Catchment**
- **“Cowper Street” Catchment**
- **“Shirley Street” Catchment**

10 The scope of work generally includes the following milestones/deliverables:

- Strategy review and data collection
- Detailed Survey (all catchments)
- Concept design and hydraulic modelling (all catchments)
- Detailed Design - construction documentation (Town Centre and Cowper St)

15 ● **NSW Severe Weather and Flood Grant AGRN1012 \$1M program**

- **South Golden Beach resilience betterment program** (wholly funded by NSW State Government Funding) – The program comprises the following projects:

- 20 ○ **SGB flood levee raising investigation** (\$110,000)– The investigation phase has been completed and a draft report has been submitted to Council for review. Findings of the study indicate that along with implementing findings of the Public Works Levee Audit, low points in the levee should be rectified. The study found that raising the levee any amount is not feasible due to site constraints.

- 25 ○ **West SGB levee flood pump investigation** (\$30,000)- Investigation and hydraulic modelling have been completed to evaluate the effectiveness of an additional pump installation behind the western levee in SGB. The modelling concluded that installing an additional pump would not achieve the desired outcomes unless comprehensive works are undertaken across all canals and easements throughout South Golden Beach and the works are cost prohibitive. The final detailed report is currently in preparation.

- 30 ○ **Investigate road design to access the SGB flood pump**
- **Investigate platform design to house a generator to support power in the event of mains power failure**

35 ● **NSW Severe Weather and Flood Grant AGRN1012 \$2M program - Highly impacted Councils** (wholly NSW State Government, administered by Office of Local Government) – The program comprises the following projects:

- SGB Flood Pump Generator Continuous Power Supply Install (\$150,000) – Complete - Generator commissioning and handover meeting held on site on 30/08/2024.

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.3

- SGB Rear Easements Enhancements Planning (project planning to complete full enhancement of SGB rear easements (\$50,000) – Complete
 - SGB Rear Easements Enhancements (on ground works from planning process) (\$300,000) – 95% complete
 - 5 ○ SGB soakage pits enhancements by connecting to drainage systems (\$50,000) – Scheduled for completion March 2025
 - Flooding and Drainage Easement Communication Education Program (\$15,000) – 95% complete
 - 10 ○ Byron Drainage Works Enhancement Program (\$390,000) – This project is a short-term enhancement of the drainage maintenance program. The project includes the upgrade to Narooma Road, New City Road drain and culvert upgrade and New City Road and other small scale minor improvement works
-

15

RECOMMENDATION:

1. **That the Committee notes the status of the following works being undertaken by Council:**
 - **Broken Head Road – Evacuation Route**
 - 20 ○ **Belongil and Tallow flood risk management study and plan update – DCCEEW & BSC**
 - **Byron Shire overland flow path study – DCCEEW & BSC**
 - **Billinudgel rail bridge debris options study and implementation – DCCEEW & BSC**
 - 25 ○ **South Golden Beach Levee Works – NSW Public Works**
 - **Coogera Basin Upgrade Project – NSW Reconstruction Authority**
 - **Byron Preferred Drainage Strategy**
 - **NSW Severe Weather and Flood Grant AGRN1012 \$2M program**
 - **NSW Severe Weather and Flood Grant AGRN1012 \$1M program**
- 30 2. **That the Committee notes the Council staff endorsement of the Stage 2 – Bangalow Flood Study Report – Calibration and Validation (E2025/9759)**

Introduction

This report has been prepared to provide the Flood Advisory Committee with an overview of current floodplain risk management projects being undertaken across multiple locations in the Byron Shire Council LGA.

- 5 At present, all projects - including the Broken Head Road Evacuation Route, Belongil and Tallow flood risk management updates, Byron Shire overland flow path study, Billinudgel rail bridge debris options, Bangalow Flood Study, and South Golden Beach Levee Works - are in their initial stages of development. While the committee's input will be valuable to these projects, their current early status means immediate committee involvement is not yet required. Each project will progress at its own pace, with the Flood Advisory Committee being engaged at the appropriate milestone points specific to each initiative.

Background

15 The NSW Flood Risk Management Manual (DPE – now DCCEEW, 2023) stipulates that councils are responsible for managing flood risk within their respective LGAs. Figure 1, taken from this manual, documents the process for plan preparation, implementation and review.

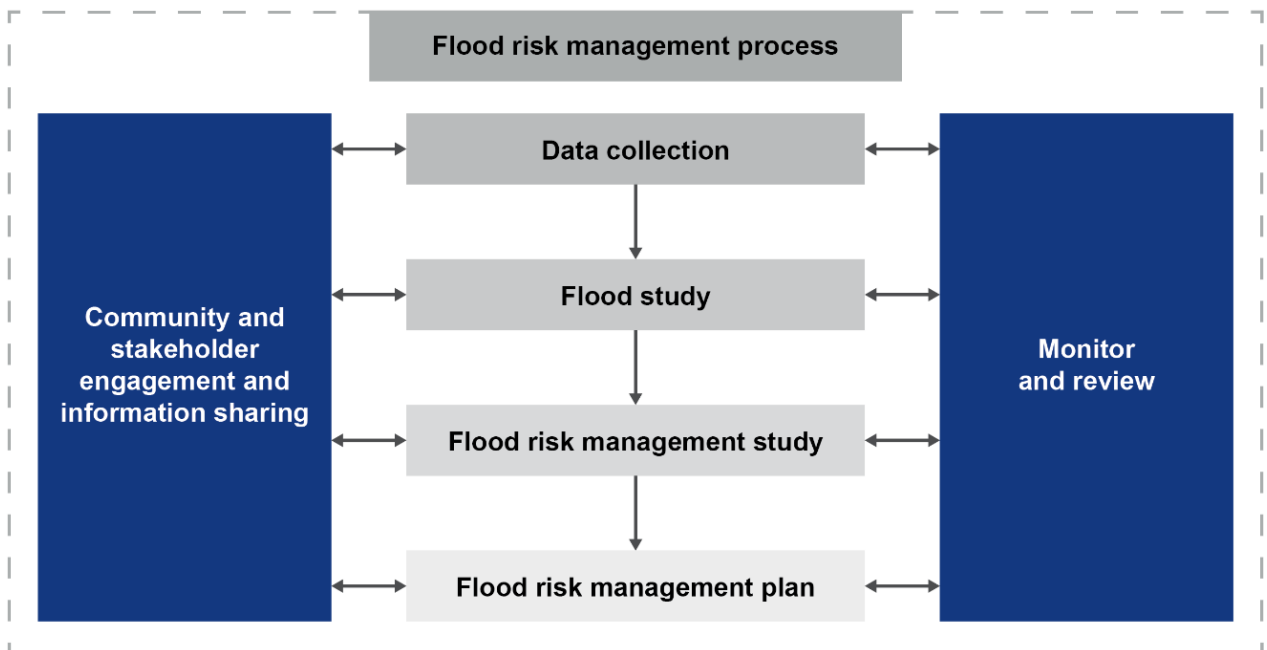


Figure 1. The floodplain risk management process in New South Wales

20 Councils can apply for funding through DCCEEW's Floodplain Management Program during the annual funding round, which opens in April and closes in May each year. The funding is provided on a 2:1 basis, where DCCEEW contributes two-thirds of the cost and Council contributes one-third. This funding supports various floodplain management activities including studies, works, and measures identified in council's floodplain risk management plans.

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.3

Byron Shire Council currently have the second highest value of funded projects in the state, of which 80 constituent councils are eligible for funding.

Ongoing DCCEEW partially funded projects include:

- Broken Head Road – Evacuation Route
- 5 • Belongil and Tallow flood risk management study and plan update
- Byron Shire overland flow path study
- Billinudgel rail bridge debris options study and implementation

In addition to the DCCEEW partially funded projects listed above, Council are also undertaking the following:

- 10 • Bangalow Flood Study which is wholly funded by Council, following an unsuccessful grant application to DCCEEW in 2023.
- NSW Public Works are undertaking flood levee improvement works post a 2022 flood event audit. It is completely funded by the NSW Government with no Council co contribution required at all, and acting only as a liaison point.
- 15 • Coogera Basin Upgrade Project which is primarily funded by NSW Reconstruction Authority, who contributed \$550,000 with Council contributing approximately \$70,000.
- **Preferred Byron Drainage Strategy** The Byron Bay Drainage Upgrade Strategy is a Floodplain Management Measure in the Belongil Creek Floodplain Risk Management Plan (2015) adopted by Council
- 20
- Project is funded by the "Preparing Australian Communities" grant to develop the drainage strategy through Concept Design to Detailed design stage. The scope of works for the design of drainage upgrades to concept stage includes the following catchments/regions of the current Preferred Byron Bay Drainage Strategy (BMT, 2015):
- 25
 - **“Town Centre” Catchment**
 - **“Marvel Street” Catchment**
 - **“Cowper Street” Catchment**
 - **“Shirley Street” Catchment**
- 30 The scope of work generally includes the following milestones/deliverables:
 - Strategy review and data collection
 - Detailed Survey (all catchments)
 - Concept design and hydraulic modelling (all catchments)
 - Detailed Design - construction documentation (Town Centre and Cowper St)

- NSW Severe Weather and Flood Grant AGRN1012 \$2M program - Highly impacted Councils
 - SGB Flood Pump Generator Continuous Power Supply Install
 - SGB Rear Easements Enhancements Planning
 - 5 ○ SGB Rear Easements Enhancements
 - SGB soakage pits enhancements by connecting to drainage systems
 - Flooding and Drainage Easement Communication Education Program
 - Byron Drainage Works Enhancement Program
- 10 • NSW Severe Weather and Flood Grant AGRN1012 \$1M program - South Golden Beach resilience betterment program (wholly funded by NSW Government)
 - SGB flood levee raising investigation
 - West SGB levee flood pump investigation

A summary of the current status of each of the above project is presented above.

Broken Head Road – Evacuation Route

15 The Broken Head Road flood immunity project has been prioritised as a critical initiative within the Tallow Creek catchment. Byron Shire Council engaged JB Pacific to conduct a Feasibility Options Assessment (FOA) to enhance the flood resilience and trafficability of Broken Head Road. Following the FOA, JBP will prepare a detailed design of the works, ready for construction.

20 The assessment uses an updated hydrodynamic model with the latest LiDAR data (2023), rainfall data, and methodologies, calibrated against the March 2022 and April 2024 floods.

25 Several flood mitigation options were evaluated, including upgrades to the Coogera Circuit Detention Basin. The preferred strategy, Option 5B, involves constructing a drainage channel adjacent to 32 Beech Drive, shifting the driveway northward, and integrating emergency works. This option is cost-effective, minimally impacts the community, and aligns with future Coogera Basin upgrades.

The evaluation rejects a "Do-Nothing" approach, emphasizing immediate and staged interventions. Recommendations prioritize Option 5B as part of a comprehensive strategy to improve flood immunity and accommodate future flood risk management plans.

30 Additional survey is currently being investigated which will bolster the modelling and allow the refinement of the FOA. Following finalisation of the FOA the project will move through the following phases:

- Concept Design

- Preliminary Design
- Issue for Construction
- Final Report

Belongil and Tallow flood risk management study and plan update

5 WMS have been engaged to update the existing Tallows Creek and Belongil Creek Floodplain Risk Management Study and Plans (FRMSP). This update follows the previous studies completed in 2009 and 2015 respectively, and will comply with current NSW flood management policies and guidelines.

The project aims to:

- 10 • Update flood models and risk assessments for Belongil and Tallows Creeks
- Develop prioritised flood management strategies, including structural, non-structural, and natural solutions,
- Assess evacuation routes and early warning systems
- Provide land use planning recommendations (update floor planning levels)
- 15 • Engage with the community on flood risks and mitigation
- Review Councils current Climate Change policy in relation to flood estimation.

The outcomes will inform government decision-making, community planning, emergency management, and future development in the area. The project will also provide valuable information to key stakeholders including utility providers and insurers.

20 The study is currently in early stages, having sourced all required data to undertake the project, the consultant is currently establishing flood models calibrated against the March 2022 and April 2024 flood events. Calibration is informed by flood height survey and supplemented by information and photographs provided by the community following the March 2022 event.

25 Community consultation, in the form of Your Say, will be undertaken in the coming months to inform the community of the project, allow for the community to provide feedback on the initial modelling results and to provide recommendation for potential mitigation measures.

Byron Shire overland flow path study

30 Riverine flooding occurs when rivers, creeks, or other watercourses overflow their banks due to heavy rainfall or upstream conditions, affecting areas within the floodplain. Overland flooding (also called surface flooding) happens when intense rainfall exceeds the capacity of local drainage systems, causing water to flow across the land surface before it reaches waterways, often affecting areas outside traditional floodplains.

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.3

Engeny Pty Ltd have been engaged to undertake a comprehensive overland flood study of the entire LGA is a comprehensive technical investigation of flood behaviour that provides the main technical foundation for the development of a robust floodplain risk management plan. It aims to provide an understanding of the full range of flood behaviour and consequences in the study area. It involves consideration of the local flood history, available collected flood data, and the development of hydrologic and hydraulic models.

The overall project provides an understanding of, and information on, flood behaviour and associated risk to inform:

- relevant government information systems
- 10 • government and strategic decision makers on flood risk and asset management
- the community
- flood risk management planning for existing and future development
- emergency management planning for existing and future development, and strategic and development scale land-use planning to manage growth in flood risk
- 15 • other key stakeholders (including utility providers and the insurance industry) on flood risk

The study will map all overland flow paths within the shire and provide a detailed understanding of overland flooding in the following focus locations:

- Ocean Shores
- 20 • New Brighton
- South Golden Beach
- Billinudgel
- Brunswick Heads
- Mullumbimby
- 25 • Ewingsdale
- Byron Bay
- Bangalow
- Federal Village

30 The study is in the early stages, having completed the data gathering phase, and achieving Council and DCCEEW approval of the basis of modelling report.

Bangalow Flood Study

5 Byron Shire Council commissioned Wilde – Engineering Consulting to conduct a comprehensive flood study for Bangalow. This study is crucial for developing a thorough understanding of flood behaviour and risk in the area, which will, in turn, inform government systems, decision-makers, and the community at large. The primary outcome of the flood study is to inform floor planning levels in Bangalow, which are currently unguided.

10 The project involves the creation and calibration of a hydrologic and hydraulic model in accordance with current guidelines and standards and industry best practice. The model assesses the impacts of both riverine (Byron Creek) and overland flooding for the township.

15 The project has completed Stage 2, which focuses on the calibration and validation of these models using historical flood events, namely the March 2022 for calibration and the February 2022 event and June 2016 event for model validation. The models were deemed to achieve a good calibration and validation for the events through comparison with gauged water level data within Byron Creek and community descriptions and photos of the flood events, gained through a community consultation process (Your Say Survey) undertaken as part of the project. Council technical staff have reviewed this report and provided approval for the project to commence the third and final stage.

20 Stage 3 (the final stage) will undertake modelling of design events to identify flood risk areas for a range of flood magnitudes, produce flood maps and set floor planning levels. The findings will be documented in an Exhibition report which will be exhibited to the public prior to holding a community workshop, with feedback being integrated into the final Flood Study Report.

25 Billinudgel Rail Bridge debris options study and implementation

30 The adopted North Byron Floodplain Risk Management Plan (WMA, 2020) identified to implement debris control measures for Billinudgel Railway Bridge as a high priority action. In response, Council successfully applied for a Grant with DCCEEW to undertake an options analysis for debris control measures for Billinudgel Railway Bridge and to prepare an implementation plan moving forward.

Project Objective: To develop an implementation plan for bridge debris control measures at Billinudgel Rail Bridge to reduce flooding risk and maintain evacuation routes in the Billinudgel area, while incorporating environmentally positive approaches. The project will be overseen by Council and relevant stakeholders.

35 Types of measures to be investigated include:

- Structural measures (trash racks/bollards)
- Catchment debris reduction strategies
- Railway embankment modifications

- Creek bank alterations
- Potential bridge infrastructure removal

The study will be undertaken in three phases:

- 5 1. Site Assessment & Options Development (Milestone 1) which includes initial stakeholder engagement with the community and DCCEEW
2. Options Analysis (Milestone 2) – Through multi-criteria analysis incorporating environmental, heritage, safety, and financial constraints, two preferred options will be shortlisted and assessed via hydraulic modelling and lifecycle costing to produce a comprehensive options analysis report.
- 10 3. Implementation Planning (Milestone 3) – The final implementation plan will detail the preferred solution's operational framework, priorities, timeline, costs, and concept design, while establishing requirements for future environmental approvals and assessments.

15 The project is in tendering phase with 5 organisations invited to provide quotes. The project is expected to commence in late February 2025 and to be completed by August 2025.

South Golden Beach Levee Works – NSW Public Works

20 NSW Public Works is running the Flood Levee Repair Program which will provide funding to support medium-long term recovery for eligible affected Local Government Areas (LGAs), by providing funding for repairs, restoration and betterment of urban flood levee infrastructure impacted by severe weather and flood events declared under AGRN 1012.

25 The FLRP will be administered by the Department of Primary Industries and Regional Development (DPIRD) (formerly Department of Regional NSW) in collaboration with the NSW Department of Climate Change, Energy, the Environment and Water: Biodiversity and Conservation and Science (DCCEEW BCS), and the NSW Reconstruction Authority (NSWRA).

The total program value is \$36M jointly funded by NSW and Australian Governments under DRFA.

Byron Shire Allocation:

- 30 1. Primary: South Golden Beach Canal Levee
 - Scope: Remediation & Maintenance Accessway Construction
 - Est. Cost: \$864,000
2. Supplementary (if funding allows following primary projects): South Golden Beach Levee

- Scope: Remediation & Pathway Construction (Beach Av to Pacific Esplanade)
- Est. Cost: \$688,500

Total Project Value: \$1,552,500

Current Status:

- 5
- Initial assessments and surveys completed
 - Engineering assessments finished
 - Framework and approval processes established
 - Land title and access matters assessed

10 Program oversight shared between DPIRD, DCCEEW BCS, and NSWRA. Council to act as point of liaison only.

Coogera Detention Basin Flood Resilience Project Update

15 The emergency works for the Coogera Detention Basin in Suffolk Park has been successfully completed. This significant infrastructure upgrade has substantially improved flood protection for the Byron Hills residential area, including properties along Coogera Circuit, Teatree Place, Beech Drive, and Bottlebrush Crescent. The completed works have increased the flood resilience capacity from a 20% Annual Exceedance Probability (AEP) to a 2% AEP, benefiting approximately 80 properties in the catchment area. No adverse impacts have been observed from the implemented works.

20 As part of the original Coogera Basin scope, supplementary flood resilience works are scheduled for implementation along Beech Drive. These works comprise construction of a shallow swale drain along the eastern boundary of Beech Drive, connecting to the existing drainage channel, which will provide additional flood resilience to properties along Beech Drive.

25 The detailed design phase for the Beech Drive component is nearing completion, with finalisation expected within the next two weeks. Initial contractor pricing has been received and is currently under review by Council staff.

30 Community consultation for the Beech Drive works is progressing positively. A productive site meeting was recently conducted with the primary affected property owner, indicating strong stakeholder support for the proposed works. Further engagement activities are ongoing to ensure comprehensive community awareness and input.

The remaining works are currently estimated at \$146,000, which marginally exceeds the available NSW Reconstruction Authority funding of \$133,000 by \$13,000. A detailed construction estimate will be developed upon design finalisation to confirm the precise funding requirements.

Rear Drainage Easements Upgrade – South Golden Beach

5 This project focuses on enhancing rear easements through on-ground works from the
planning process. With a budget of \$300,000, the project's objective is to mobilise work
crews to clear all drainage easements. Currently, the project scope includes conducting
detailed site inspections, identifying issues on all easements, engaging a surveyor to
10 survey all easements and mark the centre line, engaging an ecologist for the REF and
Ecological Report, and gathering all information required for future funding applications.
Byron Bay Surveying is working on the survey with an expected completion by the end of
February, while GeoLINK is undertaking the REF and ecological assessment, with the
draft REF already received and awaiting the final copy.

The remaining budget will be allocated towards designing access to the easements to
enable machinery deployment for clearing work, as the site is currently inaccessible in
several areas, hampering maintenance efforts.

Report No. 4.4 Recommended Flood Grant Applications in May 2025 subject to budget allocation

Directorate: Infrastructure Services

Report Author: Euan Rose, Project Officer

5 **File No:** I2025/102

Summary:

10 **Introduction:** The NSW Flood Risk Management Manual (DPE – now DCCEEW, 2023) mandates councils to manage flood risk within their LGAs. The manual outlines a cyclical process for plan preparation, implementation, and review, recommending updates to Floodplain Risk Management Studies and Plans (FRMSPs) every 5 to 10 years to incorporate the latest data and changes.

15 **Funding:** Councils can apply for funding through the NSW DCCEEW Floodplain Management Program, which opens in April and closes in May annually. The funding is provided on a 2:1 basis, with DCCEEW contributing two-thirds and the Council one-third. This supports various floodplain management activities.

Projects proposed for Grant Funding:

1. **North Byron Floodplain Risk Management Study and Plan (FRMSP) Update:**

- 20
- Based on findings of the DPE funded Post-2022 Event Flood Behaviour Analysis for the Brunswick River (WMAwater, Feb 2024), the 2020 FRMSP (WMAwater) needs updating due to limitations in model performance, rainfall intensity and frequency data, flood frequency analysis, and Brunswick River entrance conditions.
 - A number of proposed flood risk management strategies from the current FRMSP should be delayed until the completion of the updated study to ensure they are based on robust modelling results.
 - Estimated cost: \$450,000; Duration: 2 years.
- 25

2. **Bangalow Floodplain Risk Management Study and Plan:**

- 30
- Currently, Bangalow lacks specified flood planning levels and has no FRMSP. The ongoing Bangalow Flood Study (expected completion: August 2025) will provide necessary data to undertake an FRMSP allows for future land-use planning and flood risk management to be defined.
 - Estimated cost: \$150,000; Duration: 1 year.

RECOMMENDATION:

The Floodplain Management Advisory Committee recommend:

- 5 That Council endorse funding Councils component and applying for grant funding through the NSW DCCEEW Floodplain Management Program for the following two (2) projects:**
- 1. North Byron Floodplain Risk Management Study and Plan Update, and**
 - 10 2. Bangalow Floodplain Risk Management Study and Plan.**

Report

Introduction

5 The NSW Flood Risk Management Manual (DPE – now DCCEEW, 2023)[1] stipulates that councils are responsible for managing flood risk within their respective LGAs. Figure 1, taken from this manual, documents the process for plan preparation, implementation and review.

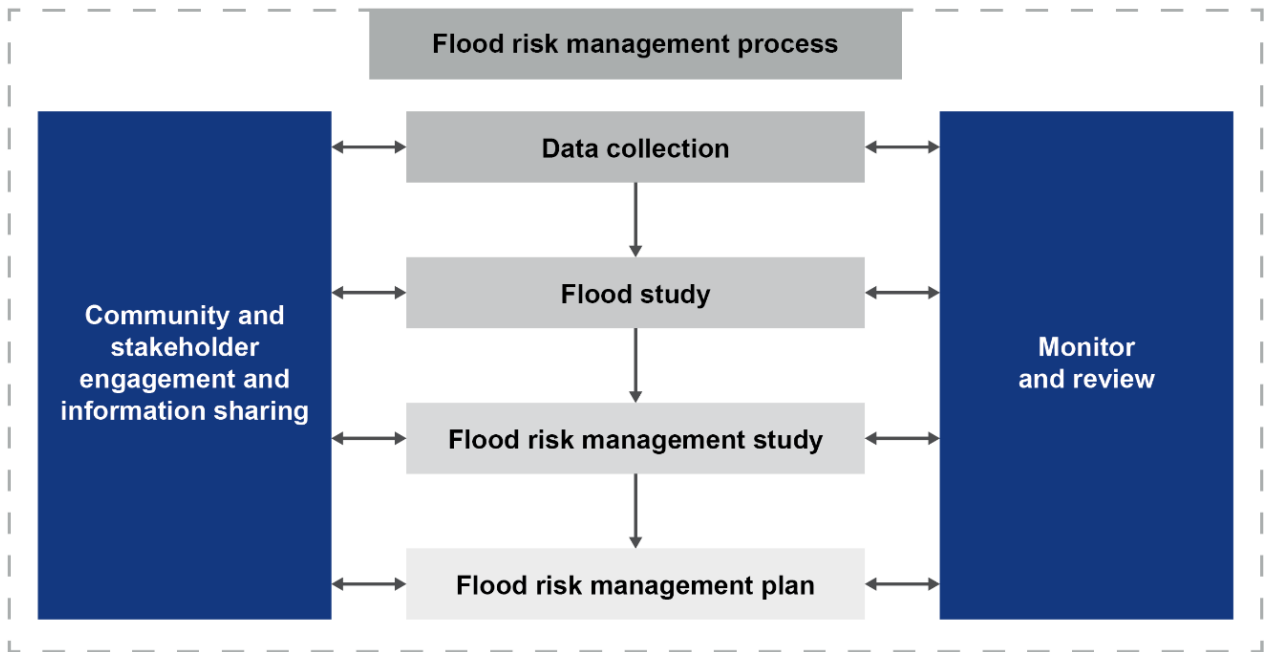


Figure 1. The floodplain risk management process in New South Wales

10 It is highlighted that the process outlined in Figure 1 is cyclical and the guidelines recommend that Floodplain Risk Management Studies and Plans (FRMSPs) be updated every 5 to 10 years. This ensures that the plans remain relevant and incorporate the latest data, technological advancements, and changes in land use or climate patterns.

15 Councils can apply for funding through the NSW Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Floodplain Management Program during the annual funding round, which opens in April and closes in May each year. The funding is provided on a 2:1 basis, where DCCEEW contributes two-thirds of the cost and Council contributes one-third. This funding supports various floodplain management activities including studies, works, and measures identified in council's floodplain risk management plans.

20 Council intend to apply to fund two projects under this grant (in order of priority):

1. North Byron Floodplain Risk Management Study and Plan
2. Bangalow Risk Management Study and Plan

North Byron Floodplain Risk Management Study and Plan Update

In 2020, WMAwater completed the North Byron Floodplain Risk Management Study and Plan (FRMSP) [2], primarily using models developed as part of the North Byron Flood Study (BMT, 2016), but also incorporating external models to inform boundary conditions.

5 This FRMSP is currently adopted by Council.

Following the flood events of early 2022, the Department of Planning and Environment (DPE) commissioned WMAwater to conduct the Post-2022 Event Flood Behaviour Analysis for the Brunswick River (WMAwater, Feb 2024) [3]. This analysis utilised models from the 2020 Floodplain Risk Management Study and Plan (FRMSP) and included a
10 review of the modelling to compare it with the 2022 flood event. The document recommends updating the modelling for several reasons as noted below, and following this, updating the FRMSP:

1. Hydrologic Model Limitations:

- 15 • The current hydrologic model over-attenuates flows upstream of the Durrumbul gauge, Main Arm, resulting in an underestimation of flood extents for the design events.
- The model uses outdated ARR87 approaches, with the guidelines being updated in 2019.
- 20 • The hydrologic modelling was undertaken using XP-RAFTs, which is no longer supported.

2. Rainfall Intensity and Frequency:

- 25 • A comparison of BOM 2016 Intensity-Frequency-Duration (IFD) and an at site IFD analysis of gauges in the catchment suggest that the IFD's are likely underestimating the total depths of storms greater than 24 hours, for events less frequent than 10% AEP. In addition, is unclear if there are orographic effects influencing rainfall in higher regions due to the short record at Upper Main Arm, and this effect should be investigated.

3. Flood Frequency Analysis (FFA):

- 30 • The 2022 event significantly altered the FFA at Durrumbul, further indicating previous flood estimates were underestimated.
- Design flow estimates at Durrumbul need to be reviewed and updated.

4. Hydraulic Model Performance:

- 35 • The hydraulic model shows good matches in populated zones but underestimates north-west of the town centre of Mullumbimby and adjacent to Kings Creek, with known inundated areas not being modelled as so.

- The model's 1-Dimensional representation may not accurately capture flow characteristics, suggesting a potential improvement with 2-Dimensional approaches.

5. Complex Interactions and Model Integration:

- 5
- The Marshalls Creek system is characterised by a complicated interaction between the Yelgun, Mooball and Marshalls Creeks. Mooball Creek Discharges at Pottsville but flows from this catchment flow into the Yelgun Creek catchment in sufficiently large flood events.

10

The model relies on external Mooball Ck flows from a dated Tweed Shire Council model, and so is dependent on the accuracy of two independent models. It is noted Tweed Shire Council are currently undertaking the Coastal Creek Flood Study, which will provide a more robust model to represent cross catchment flows from the Mooball Creek catchment into Yelgun Creek.

- 15
- Two hydrologic models covering Marshalls Creek and Yelgun Creek have feedback loop dependencies for each other and are therefore unlikely to appropriately represent the complexities of the system. The two models have diverged over time.

6. Brunswick River Entrance:

- 20
- Significant head loss occurs in the Brunswick River at the confluence of Marshalls Creek and Simpsons Creek. Past mitigation assessments focused on high ocean levels. The 2022 flood event, with a low tide condition (<10% AEP), was 0.7 m lower than the lowest design level assessed in a 1% AEP event. Future assessments should consider lower tide conditions, such as a
- 25
- 20% AEP, to capture the full scope of impacts and benefits

These points highlight the need for a comprehensive review and update of the modelling to ensure accurate representation and effective flood risk management. Following this modelling update the FRMSP will require update to capture the changed modelling outcomes.

- 30
- Council estimate the project to cost in the order of \$450,000 and take approximately 2 years to complete.

Council continue to implement recommendations of the current FRMSP, which are not sensitive to the likely updated design flood levels of an updated flood model, as documented in I2025/74, examples of such projects include:

- 35
- Debris control measures for Federation Bridge (complete) and Billinudgel Railway Bridge
 - Development a whole of catchment drainage model and overland flow path investigation

- Undertake more detailed assessment of properties which may benefit from property level protection.
- Implement the recommendations of the South Golden Beach levee audit.

5 However, it is suggested that some mitigation strategies be updated, informed by the updated FRMSP, such as:

- Engage with the community to prepare an ongoing flood education program, with appropriate evaluation by Council and SES following implementation.
- Changes to land use zoning should consider flood compatibility based on the recommendations of the FRMS.
- 10 • Section 10.7 (5) certificates to provide further detail of flood behaviour. Consideration to providing property-level flood information via an online GIS platform.
- Develop guidance on the design and installation of fencing traversing waterways and channels.

15 Updating mitigation strategies based on the latest flood modelling from the updated FRMSP ensures that they are informed by the most accurate and current flood risk data. This approach enhances flood risk management and community resilience by providing up-to-date information and effective strategies and avoids the need to revisit items such as community education in light of more accurate guidance.

20 **Bangalow Floodplain Risk Management Study and Plan**

As of now, Bangalow does not have a specified flood planning level according to the guidelines set out in the Department of Climate Change, Energy, the Environment and Water (DCCEEW) Floodplain Risk Management Manual [1]. This manual provides comprehensive strategies for managing flood-prone land, ensuring that flood risk is effectively mitigated through sustainable and community-focused approaches. This absence means that the Council's development engineers do not have formal flood planning level requirements to guide developments within the township. This gap can lead to inconsistencies and potential risks in managing flood-prone areas effectively.

30 For the flood planning levels to be formally adopted into a Development Control Plan (DCP), they must be established as part of a Floodplain Risk Management Study and Plan (FRMSP). The DCCEEW mandates that flood planning levels derived from such studies are integrated into local planning instruments to ensure that development within flood-prone areas is appropriately managed and mitigated. Reasons for this approach include:

- 35 1. **Comprehensive Approach:** FRMSP includes risk management strategies beyond flood behaviour analysis.
2. **Risk Mitigation:** Incorporates measures to reduce flood risk and enhance community resilience.

3. **Stakeholder Engagement:** Involves input from communities and relevant stakeholders.
4. **Regulatory Compliance:** Aligns with national and state flood risk management policies.

5 Currently, there is no Floodplain Risk Management Study and Plan (FRMSP) for Bangalow.

10 The Bangalow Flood Study is currently being prepared by Wilde – Engineering Consulting, expected to be complete by August 2025. This study will provide a detailed technical analysis of flood behaviour in Bangalow and its surrounding areas. The outcomes of this study include confirming the flood planning levels for the town, as developed by the Flood study. The study aims to gather valuable data on how and where floods impact the town, which will be instrumental in guiding future land-use planning and flood risk management strategies.

15 Council estimate the project to cost in the order of \$150,000 and take approximately 1 year to complete.

References

[1] [Flood risk management toolkit | Floodplains | Environment and Heritage](#)

[2] [North Byron Floodplain Risk Management Study and Plan - Byron Shire Council](#)

[3] [Post 2022 Event Flood Behaviour Analysis – Brunswick River](#)

20 Strategic Considerations

Legal/Statutory/Policy Considerations

25 Council has a general duty of care to provide reasonable infrastructure, as resources and priorities permit. Where existing infrastructure becomes known to be inadequate for any reason within the control of Council, repair, renewal and upgrade of drainage assets for the provision of stormwater drainage / flood mitigation is a fundamental component of meeting Council's obligations.

30 Provision of stormwater drainage / flood mitigation infrastructure is a legitimate function of local government under the Local Government Act 1993. To the extent that the provision of infrastructure protects public roads, other infrastructure, Council land, Crown land, private land and the community. Council is also responsible for drainage under the Roads Act 1993.

Financial Considerations

Council will need to include the following sums for Council Contribution (2:1 basis) in the Capital Budget request for FY25/26 to proceed with the proposed projects:

- 35 • North Byron Floodplain Risk Management Study and Plan - \$150,000

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.4

- Bangalow Risk Management Study and Plan - \$50,000

**Report No. 4.5 Performance of Automatic Warning Signs
for Water Over Main Arm Road just west of
Sherrys Bridge**

Directorate: Infrastructure Services

5 **Report Author:** Euan Rose, Project Officer

File No: I2025/105

Summary:

10 Following the flash flood event on 1 December 2024, concerns were raised about the effectiveness of automatic warning signs on Main Arm Road. Despite the signs flashing as designed, four vehicles were washed off the road, with two prevented from entering the Brunswick River by private farm fencing. One occupant from a vehicle that entered the river was later rescued from a tree.

15 The traffic on Main Arm Road that night was likely returning from an event at Durrumbul Hall, which ended around midnight. Heavy rain was still falling at that time, and the peak river gauge height at Sherrys Bridge reached 4 metres at approximately 1 am.

An occupant interviewed after the event claimed the height of the sign (3 metres above ground) meant visibility of the signs' text was impeded and the driver did not understand the meaning of the flashing lights.

20 The bottom edge of the sign reading "**ROAD SUBJECT TO FLOODING DO NOT ENTER WHEN FLOODED**" was constructed at 2.2m above the of the edge of the road, while the flashing lights are approximately 3m above the road. The design heights were based on the following considerations:

- Australian Standard AS 1742 and Austroads Guide to Traffic Management specifies in rural areas signs should be at least 1.5m above the road pavement.
- 25 • Sign at 2m to bottom edge from ground provides earlier sighting deters vandalism or theft – particularly of the battery pack and solar panels.
- to ensure visibility during large flood events.

30 The board could be lowered by 700mm and still comply with AS 1742; however, this would reduce the flood immunity and increase the risk of tampering, but most importantly lower early sighting of the sign during flood events, which poses a risk to motorists travelling at speed.

35 It is noted that Variable Message Signs, which are display lit messages, were considered during the project design phase, however these are significantly more expensive and based on allocated project budget would have reduced the number of signs able to be installed in the shire to 1, which would not have fulfilled the required grant outcomes.

BYRON SHIRE COUNCIL

STAFF REPORTS - INFRASTRUCTURE SERVICES

4.5

Based on the above it is not recommended the signs are not lowered.

Nominal sign design E2025/13642

5

RECOMMENDATION:

10 **That the Committee note Council staff decision to not adjust the height of the Main arm flood warning signs.**

Attachment 1 (E2025/13642)