

20 May 2022

Professor Mary O'Kane AC and Michael Fuller APM
NSW Independent Flood Inquiry
Locked GPO Box 5341
Sydney NSW 2001 Bag 2000

By email: inquiry@floodinquiry.nsw.gov.au

Dear Professor O'Kane and Mr Fuller

SHOALHAVEN CITY COUNCIL – SUBMISSION TO INDEPENDENT FLOOD INQUIRY

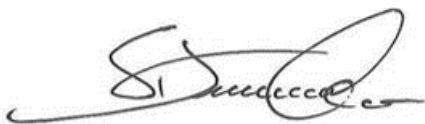
Thank you for the opportunity to provide the attached Submission to the NSW Independent Flood Inquiry. Council appreciates the opportunity to make this submission which primarily addresses the matters the Inquiry is required to report to the Premier on by 30 June 2022.

Given time constraints, it has not been possible to consult with the elected Council on preparation of the attached document and as such I ask that Inquiry accept this as a '**staff submission**' only at this time. It is my intention to consult with the elected Councillors on the attached as a priority matter, following which the Council may resolve to forward a further or amended submission.

I expect also that any further submission will address the other matters the Inquiry is required to report on to the Premier by 30 September 2022.

If you need further information about this matter, please contact Michael Roberts, Manager Environmental Services via email . Please quote Council's reference (D22/209684)

Yours faithfully



Stephen Dunshea
Chief Executive Officer

Submission to the NSW Flood Inquiry

May 2022



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1. Introduction

Shoalhaven City Council welcomes the opportunity to make this submission to the NSW Flood Inquiry which is reviewing and reporting to the Premier of New South Wales into the preparation for, causes of, response to and recovery from the 2022 flood event across the State.

This submission primarily addresses the key Inquiry Terms of Reference that the Inquiry is required to report to the Premier by 30 June 2022. These are focussed on the causation, land use planning and management and other related matters. Council will separately provide a further submission on all other matters under the Inquiry's Terms of Reference that are required to be reported to the Premier by 30 September 2022.

Council fully understands and empathises that flooding can have a major impact on individuals and communities. It appreciates that it is normal to experience all sorts of emotions, feel fearful or overwhelmed during or after the necessary cleanup.

During the 2022 flood event in the Shoalhaven, Council has worked closely with affected individuals and communities in dealing with the flood response, recovery, cleanup and road damage as well as addressing health and welfare issues. Importantly as well, Council assists in providing advice on eligibility for disaster relief assistance and for support from the Commonwealth and NSW Governments for individuals and organisations, including for businesses and primary producers.

Council manages multiple water quality monitoring programs throughout the Shoalhaven and stratifies and focusses sampling during environmental events such as floods that heighten potential hazards. Advice is issued to the community in this regard.

Council endorses the Flood Inquiry as an important continual improvement initiative in collaboratively reviewing and assessing the merits of current practices and arrangements in dealing with the causes of, response to and recovery from significant flood events that occur across our State and look forward to receiving the Inquiry's findings and recommendations in due course.

2. Background

Council notes that in March 2022, the NSW Government commissioned an independent expert inquiry into the preparation for, causes of, response to and recovery from the 2022 catastrophic flood event across the state of NSW. Professor Mary O'Kane AC and Michael Fuller APM have been engaged to lead the Inquiry. The Inquiry is to report on:

- The causes of and factors contributing to the frequency, intensity, timing and location of floods.
- Preparation and planning by agencies and the community for floods in NSW.
- Responses to floods, particularly measures to protect life, property and the environment.
- The transition from incident response to recovery.
- Recovery, including housing, clean-up, financial support, community engagement and longer-term community rebuilding.

The Inquiry will consider and, if thought fit, make recommendations on a range of matters, including:

- The safety of emergency services and community first responders.
- Current and future land use planning and management and building standards in flood prone locations across NSW.
- Appropriate action to adapt to future flood risks to communities and ecosystems.
- coordination and collaboration between all levels of government.

The Inquiry is required to report to the Premier on causation, land use planning and management and related matters by 30 June 2022, and on all other matters by 30 September 2022. The Council submission addresses the key Inquiry's Terms of Reference to report to the Premier by 30 June 2022.

3. Executive Summary

Council very much appreciated the opportunity to review and advise the Inquiry on the key components of its Terms of Reference including the causes of, and factors contributing to, the frequency, intensity, timing and location of floods and, importantly, factors relating to responses to floods and the preparation and planning for future flood threats and risks. Council has addressed the Inquiry's Terms of Reference and provided a range of responses in relation to the impact of the 2022 floods within the Shoalhaven:

- The causes of, and factors contributing to, the frequency, intensity, timing and location of floods
- responses to floods, particularly measures to protect life, property and the environment
- preparation and planning for future flood threats and risks
- land use planning and management and building standards
- use of flood gauges and other warning structures and/or strategies for improved flood prediction
- appropriate action to adapt to future flood risks to communities and ecosystems

Council has identified a number of key flood management improvement opportunities and wish to provide the following recommendations for the Inquiry's consideration and review as part of its reporting requirements to the Premier:

Recommendations

Terms of Reference 1a: The Inquiry is to consider and report to the Premier on the following matters: The causes of, and factors contributing to, the frequency, intensity, timing and location of floods in NSW in the 2022 catastrophic flood event, including consideration of any role of weather, climate change, and human activity.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 1)

1. Increase NSW Governmental funding made available via flood program grants to assist Councils to assess flood risk and implement associated mitigation measures. (Refer to *Response 1*)
2. Increase funding to the NSW SES to provide for increased capability to respond to severe flood events.
3. Bureau of Meteorology (BoM) to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.
4. Bureau of Meteorology (BoM) to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.

Terms of Reference 1c: The Inquiry is to consider and report to the Premier on the following matters: Responses to floods, particularly measures to protect life, property and the environment, including (iii.) equipment and communication systems.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 2)

5. Increased funding to install and maintain rainfall and water level gauges to increase the density of the network to improve flood preparedness and response. This is particularly important in flash flooding catchments, which are not included in BoM's Flood Warning Service.
6. Establish framework for improved cross-agency communication, data sharing and information transparency. Catastrophic flood events require interagency collaboration.

Terms of Reference 2b: And to make recommendations arising from the Inquiry as considered appropriate, including on preparation and planning for future flood threats and risks.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 3)

7. Increase DPE funding for the Floodplain Management Program. The available funding is currently approximately \$10M for the entire state, which is disproportionate to the cost of recovery from a flood event. The program is known to be oversubscribed, where supply is not able to meet the demand. This results in significant delays in delivering of Flood Studies and FRMS&Ps under the program, causing unnecessary delays in the implementation of flood mitigation measures on flood prone land, directly impacting on Council's ability to proactively manage existing and future flood risk. It would also be useful if grants were awarded every six months to prevent Council having immobilisation time associated with the resubmission of grant applications without any guarantee of obtaining funding (approximately a year). The cost of delivering Flood Studies and FRMS&Ps in accordance with the NSW Floodplain Development Manual and other industry guidelines (such as Australian Rainfall and Runoff 2019) is becoming increasingly expensive, making it difficult for regional Councils to fully fund their completion.
8. Increase funding to the NSW SES to provide for capability to respond to catastrophic flood events.
9. NSW Government to consider placing more legislative weight on DCP provisions adopted by Council and make the Clause 5.21 Flood Planning more specific.
10. DPE to provide a standard flood specific DCP Chapter to allow increased consistency between NSW Councils.
11. Increase NSW Governmental funding for a maintenance contribution towards flood gauges and flood mitigation assets. This will allow further rainfall and water level gauges to be installed in critical areas and improve the overall flood response and community resilience.
12. A more integrated inter-agency approach is required with regard to the preparation of Entrance Management Policies.

Terms of Reference 2c: And to make recommendations arising from the Inquiry as considered appropriate, including on the use of flood gauges and other warning structures and/or strategies for improved flood prediction.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 4)

13. Increase NSW Governmental funding for installing new rainfall and water level gauges. (Refer to *Response 4*)
14. Increase NSW Governmental funding for a maintenance contribution towards flood gauges and flood mitigation assets.
15. BoM to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.

Terms of Reference 2e: And to make recommendations arising from the Inquiry as considered appropriate, including on land use planning and management and building standards, including (i) the instruments, policies and programs applying to existing development in flood prone locations across NSW.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 5)

16. Refer Council response under e. ii. (Response 6) which outlines instruments, policies and programs applying to redevelopment of properties.

Terms of Reference 2e: And to make recommendations arising from the Inquiry as considered appropriate, including on land use planning and management, and building standards, including (ii) the instruments, policies and programs applying to proposed future developments in flood prone locations across NSW.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 6)

Shoalhaven LEP 2014:

17. DPE amend the Natural Disaster model clause to apply to all dwellings damaged/destroyed by a natural disaster, not just dwelling houses and dwellings, to ensure resilience for all affected dwellings.
18. Provision of greater funding to local councils towards the provision of flood studies to inform contemporary mapping associated with the LEP.
19. That the NSW Government driven Clause 5.22 Special flood considerations process be finalised as soon as possible for those Councils that opted in (e.g., Shoalhaven).
20. Review the Floodplain Manual and the flooding s9.1 Ministerial direction to ensure flooding is given appropriate consideration at the rezoning stage, more equivalent to bushfire planning considerations.
21. The NSW Government consider an appropriate planning pathway for land that has an existing or historic development zone in areas in which a Flood Study and FRMS&P, developed in accordance with the NSW Floodplain Development Manual, has demonstrated that the flood risk and characteristics are inconsistent with future development in accordance with the LEP zoning. This would reduce the future risk associated with the potential approval of development in any of these areas if this were to occur. This could include for example a government funded 'buy back' scheme.

State Environmental Planning Policies:

22. The complying development pathway should not be available for development on a flood control lot.)

Development Control Plan:

23. NSW Government consider placing more legislative weight on DCP provisions adopted by Council, particularly related to natural hazards, and make the LEP Clause 5.21 Flood Provisions more specific.
24. DPE to provide a standard flood specific DCP Chapter to allow consideration of increased consistency between NSW Councils.

Planning Certificates

25. The Planning Certificate template be exhibited as soon as possible so that it can be considered by councils with suitable notice and exhibition timeframes (at least 6 weeks) to enable reporting as required. Adequate guidance and support (i.e., available staff resources) during implementation should also be provided by DPE.

Terms of Reference 2f: And to make recommendations arising from the Inquiry as considered appropriate, including on appropriate action to adapt to future flood risks to communities and ecosystems.

COUNCIL RECOMMENDED ACTION TO INQUIRY (RESPONSE 7)

26. NSW Government should provide a guideline with state-wide sea level rise projections based on the latest science, rather than leave it up to local Council discretion to develop their own policies. This results in inconsistent benchmarks across the State, which may impact on the ability for communities to adapt to future flood risks.
27. NSW Government should consider whether the 1% AEP event is an appropriate starting point for the DFE in catchments and whether a higher DFE would be more appropriate for development controls. This would reduce the residual risk associated with catastrophic flood events exceeding the current level of service in which development controls are applied to floodprone land. It is acknowledged that the DPE Floodplain Development Manual (2005) and Flood Risk Management Manual (draft recently exhibited) permit Councils to apply a higher DFE if this is considered appropriate, but a higher DPE is difficult for Councils to apply in practice.
28. Increase funding to the NSW SES to provide for increased capability to respond to severe flood events that exceed the level of service of development controls. This should also consider increasing the number of permanent SES staff.
29. A more integrated inter-agency approach is required with regard to the preparation of Entrance Management Policies.



Flooding at Old Erowal Bay, St. Georges Basin

4. COUNCIL RESPONSES

Response 1:

Terms of Reference 1a: The Inquiry is to consider and report to the Premier on the following matters: The causes of, and factors contributing to, the frequency, intensity, timing and location of floods in NSW in the 2022 catastrophic flood event, including consideration of any role of weather, climate change, and human activity.

COUNCIL RESPONSE:

Firstly, it is not considered to be Shoalhaven City Council's (Council) position to respond to the causes of, and factors contributing to, the frequency, intensity, timing and locations of floods in NSW in the 2022 catastrophic flood event. The causes of these rainfall events, along with the potential contributing impacts from climate change, are best summarised by expert meteorologists and climate scientists. Nonetheless, a summary of the weather event that occurred in the Shoalhaven LGA and how it impacted on the region has been provided below.

Although no catastrophic flooding occurred in the Shoalhaven region during the March 2022 floods, the same weather systems severely impacting on the north of the state also had a significant impact on the Shoalhaven region, causing minor to moderate flooding in low-lying areas across a number of catchments. As a result of the back-to-back La Niña conditions, the Shoalhaven region received persistent rainfall during the first four months of 2022. This resulted in saturated catchments, with waterways responding much quicker than normal to rainfall. The Shoalhaven region experienced significant rainfall from back to back weather events, including but not limited to two East Coast Lows and one cold front. By way of example, Nowra received 609 mm rainfall in March, which is more than four times higher than the monthly mean rainfall of 142.3 mm. The highest daily rainfall recorded was 115 mm on the 7 March 2022. Low-lying communities within the Shoalhaven region, such as within the Lower Shoalhaven River, St Georges Basin and Lake Conjola catchments, experienced minor to moderate flooding due to a combination of riverine flooding with abnormally high tides and significant storm surge, causing an elevated tailwater level which worsened the impacts of the riverine flooding from the March flood event. Overfloor flooding occurred for a number of properties in the St Georges Basin / Sussex Inlet and Lake Conjola catchments and some areas were temporarily isolated as a result of flooding.

A contributing factor to the impact on local communities from weather events like these is the historical development on low-lying flood prone land. Human activities that Council undertook to minimise the impact from the March 2022 flood event was mainly in relation to entrance management activities associated with Intermittently Open and Closed Lakes or Lagoons (ICOLLS) and the closure of flooded roads. Council manages the entrances of the Shoalhaven River at Shoalhaven Heads and several ICOLLS within the LGA. Council had to mechanically open the Tabourie Lake entrance and the Shoalhaven River entrance at Shoalhaven Heads to minimise flood impacts on these communities. A number of other ICOLL entrances opened without intervention below trigger levels as a result of lake levels exceeding the natural berm level at the time.

Irrespective of the causes and factors contributing to catastrophic flood events, these events need to be better considered in planning and preparation at all levels of government. Currently, Council utilise a defined flood event (DFE) to establish relevant development controls. The DFE is generally the 1% Annual Exceedance Probability (AEP) flood event, which is typically sufficient to manage the flood risk towards new development, but is not effective against existing low-lying developments that were typically constructed prior to flood information being available. For flood events greater (rarer) than the 1% AEP flood event, the flood risk response is managed by the NSW SES as the combat agency.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

1. Increase NSW Governmental funding made available via flood program grants to assist Councils to assess flood risk and implement associated mitigation measures.

2. Increase funding to the NSW SES to provide for increased capability to respond to severe flood events.
3. Bureau of Meteorology (BoM) to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.
4. Bureau of Meteorology (BoM) to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.

Response 2:

Terms of Reference 1c: The Inquiry is to consider and report to the Premier on the following matters: Responses to floods, particularly measures to protect life, property and the environment, including (iii.) equipment and communication systems.

COUNCIL RESPONSE:

Council has a widespread network of rainfall and water level gauges across the Shoalhaven LGA, that record and display real-time data in the Enviromon program provided by the BoM. Shoalhaven City Council's Flood Engineers monitor these gauges and the weather forecasts issued from the BoM daily to assess potential and imminent flood risks. If identified that any of the gauges are malfunctioning or not recording correctly, arrangements are made to undertake immediate maintenance to ensure they are always operational, where possible. It is critical to have a widespread network of rainfall and water level gauges to ensure the availability of real-time data across the Shoalhaven LGA to improve flood preparedness and to manage the flood response during a flood event. Unfortunately, these gauges are costly to both install and maintain. Insufficient funding could lead to the decommission of gauges rather than expansion of the network, although this has not occurred in the Shoalhaven LGA to date.

Council manages the entrances of several river and ICOLL entrances within the Shoalhaven LGA. Historically, development has occurred in the low-lying areas around these rivers and lakes, exposing them to a significant flood risk. This risk is further exacerbated at times when the entrances are naturally closed by a sand berm. Council regularly monitors the entrance conditions through Enviromon and MHL gauges, where water level readings can identify if there are any tidal influences (open entrance) or if the water level is constant (closed entrance). Such monitoring comprises analytical comparisons with the trigger levels of the ICOLL entrances as per the approved Entrance Management Plans (in consultation with State Government Agencies). Fortnightly site inspections are also undertaken to verify the entrance conditions and to record data.

In times when severe weather is forecasted or BoM have issued either a Flood Watch or Flood Warning, Council's Flood Engineers will communicate the current weather and entrance conditions to key stakeholders within Council. Council also communicates directly with the NSW SES regarding entrance management actions as required to ensure a proactive approach is implemented.

Council will undertake mechanical entrance openings of closed river and lake entrances in-line with existing Entrance Management Policies and NSW Crown Land licences ahead of, or during, significant rainfall events to reduce the impacts on people and properties during a flood event.

Council produces flood intelligence through the development of Flood Studies and Floodplain Risk Management Studies and Plans, in-line with the NSW Floodplain Development Manual, and provide the outputs from these to the NSW SES. As such, the NSW SES response rely on flood information prepared by Council.

Council's Flood Engineers may be requested by the NSW SES to provide and interpret flood intelligence produced by Council during a flood event and assist accordingly.

To improve flood preparedness and response, improved inter-agency communication is required. As an example, WaterNSW owns and manage Tallow Dam. Water discharging from Tallowa Dam affects the Lower Shoalhaven River floodplain. This information is, however, not readily available to critical Council

staff members, reducing Council's capability to predict potential flood impacts ahead of a storm event and plan accordingly. Furthermore, WaterNSW do not permit the sharing of their dam break assessment with Council, preventing any form of community awareness strategies to take place and hence relying entirely on the NSW SES to respond to a potential dam break event. Keeping critical information like this confidential prevents the building of resilient communities from the lack of a collaborative inter-agency approach.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

5. Increased funding to install and maintain rainfall and water level gauges to increase the density of the network to improve flood preparedness and response. This is particularly important in flash flooding catchments, which are not included in BoM's Flood Warning Service.
6. Establish framework for improved cross-agency communication, data sharing and information transparency. Catastrophic flood events require interagency collaboration.

Response 3:

Terms of Reference 2b: And to make recommendations arising from the Inquiry as considered appropriate, including on preparation and planning for future flood threats and risks.

COUNCIL RESPONSE:

Local councils have lead responsibility for managing flood prone areas, and the State Government assists local Council by providing financial and technical support under the Floodplain Management Program.

Council's Floodplain Risk Management Committees (North, Central and South) oversee the Floodplain Management process for their Region of the Shoalhaven Local Government Area. The Committee meets as required and includes representatives from Council, the NSW Department of Planning & Environment (DPE), the NSW State Emergency Service (SES), Councillors and local community representatives. The Floodplain Risk Management Process follows the following steps: Formation of a Committee, Data Collection, Flood Study, Floodplain Risk Management Study (FRMS), Floodplain Risk Management Study and Plan (FRMS&P) and Implementation of the Plan.

Council has been actively participating in the NSW Floodplain Management Program for decades. Council is continuously undertaking an extensive strategic Floodplain Management program across the LGA that requires on-going progression within approved timeframes. Currently, Council's Flood Engineers are finalising two flood studies for the highest flood prone areas within the LGA (Lower Shoalhaven River and St Georges Basin). In addition, Council recently finalised two other flood studies for the Millards Creek and Currarong Creek catchments. In the past 10 years, Council have successfully conducted 13 Flood Studies and FRMS&Ps projects. The Shoalhaven LGA covers a large area which includes several catchments, and despite the number of studies undertaken to date, there are still unstudied areas within the Shoalhaven LGA.

Once a FRMP has been completed, Council will initiate the implementation of recommended actions in the Shoalhaven LEP 2014 and the Shoalhaven DCP as required to ensure recommended flood mitigation measures for new developments are considered for all future development. Further works will also be undertaken to other flood mitigation measures identified, including structural and non-structural measures.

Council considers the LEP to be a good instrument with sufficient statutory weight to control development on flood prone land, although it does lack in detail at times. The DCP on the other hand contains sufficient detail to ensure flood risk is adequately considered for new development, but has less statutory weight. It is relatively easy for Council to update the DCP, but rather onerous to update the LEP. Furthermore, there is no known NSW Government standard DCP document. Instead, the state government has designated responsibility to Councils to develop DCPs as they see fit, preventing a consistent approach across the state.

All developed flood intelligence from completed studies and plans are shared with the NSW SES as the relevant combat agency.

Council is currently developing flood forecast models for the Lower Shoalhaven River and St Georges Basin catchments based on newly developed flood models that have been created according to current best practice and available data. These models will be shared with the NSW SES and will assist the SES and Council in undertaking real-time flood forecasting of potential flood impacts and significantly improve the flood preparedness and response within these catchments.

As previously mentioned, Council has developed Entrance Management Policies (EMP) for six managed rivers and waterways within the LGA. These EMPs allow Council to plan and prepare for imminent flood risks and to take actions to reduce the impact on low-lying properties during frequent flood events. Entrance management is challenging for Local Government as these entrances are located on Crown Land, require Councils to prepare an EMP, undertake environmental due diligence through the preparation of a Review of Environmental Factors and obtain a Crown Licence to manage these entrances. Council is responsible for the mechanical opening of entrances even during flood events in which the NSW SES is the combat agency. The management of these entrances is highly controversial for local communities and this could be better managed through a more integrated inter-agency response.

Furthermore, Council owns and maintains a network of flood mitigation assets including flood levees, flood mitigation drains and floodgates. These assets are regularly audited to ensure they are operating as intended. Where flood damages have occurred and significant repairs are required, Council can seek Natural Disaster Relief and Recovery Arrangements (NDRRA) funding from NSW Government to assist in undertaking the design and repair works required. Furthermore, Council currently receives a \$41,000 per annum contribution from DPE to assist with ongoing maintenance of flood mitigation assets.

In relation to Council's flood alert network, consisting of rainfall and water level gauges across the Shoalhaven LGA, Council inspect and maintain these as required to ensure their operability. Council also undertakes strategic planning for the installation of new gauges to increase the density of the network. Real-time rainfall and water level data across the LGA is critical for informed decision-making during flood events and for flood preparedness. The denser the network, the higher the reliability of the early warning system. There are many flash flooding catchments in the Shoalhaven LGA where waterways have a very quick response to rainfall, making access to real-time data critical for adequate proactive flood warning, preparedness, and response.

Council's planning processes are generally good at managing flood risk to new developments, but it has limited impact on existing development and flood risk. Generally, new developments are allowed to occur based on a 1% AEP DFE (level of service adopted) with freeboard to identify the Flood Planning Level. Some development types such as those requiring special flood evacuation considerations typically have PMF development controls. Hence, catastrophic flood events exceeding the level of service of development controls, may occur where the residual flood risk relies on the NSW SES for safe warning and evacuation. However, as recent events clearly have demonstrated, the NSW SES does not have enough funding, personnel and/or equipment to effectively manage catastrophic events.

Historically constructed structural flood mitigation infrastructure, such as levees, may increase the flood risk for events exceeding its design level of service i.e. such as when a flood levee is overtopped. Planning for these catastrophic events is often inadequate and as such, requires a greater consideration. The Shoalhaven LGA has recently obtained funding from the Federal Government under the Prepare Australian Communities – Local Stream Program to undertake a Flood Evacuation Capability Assessment and Planning Study for the Lower Shoalhaven River and St Georges Basin catchments.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

7. Increase DPE funding for the Floodplain Management Program. The available funding is currently approximately \$10M for the entire state, which is disproportionate to the cost of recovery from a flood event. The program is known to be oversubscribed, where supply is not able to meet the demand. This results in significant delays in delivering of Flood Studies and FRMS&Ps under the program, causing unnecessary delays in the implementation of flood mitigation measures on flood prone land, directly impacting on Council's ability to proactively

manage existing and future flood risk. It would also be useful if grants were awarded every six months to prevent Council having immobilisation time associated with the resubmission of grant applications without any guarantee of obtaining funding (approximately a year). The cost of delivering Flood Studies and FRMS&Ps in accordance with the NSW Floodplain Development Manual and other industry guidelines (such as Australian Rainfall and Runoff 2019) is becoming increasingly expensive, making it difficult for regional Councils to fully fund their completion.

8. Increase funding to the NSW SES to provide for capability to respond to catastrophic flood events.
9. NSW Government to consider placing more legislative weight on DCP provisions adopted by Council and make the Clause 5.21 Flood Planning more specific.
10. DPE to provide a standard flood specific DCP Chapter to allow increased consistency between NSW Councils.
11. Increase NSW Governmental funding for a maintenance contribution towards flood gauges and flood mitigation assets. This will allow further rainfall and water level gauges to be installed in critical areas and improve the overall flood response and community resilience.
12. A more integrated inter-agency approach is required with regard to the preparation of Entrance Management Policies.

Response 4:

Terms of Reference 2c: And to make recommendations arising from the Inquiry as considered appropriate, including on the use of flood gauges and other warning structures and/or strategies for improved flood prediction.

COUNCIL RESPONSE:

As previously mentioned, Council manages a wide network of rainfall and water level gauges across the Shoalhaven LGA. These gauges record real-time data which is accessed using the Enviromon software. Council shares all recorded data, including access to Enviromon, with the NSW SES such that they can also access real-time rainfall and water level information.

To improve the flood prediction capability, on-going work is undertaken by Shoalhaven City Council's Flood Engineers to identify and install new gauges at strategic locations to increase the density of the existing network. There is a need for improved flood forecasting in flash flooding catchments particularly, such as in coastal ICOLL catchments. As a result, Council was recently awarded a federal grant to undertake a scoping study to implement a flash flood warning network in the Burrill Lake, Lake Conjola and Tabourie Lake catchments under the Prepare Australian Communities – Local Stream Program.

Council invests significant amount of capital to install new gauges and to maintain the existing network to ensure its operability. To ensure Council can retain its extensive network over time and to permit a more holistic and proactive flood risk management, additional governmental funding would be highly beneficial.

Council have engaged a consultant to develop flood forecasting models for the Lower Shoalhaven River and St Georges Basin catchments based on flood intelligence produced using the newly developed flood models for these catchments. These models will be shared with the NSW SES and will assist the SES and Council in undertaking real-time flood forecasting of potential flood impacts and significantly improve the proactive flood preparedness and response within these catchments. These models will complement flood forecasts produced by BoM by clearly identifying the expected flood extent and likely impacts that may arise as a result of a forecasted flood level.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

13. Increase NSW Governmental funding for installing new rainfall and water level gauges.
14. Increase NSW Governmental funding for a maintenance contribution towards flood gauges and flood mitigation assets.

15. BoM to include a larger number of catchments in their Flood Warning Service across the State. The BoM issued Flood Warnings are extremely helpful to allow the SES and Council to respond to flood events.



Flooding at Sussex Inlet

Response 5:

Terms of Reference 2e: And to make recommendations arising from the Inquiry as considered appropriate, including on land use planning and management and building standards, including (i) the instruments, policies and programs applying to existing development in flood prone locations across NSW.

COUNCIL RESPONSE:

Refer Council response under e. ii. Which outlines instruments, policies and programs applying to redevelopment of properties.

Council could identify instruments that apply to existing development on flood prone land as identified through a FRMS&P, including for example house raising, voluntary purchase and land swaps.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

16. Refer Council response under e. ii. (Response 6) which outlines instruments, policies and programs applying to redevelopment of properties.

Response 6:

Terms of Reference 2e: And to make recommendations arising from the Inquiry as considered appropriate, including on land use planning and management and building standards, including (ii) the instruments, policies and programs applying to proposed future developments in flood prone locations across NSW.

COUNCIL RESPONSE:

Shoalhaven LEP 2014

Shoalhaven LEP currently includes the standard Clause 5.21 Flood Planning. Council's related flood mapping can be found on Council's Online Flood Mapping which allows for easy viewing and responsive amendments as the flood data changes overtime (rather than waiting for often lengthy LEP housekeeping processes).

Council has also opted into the new Clause 5.22 Special flood considerations and is awaiting finalisation of the Department of Planning and Environment's process to see the clause commence.

The LEP also includes provisions that seek to control/manage development on land that is flood prone, including:

- 4.1E Minimum lot size for certain split zone lots
- 7.2A Stock mounds
- 7.19 Development of the Nowra Civic Precinct

Council has recently received a favorable Gateway determination for a planning proposal which seeks to include a Shoalhaven specific version of the DPE Natural Disaster Clause in the LEP. DPE's standard clause only applied to dwelling houses and secondary dwellings. The rigidity of the DPE Natural Disaster clause has meant that Shoalhaven needed to go through its own process to insert a Shoalhaven suitable clause into the LEP (i.e., rebuilding of any dwelling following a natural disaster). This is not an efficient outcome for the Shoalhaven community and could have been avoided with inbuilt flexibility in the clause and this was requested by Council in the consultation phase of the draft proposal. It also appears to be somewhat inconsistent with the NSW Government's push for resilience. Particulars of Council's proposal can be viewed [here](#). Public exhibition for the planning proposal has concluded.

Council considers the s9.1 Ministerial Directions when preparing a planning proposal, specifically the flood planning direction in the context of this Inquiry. In principle, s9.1 direction and the flood plain manual should set a higher bar (than flooding considerations at DA stage) to ensure that flood-affected land is not rezoned for residential or other at-risk purposes. Recent changes to the flooding s9.1 direction introduced additional considerations, but Council staff have concerns that these are ambiguous, subjective, and too open to interpretation. By comparison, the equivalent s9.1 direction for bushfire prone land sets clearer expectations for rezoning proposals, requires pre-exhibition consultation with the relevant agency (RFS) and is underpinned by the recently revised Planning for Bushfire Protection Guidelines.

There are several areas within the Shoalhaven LGA in which land was historically zoned for urban development either before or during the development of Shoalhaven LEP 2014, prior to the completion of a Flood Study and Floodplain Risk Management Study and Plan (FRMS&P). This has resulted in areas with land zoned for residential development, but due to the outcomes of flood investigations completed at a later date, development in these areas is likely to be inconsistent with the NSW Floodplain Development Manual and Councils DCP provisions. This creates challenges with developers and landowners who argue that the land is zoned for development, and hence this should be allowed. The NSW Government needs to consider how Councils and others handle situations like this, where a development zone already exists in an LEP, and then a Flood Study and FRMS&P are developed in accordance with the NSW Floodplain Development Manual and demonstrate that the flood risk and characteristics are inconsistent with future development. Having a clear approach to deal with situations

like this would help reduce the future risk associated with the potential approval of development in any of these areas.

State Environmental Planning Policies

Flooding is considered in SEPPs in a range of ways. For example, Section 3.5 Complying development on flood control lots in the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (Codes SEPP) allows the consideration of certain residential development on a flood control lot if the development does not result in increased flooding elsewhere in the floodplain. This matter is considered satisfied if a joint report by a professional engineer, specialising in hydraulic engineering, and a professional engineer, specialising in civil engineering, has been prepared that states that the requirements are satisfied. There are no checks and balances in place for the quality of the joint engineering report and no opportunity for peer review, which is of concern when the matter at hand relates to a significant risk such as flooding.

Relying on private certifying authorities to accurately address this section in the SEPP (in a broader sense) can also be problematic.

Development Control Plan

The Shoalhaven Development Control Plan 2014 includes two specific chapters relating to flooding:

- Chapter G9 Development on Flood Prone Land
- Chapter G10 Caravan Parks in Flood Prone Areas

Other area specific chapters of the DCP apply to certain areas in Shoalhaven as well, where necessary.

Council's current flood specific DCP Chapters are currently working well. The ability to provide both Acceptable Solutions and Performance Criteria and Objectives to undertake a merit-based assessment typically results in good outcomes being achieved. It is, however, considered that the DCP provisions do require more legislative weight, particularly where an issue like flooding is being considered. Whilst the LEP has more legislative weight than the DCP, the LEP clauses are relatively general and less specific than would be ideal at times.

Planning Certificates

In accordance with the requirements of the Environmental Planning and Assessment Regulations, all Part 2 Planning Certificates issued in the Shoalhaven LGA advise whether the relevant land is affected by flooding or not (i.e., if there is not enough information to ascertain that the land is affected by flooding). The new Planning Certificate template, understood to be exhibited by DPE shortly, will greatly assist in uniformity and direction relating to flood notations.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

Shoalhaven LEP 2014:

17. DPE amend the Natural Disaster model clause to apply to all dwellings damaged/destroyed by a natural disaster, not just dwelling houses and dwellings, to ensure resilience for all affected dwellings.
18. Provision of greater funding to local councils towards the provision of flood studies to inform contemporary mapping associated with the LEP.
19. That the NSW Government driven Clause 5.22 Special flood considerations process be finalised as soon as possible for those Councils that opted in (e.g., Shoalhaven).
20. Review the Floodplain Manual and the flooding s9.1 Ministerial direction to ensure flooding is given appropriate consideration at the rezoning stage, more equivalent to bushfire planning considerations.
21. The NSW Government consider an appropriate planning pathway for land that has an existing or historic development zone in areas in which a Flood Study and FRMS&P, developed in accordance with the NSW Floodplain Development Manual, has demonstrated that the flood risk and characteristics are inconsistent with future development in accordance with the LEP zoning. This would reduce the future risk associated with the potential approval of development in any of

these areas if this were to occur. This could include for example a government funded 'buy back' scheme.

State Environmental Planning Policies:

22. The complying development pathway should not be available for development on a flood control lot.

Development Control Plan:

23. NSW Government consider placing more legislative weight on DCP provisions adopted by Council, particularly related to natural hazards, and make the LEP Clause 5.21 Flood Provisions more specific.
24. DPE to provide a standard flood specific DCP Chapter to allow consideration of increased consistency between NSW Councils.

Planning Certificates:

25. The Planning Certificate template be exhibited as soon as possible so that it can be considered by councils with suitable notice and exhibition timeframes (at least 6 weeks) to enable reporting as required. Adequate guidance and support (i.e., available staff resources) during implementation should also be provided by DPE.

Response 7:

Terms of Reference 2f: And to make recommendations arising from the Inquiry as considered appropriate, including on appropriate action to adapt to future flood risks to communities and ecosystems.

COUNCIL RESPONSE:

Shoalhaven City Council considers future flood risks during the development of Flood Studies and FRMS&Ps through the inclusion of climate change impacts (sea level rise and increased rainfall). Climate change projections are also considered in the development of Council's Coastal Management Programs (CMPs) and Entrance Management Policies. This ensures that measures adopted in a FRMP have carefully considered the current and future climate flood risks. Adopted FRMPs are reviewed as required to ensure they remain current and appropriate for the catchment situation and community.

Council's DCP clearly identifies development controls which include the impacts associated with climate change. This information is also made available to the community via detailed flood certificates.

Entrance Management Policies for managed river and lake entrances are reviewed as required. Where possible trigger levels for mechanical intervention are increased to appropriately manage the existing flood risk, it also allows the entrance opening regime to better mimic natural processes and hence contribute to the long-term health of these coastal ecosystems. The review of Councils current Entrance Management Policies is a likely outcome from the CMPs, which are currently being developed by Shoalhaven City Council.

Entrance management is challenging for Local Government as these entrances are located on Crown Land, require Councils to prepare an EMP, conduct environmental due diligence through the preparation of a Review of Environmental Factors (REF), and obtain a Crown Licence to manage these entrances. Furthermore, Council is responsible for the mechanical opening of entrances even during flood events in which the NSW SES is the combat agency. The management of these entrances is highly controversial for local communities, and this could be better managed through a more integrated inter-agency response.

COUNCIL RECOMMENDED ACTION TO INQUIRY:

26. NSW Government should provide a guideline with state-wide sea level rise projections based on the latest science, rather than leave it up to local Council discretion to develop their own policies. This results in inconsistent benchmarks across the State, which may impact on the ability for communities to adapt to future flood risks.
27. NSW Government should consider whether the 1% AEP event is an appropriate starting point for the DFE in catchments and whether a higher DFE would be more appropriate for development controls. This would reduce the residual risk associated with catastrophic flood events exceeding the current level of service in which development controls are applied to floodprone land. It is acknowledged that the DPE Floodplain Development Manual (2005) and Flood Risk Management Manual (draft recently exhibited) permit Councils to apply a higher DFE if this is considered appropriate, but a higher DPE is difficult for Councils to apply in practice.
28. Increase funding to the NSW SES to provide for increased capability to respond to severe flood events that exceed the level of service of development controls. This should also consider increasing the number of permanent SES staff.
29. A more integrated inter-agency approach is required with regard to the preparation of Entrance Management Policies.



Flooding at Sanctuary Point Boat Ramp, St. Georges Basin