

17 September 2019

Mr Justin Field MLC  
Committee Chair  
Select Committee on the Proposal to Raise the Warragamba Dam Wall  
NSW Legislative Council  
SYDNEY NSW 2000

Dear Mr Field

## **INQUIRY INTO THE PROPOSAL TO RAISE THE WARRAGAMBA DAM WALL**

The Insurance Council of Australia (ICA) welcomes this opportunity to provide a submission regarding the inquiry into raising the Warragamba Dam wall.

The Insurance Council is the representative body of the general insurance industry in Australia and our members, both insurers and reinsurers, are a significant part of the financial system, providing protection for individuals and businesses.

Flood insurance was introduced in 2007 by the industry and is priced based on risk. Those with a higher exposure to damaging floods do experience elevated premiums. In some Hawkesbury Nepean locations with extreme flood exposures, insurance with flood cover included can be four or five times more expensive than the national median.

The presence of exposed communities on this significant floodplain is a historical legacy, one that cannot be relocated or removed. However, the flood exposure these communities face can be significantly reduced, in some cases entirely negated, through permanent mitigation.

### **The Hawkesbury Nepean Floodplain**

Insurers describe the existing flood risk on the Hawkesbury Nepean floodplain as the most significant and unmitigated community flood exposure in the country.

The lack of mitigation for populated sections of the floodplain presents a tangible community safety risk, notwithstanding the commendable work undertaken by the NSW Government to improve flood warning and evacuation processes over the last two years.

Should a serious weather event occur in the near future, the currently unmitigated flood exposure will still lead to significant community impacts and threaten life safety in many locations. This exposure is able to be removed, or greatly reduced, through government action on permanent mitigation controls.

General insurers view flood risk through the lens of potential property damage, forecasting the probability and cost of claims likely to arise, and then translating those factors into risk-based insurance premiums.

Using this lens and with the value of hindsight there are many other legacy decisions regarding development on floodplains in NSW that would not be approved under today's planning regulations. However there are none more significant than the Hawkesbury Nepean.

### **Limiting exposure growth and reduction of the existing risk through mitigation is key**

The decisions of the past to construct properties in these exposed locations is, unfortunately, one that can now only be dealt with effectively by government action on permanent effective mitigation options, reducing the exposures to those communities.

A decision to protect existing communities through mitigation should be accompanied by policies to not increase the unmitigated exposure through further inappropriate development on Sydney's western floodplains.

### **Mitigation options – the general insurance perspective**

In 2015 the Hawkesbury Nepean Taskforce requested the ICA to provide comment on the relative merits, from an insurance premium perspective, that could be achieved for residents of the Hawkesbury Nepean Valley if either of two mitigation scenarios were to be implemented by government.

To facilitate the analysis, government provided flood mapping to the ICA depicting the flood footprint and depth as it exists today, as well as flood information depicting the change in footprint and depth that could be anticipated to occur if each mitigation option was implemented respectively.

The premium outcomes of each of the mitigation options have been assessed by the ICA in terms of how the Average Annualised Damage profile would be altered and how many properties would potentially receive a benefit.

### **Average Annualised Damage (AAD) vs Retail Premiums**

The results of the analysis were expressed in terms of AAD, used as a proxy for the flood technical premium and is suitable to indicate the magnitude of potential changes to the flood technical premium as a result of mitigation, that may be possible from some insurers.

The flood technical premium is typically inclusive of predicted repair and rebuild costs, temporary accommodation, post-event inflation and other direct economic costs arising from predicted flood damage.

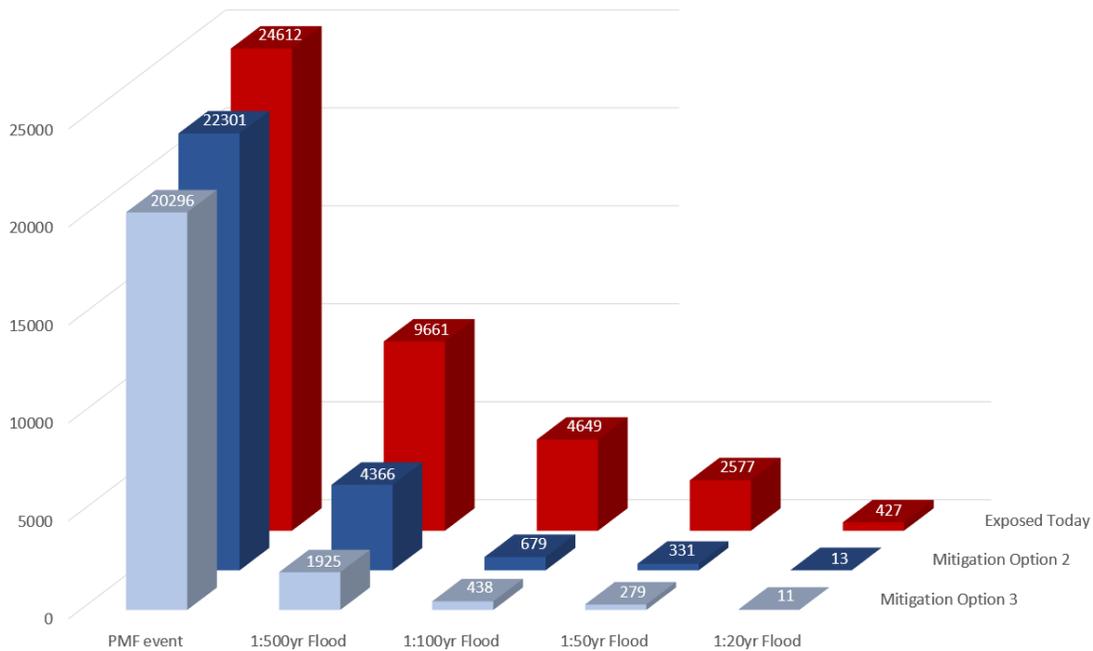
Those considering the analysis should be careful to note that the flood technical premium is not the retail premium ultimately offered to a customer. Putting aside the technical premiums for other natural hazards that may occur and that are necessarily added into the retail premium, there are also a number of market and customer relationship factors that can significantly alter how the retail premium is offered to market.

### **Reductions in the number of properties that experience over-floor flooding**

Reducing flood levels so that flood water does not enter the liveable space of a dwelling can significantly reduce the predicted damage.

The mitigation options presented to the ICA were first analysed to determine how many properties would no longer have over-floor flooding and would therefore be likely to receive a reduced technical flood premium.

The chart below captures the reductions in the number of impacted properties for each scenario.

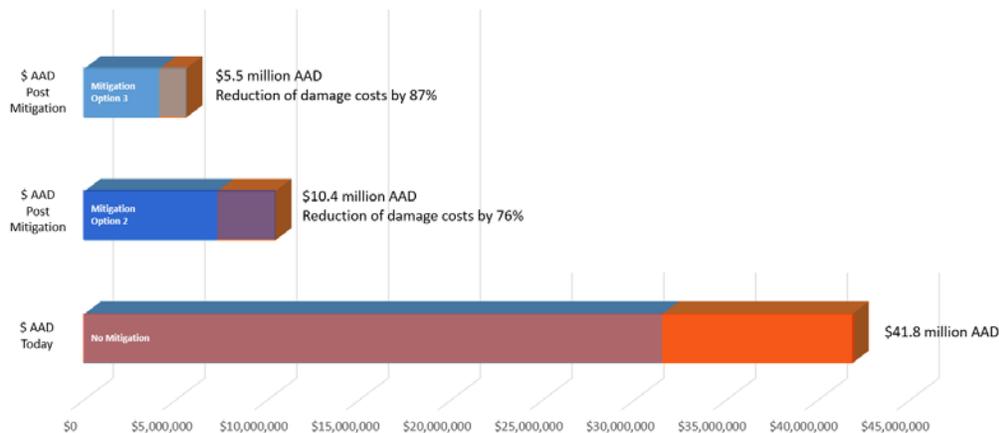


Under Mitigation Option 2, there is a **34% reduction** in the number of properties exposed to over-floor flooding.

Under Mitigation Option 3 there is a **45% reduction** in exposed properties.

### Reductions in Average Annualised Damage

By reducing the number of properties exposed to over-floor flooding, as well as the depth of flooding for other homes where flooding may remain unpreventable (but reducible), it follows that the AAD under each scenario will be reduced. The chart below captures how the AAD is reduced under each mitigation scenario.

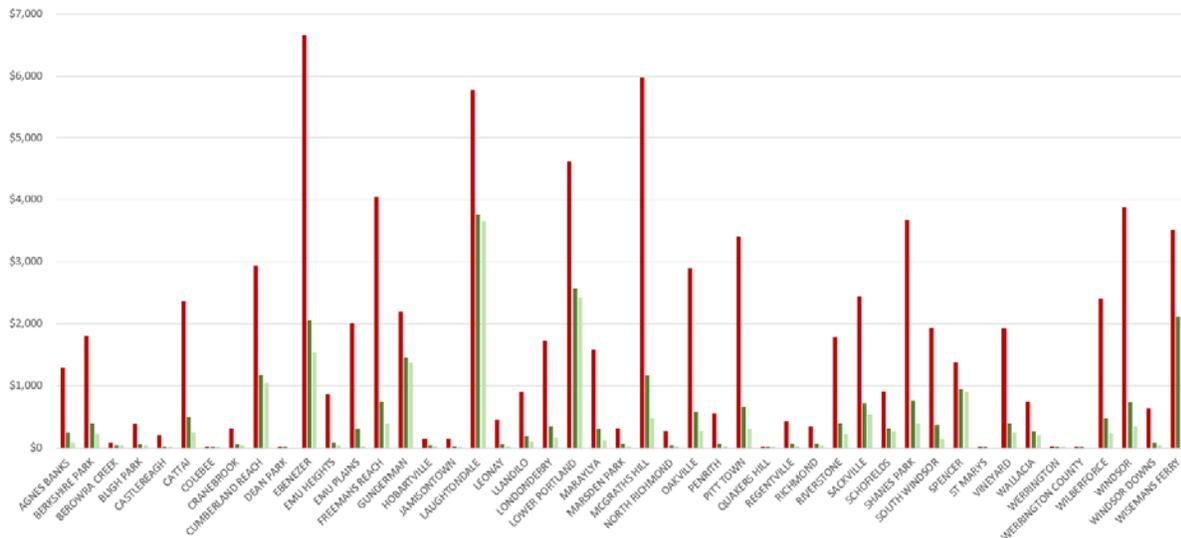


Under Mitigation Option 2, there is a **76% reduction** in Average Annualised Damage for the region.

Under Mitigation Option 3 there is an **87% reduction** in Average Annualised Damage for the region.

Reductions in Average Annualised Damage are more significant for particular locations

The chart below summarises the reductions in AAD on a suburb basis within the region. Whilst all areas would enjoy reductions there are some in particular that would benefit significantly.



### Consideration of other mitigation options

The construction of permanent fixed flood mitigation is expensive and can have secondary environmental effects. The cost benefit analysis for fixed mitigation should always be accompanied by rigorous assessment and consideration of these potential impacts.

In some circumstances a modicum of mitigation benefit can be obtained through adaptation of existing mitigation structures, changes to processes or removal of those assets and individuals from the floodplain who can not be reasonably protected.

The ICA's high level analysis of the current mitigation benefits able to be achieved through changes to operation of Warragamba Dam, by reducing its holding capacity to accommodate flood water in lieu of constructing a flood compartment on top of the existing potable water storage capacity, indicates that:

- the mitigation benefits of doing so are negligible,
- the impacts on Sydney water supply capacity is significant and would need to be addressed through other processes like desalination, and
- a focus on 'at the time' process based mitigation leads to significant uncertainty for insurers compared to permanent and fixed mitigation that requires no human decision making and intervention, this would have less compressive impact on current insurance premiums in the region.

### **Environmental considerations**

ICA supports consideration of the environmental impacts of the proposed raising of the Warragamba Dam. However we are concerned that there may be significant misunderstanding or overestimation in the community with respect to how the mitigation may impact the surrounding landscape.

The proposed mitigation involves raising the existing dam wall by 14 metres to create a flood mitigation zone. ICA understands that this zone is not intended to be used for water storage and appropriately drafted legislation should ensure this does not occur. Therefore, the proposed flood mitigation zone (upstream from the dam) would only ever be fully inundated during a significant event, when the alternative to the proposed mitigation is catastrophic flooding of the Hawkesbury Nepean Basin.

ICA estimates that this could occur at a probability of 0.2% in any given year, or in colloquial terms 'rarely'. This low probability contrasts sharply with the probability of flood for many residents of the valley where the risk is 25 times more likely to occur, a fact signalled through higher flood premiums.

### **Conclusion**

The ICA is of the view that the reduction of the flood risk in Western Sydney is of paramount importance to the community.

Decisions that could lead to rare flooding of environmental resources are fundamentally regrettable to all but must be balanced against the greater community need. Where sound analysis shows that there are no reasonable alternatives, those difficult decisions must be made in a timely fashion in order for work to commence in time for lives to be saved and property protected before the next serious flood event.

The general insurance industry stands ready to recognise any permanent reduction in the current acute levels of flood risk, as it has done in other states who have taken action, through lower insurance premiums for the community.

If you would like to discuss this submission in further detail, please contact Karl Sullivan, the ICA's Head of Risk and Operations, on (02) 9253 5121 or via email at [ksullivan@insurancecouncil.com.au](mailto:ksullivan@insurancecouncil.com.au).

Yours sincerely



Robert Whelan  
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