



FRIENDS OF FERNHILL AND MULGOA VALLEY INC.

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Our goals are to “safeguard Fernhill Estate and ensure protection, through legislation, of the Mulgoa Valley as an area of outstanding cultural and natural significance to NSW”.

The Mulgoa Valley includes the Wallacia floodplain where there is the potential for floodwaters from both the Warragamba and Nepean Rivers to back up due to the constrictive effects of the gorges between Wallacia and Penrith.

Submission – Warragamba Dam Raising Project – SS8441 – Friends of Fernhill and Mulgoa Valley Inc. Mulgoa 2745

FFMV Inc. opposes the current NSW Government plans to raise the Warragamba Dam wall 14 metres.

What we have been told

By raising the Dam wall, the project aims to provide flood mitigation to reduce the existing risk to life and property in the Hawkesbury-Nepean Valley downstream of the dam. There would be no change to the existing maximum volume of water stored for water supply.

Problems with raising the wall

There is one major problem with this strategy: in a major rain event, **the higher dam wall will still not be nearly enough to protect the flood plain.** It will only work for smaller amounts of rain. If a flood similar to the record-setting 1867 flood occurred today, the estimated damage across the valley would be \$5 billion, and it would take six months or more to restore critical infrastructure. Raising the dam would not prevent this damage. Raising the dam might be useful for other reasons, but it **won't solve the problem of badly located development.** We have to face the fact that 134,000 people are living and working in the Hawkesbury Nepean Valley flood plain today, and they are living with a severe risk (The Sydneysider committee@sydney.org.au).

We are told that there are plans for that number to double in the future. Around 60,000 of the 134,000 would need to evacuate in the event of a major flood. And the current evacuation arrangements cannot guarantee that these thousands of residents would be able to safely evacuate due to poor flood evacuation infrastructure. It would take months to restore infrastructure services, not to mention rebuild the property and livelihoods that would be affected (Committee for Sydney).

The Bureau of Meteorology can provide *'around eight to 15 hours warning ahead of a flood reaching a certain height'*... The Government also states that: *"current road capacity is insufficient to evacuate all residents impacted by large floods in the area within this warning time, which would force the NSW State Emergency Service to order mass evacuation on uncertain flood forecasts."*

WaterNSW estimates that only about half the water in the Hawkesbury Nepean system comes from the Warragamba spill. The remainder may come from other tributaries, including the upper Nepean River and the Grose River. Effective flood mitigation requires that the timing of any Warragamba spill be such that it does not coincide with peak flows from these sources. There is another important source of water to the river, which might easily be overlooked, and for which timing is also very important. This is the urban runoff from highly built-up areas such as Penrith and now increasingly from housing estates in the Nepean catchment area such as Oran Park and in future, the Aerotropolis. Like spills from Warragamba, the timing of urban runoff will determine the significance of these flows in contributing to flood peaks. By increasing urban density in western Sydney, we could easily further exacerbate the flood risks for the region.

So why rise the dam wall?

Negative effects of raising the Dam wall

- **A UN report assessing the state of the Blue Mountains' World Heritage listing has raised concerns about the proposed raising of the Warragamba Dam.**
- According to WaterNSW any inundation of the area upstream of the present Lake Burragorang is only supposed to be temporary. But this temporary inundation could mean the area flooded will be permanently damaged.
- Based on WaterNSW published flood levels, up to 4,700 hectares of the World Heritage listed Blue Mountains National Parks and 65 kilometres of wilderness streams would be inundated by the 14-metre dam wall raising.
- The resulting inundations of the Kowmung and surrounding rivers will decimate the ecological integrity of this wilderness and threaten the survival of 48 endangered plant and animal species
- Wild rivers in New South Wales are declared within national parks and other reserves and are protected under the *National Parks and Wildlife Act 1974* (NPW Act).
- The Burragorang Valley, located within the Warragamba Dam-raising footprint, is considered a key site for the conservation of the Regent Honeyeater into the future. The vast majority of the few remaining Regent Honeyeaters now breed around the edges of the Greater Blue Mountains, and we must protect every breeding site, especially those situated inside a World Heritage-listed National Park.
- The lower Nattai Valley is home to one of Sydney's refuge koala populations. The valley will be inundated by the raising of the Warragamba Dam wall raising.
- The Project would result in construction works, temporary inundation of natural areas upstream of Warragamba Dam and change downstream flow regimes, resulting in potential impacts on Aboriginal cultural values.
- Raising the Dam wall will desecrate this indigenous culture. To find so many Aboriginal cultural sites (a shelter with art, deposit, artefacts and axe grinding grooves) 50 or 60 m above the original river level in the Burragorang Valley is remarkable and indicates what an important environment for Aboriginal people the Burragorang Valley was. A parliamentary inquiry into the destruction of the Juukan Gorge rock shelters has recommended new laws to protect thousands of sacred sites across Australia. The report said the Commonwealth

should override decisions made under "inadequate" state or territory laws that could destroy sites of great value to Aboriginal and Torres Strait Islander people.

- The cultural significance for Gundungurra people of the Camden White Gum which will be affected, must be taken into account.

FFMV opposes the current NSW Government plans to flood the magnificent Blue Mountains World Heritage Wilderness by raising the Warragamba Dam wall 14 metres.

- The principal role of Warragamba Dam is to provide a secure and reliable source of potable water for residents of Sydney. Lake Burragorang and the catchment that supplies water to it have important parts to play in serving this role. In compliance with the Australian Drinking Water Guidelines and the Framework for Management of Drinking Water Quality, it is essential that Warragamba be managed and maintained in a manner that reliably produces high quality drinking water and minimises water quality risks to public health. The potential water quality impacts of a large new flood mitigation area should be taken very seriously (Prof Khan, UNSW, 2019. Inquiry Into Proposal to Raise the Warragamba Dam Wall, Submission 349.).
- Reducing the flood risk to the current community will almost inevitably result in an increase in the population living in the flood plain. This increases the complexity of the problem in the event of future floods. Legislating to prevent further development in the flood prone areas, without future revision or amendment, would overcome this issue. The Hawkesbury-Nepean Valley Flood Management Strategy evaluated the flood risk in these areas and established a management framework to reduce the level of flood risk in the Hawkesbury-Nepean Valley. One of the key outcomes of the study was the application of a Probable Maximum Flood Level (PMF) which currently applies to significant tracts of land around Penrith Lakes and central Penrith as well as land south of Mulgoa and within the South Creek catchment. The **Penrith Local Housing Strategy (2019) shows that 14,000 people may be living on the Penrith Lakes Scheme by 2036:**

Table 9 – Population forecast by suburb

Area	2016	2021	2026	2031	2036	Change 2016 - 2036
Penrith Lakes	13	1,012	4,934	9,579	13,779	+13,766

- WaterNSW has stated (Warragamba Dam Raising webinar #4, 27 October 2021) that the cost for raising the dam wall cannot be estimated properly, paving the way for a dubious project with an open-ended budget.

Alternatives to raising the dam wall

We need a plan that sets a clear vision and action plan for how the Government will reduce the number of people at risk to floods across the Hawkesbury-Nepean Floodplain. Through zoning, tradeable development rights, and upgrading evacuation routes, and greater use of desalination,¹ the plan could reduce the risk to current residents and stop adding risks to new residents and through a buy-back policy, provide a safety net for those unable to afford insurance, or to rebuild post-disaster, to exit the floodplain.²

¹ Turner, A., Sahin, O., Giurco, D., Stewart, R. and Porter, M. 2016. J. Cleaner Production 135:342-355. The potential role of desalination in managing flood risks from dam overflows: the case of Sydney Australia.

² Committee for Sydney <https://sydney.org.au/wp-content/uploads/2021/11/Committee-for-Sydney-Warragamba-Dam-To-Raise-or-Not-June->

The Committee of Sydney has proposed:

- **Create a map of the floodplain identifying areas of high, medium and low risk**, and a long-term vision for reducing the risk to life and property across the floodplain. Led by local government and agencies like the Western Parklands City Authority and Resilience NSW, this vision would identify a pathway to reducing existing risk hotspots, identify where evacuation infrastructure needs to be enhanced, and replace planned development in the floodplain with opportunities to re-establish market gardens and recreation uses.
- **Introduce ‘transferable development rights’ style approach to land on floodplain.** This approach would build on the Norfolk style map to help each local government area identify where increased density would be acceptable – in areas of the floodplain where development was targeted for reduction, developers could buy existing residential lots and transfer that development potential (or existing use). Effectively this mechanism would act, over time, to redirect development from areas of high risk to areas of low risk and planned growth.
- **Establish a voluntary purchasing scheme that supports residents to move out of the way of the floods.** Scaling back development in the floodplain would move people out of harm’s way and reduce growing pressure on our emergency services agencies. Funded by state government, this scheme would provide a mechanism for residents to sell flood risk properties to the government at market rates, transferring ownership into Landcom or to be managed consistent with designated land uses.
- **Strengthen evacuation infrastructure.** There is no practical means to protect existing building structures in the Hawkesbury-Nepean floodplain against damage from either water depth or velocity in severe floods. We need evacuation routes to reduce risk to life and increase the time for people to leave, recognising this is purely a safety measure for existing populations rather than an enabler of additional development potential.

Professor Pittock of ANU³ has proposed the NSW Government should consider four alternative options to raising the dam wall to reduce flood risk, namely:

1. **Provide alternative flood storage in Warragamba Dam by lowering the full storage level of Warragamba Dam by 12 metres to free 795 billion litres of airspace for flood control;**
2. Stop putting people in harm’s way in housing developments on the floodplain and instead promote flood resilient land uses like farming, recreation and conservation.
3. Improve evacuation routes and flood forecasting.
4. Relocate the most flood prone residents.

Upgrading evacuation roads can reduce the exposure of the population to flood risk but will not change the probability or extent of flood events. Some evacuation routes are already at capacity, leading the relevant Minister to hold back development in places like Marsden Park North until this human safety issue is resolved. Penrith City Council’s independent modelling suggest that the Castlereagh Connection as an evacuation road has substantial cost benefit. It is worth noting that the corridor is largely in government ownership (almost 90%) with long standing acquisition clauses on the remaining part portions. This corridor has been earmarked since 1951 for future road needs

[2021.pdf#:~:text=Warragamba%20Dam%3A%20To%20raise%20or%20not%20to%20raise%E2%80%A6,from%20higher%20water%20levels%20upstream%20of%20the%20dam.](#)

³ Managing flood risk in the Hawkesbury – Nepean Valley A report on the alternative flood management measures to raising Warragamba Dam wall. September 2018.
Prof J Pittock 2019. Inquiry Into Proposal to Raise the Warragamba Dam Wall, Submission 364

in the Western Sydney region and, in Council's view, is required to service existing and future population movement and integrate with current and planned road and rail infrastructure.

There is a strong argument to buy back about 5,000 to 7,000 homes in western Sydney – not all of the 55,000 to 77,000 that are estimated to need to evacuate during a one in 100-year flood event (Committee for Sydney).

The Insurance Council of Australia has dropped its support for the government's plan to lift the Warragamba Dam wall and called on it to find other ways to reduce flood risks in the Hawkesbury-Nepean valley.⁴

The cross-parliamentary inquiry committee's report, which had unanimous bipartisan support, states there is "... significant doubt over whether raising the dam wall could minimise both downstream flood risks and upstream impacts." in contrast to information presented at the WaterNSW webinar. The committee also found the need for increased transparency in the environmental impact study.^{5,6}

Concluding Remarks

FFMV Inc. opposes raising of the dam wall and suggests more positive flood mitigation action be taken by implementing proposed alternatives to mitigating flooding risks, as proposed by others cited above.

The raising of the Dam wall will not alleviate flooding of the southern Mulgoa Valley at Wallacia. With an anticipated 500 truck movement per day through Wallacia during the proposed construction phase of the dam wall, the peaceful villages of Wallacia and Mulgoa will be destroyed. FFMV deplores the potential effects on biodiversity and Aboriginal sacred sites in the Burragorang Valley and the slanted, if not deceptive, presentation of arguments of WaterNSW in support of raising the dam wall.

Michael Barkley PhD
President, Friends of Fernhill and Mulgoa Valley Inc.
23rd November 2021

⁴ Anon. 22 February 2021. ICA ends support for Warragamba Dam wall plan.

⁵ Angus Taylor SMH 5 Oct 2021, <https://www.smh.com.au/national/nsw/nsw-coalition-members-urge-alternatives-to-raising-warragamba-dam-wall-20211005-p58xh1.html>

⁶ Proposal to raise the Warragamba Dam wall, Interim Report. Report 1 - October 2021. NSW Parliament Legislative Council Select Committee on the Proposal to Raise the Warragamba Dam Wall. 90 pp.