



Resilient Valley, Resilient Communities

Hawkesbury–Nepean Valley Flood Risk Management Strategy



Land use in the floodplain

Frequently asked questions

Why is the flood risk so high in the Hawkesbury-Nepean Valley?

The high flood risk in the Hawkesbury-Nepean Valley arises because floodwaters from 5 major tributaries flow into 1 river system which is constrained by narrow downstream gorges. This unique geography causes floodwaters to back up across deep and broad floodplains across the valley — known as the ‘bathtub’ effect.

The floodplain is home to a large existing population potentially impacted during floods. Around 140,000 people currently live or work in the floodplain. This is a legacy of development that has taken place over more than 200 years.

It is this combination of flood likelihood and exposure of a large population that makes the risk so high. With the predicted impacts of climate change, flood depths and rates of rise are expected to increase in the Hawkesbury-Nepean by the middle of this century.

How does the NSW planning system respond to flood risk?

Flood planning undertaken by the Department of Planning, Industry and Environment (DPIE) considers the residual risks of developing on a floodplain up front in decision-making processes.

State and local government have a number of key policies and controls in place to help manage the risk of and impacts from floods.

Development on floodplains in NSW is undertaken in accordance with the [Flood Prone Land Policy](#) and the principles set out in the NSW Government’s Floodplain Development Manual, 2005. The primary objective of the NSW Flood Prone Land Policy is to reduce the impact of flooding on owners and occupiers of land and property, to ensure safety to life and to reduce private and public losses resulting from floods wherever possible.

The Policy provides flexibility in guiding development applications and proposals for rezoning of flood prone land, recognising that even though land is still flood prone it may be able to support some forms of development depending on the level of flood risk.

In July 2021, the Minister for Planning and Public Spaces commenced the Flood Prone Land Package to enable councils across NSW to have more flexibility to make informed decisions on land planning and development controls in flood-prone areas, giving them greater ability to manage the risk of extreme flooding. The package:

- supports better management of flood risk beyond the 1 In 100 chance per year flood
- promotes best management practices in managing and mitigating severe to extreme flood events, and
- builds greater resilience in communities and reduces potential property damage and loss of life in recognition of increasing extreme flood events throughout NSW.

You can access frequently asked questions about the Package [here](#).

What are the current NSW flood-related planning controls for residential development?

The ‘flood planning level’ for residential development is typically based on 1 in 100 (or 1%) chance per year flood. For land below this level, new residential development in high flood-risk areas may be prohibited or not approved.

Flood related development controls are applied to residential developments located below the flood planning level. The controls relate to risk to life and property damage and may include minimum floor levels and building requirements to reduce flood risk. Councils' local environmental plans and development control plans, as well as the Sydney Region Growth Centres State Environmental Planning Policy 2006, contain flood-related controls for developments on flood-prone land.

How is the planning system responding to the unique risks in the Hawkesbury-Nepean?

The Hawkesbury-Nepean Valley is unique in terms of its flood hazard, large existing population, major population centres potentially inundated and/or isolated, future population pressures, and evacuation constraints. Development in the floodplain needs to be carefully managed, now and into the future.

Actions are being developed that take a strategic, floodplain-wide approach, integrating flood risk with the land use potential which will set a settlement pattern for the Hawkesbury-Nepean Valley.

- The [Western City District Plan](#) and [Central City District Plan](#) set out a series of principles for land-use planning in the Hawkesbury-Nepean Valley floodplain. These principles guide both strategic planning and development decisions, such as avoiding intensification and new urban development on land below the 1 in 100 chance per year flood.
- In addition, DPIE is leading development of a Regional Land Use Planning Framework to take account of the impacts of growth across the floodplain. The framework will help improve the resilience of the valley to floods, including managing the impact of cumulative growth on road evacuation capacity and risk to life, and developing flood-resilient building controls.

Through a better understanding of the flood risk, development in the valley can be managed while not increasing the risk to life or property damage.

Why are additional flood planning control measures being considered for the Hawkesbury-Nepean?

The 1 in 100 (or 1%) chance per year flood planning level may be suitable for many NSW floodplains, where the difference in flood depth between the 1 in 100 chance per year flood and the largest possible flood (known as the probable maximum flood or PMF) is relatively small, typically less than 2m.

Given the Hawkesbury-Nepean Valley's unique nature - for example, the largest possible flood in Windsor could be around 9m above the 1 in 100 chance per year flood level - the NSW government is taking a more targeted, risk-based approach for the floodplain.

How is land use planning being integrated with road and emergency planning?

The Regional Land Use Planning Framework will respond to new region-wide flood and evacuation modelling and analysis. A purpose-built flood evacuation model has been developed by Transport for NSW with support from the NSW State Emergency Service, Infrastructure NSW and an international team of experts led by the CSIRO's Data61. A companion document to the Land Use Planning Framework is being prepared by Transport for NSW, providing flood resilience guidelines for road transport planning in the Hawkesbury-Nepean Valley. These frameworks and guidelines will support more integrated land use, road and evacuation planning, now and into the future.

Will flood planning controls be lowered if Warragamba Dam is raised for flood mitigation?

No. Should the Warragamba Dam raising be approved and built, areas within the Hawkesbury-Nepean Valley currently subject to flood-related development controls would remain subject to these controls. This would have the effect of a raising the flood planning level to around 1 in 600-700 chance per year and help ensure the benefits of the dam raising would be maintained over time.

Is the Warragamba Dam Raising proposal about increasing development in the floodplain?

No. There is a very substantial flood risk now facing the current population, homes and businesses in the Hawkesbury-Nepean floodplain. For example, if a flood similar to the valley's worst since European settlement happened again now, hundreds of lives would be in danger, around 90,000 people would need to be evacuated, and more than 15,500 homes would be impacted.

This existing risk needs to be addressed and the proposal to raise Warragamba Dam to provide flood mitigation has been assessed by the NSW Government as the most effective infrastructure option to achieve that.

How is development in the Penrith City Centre being managed?

DPIE is working closely with Penrith City Council, Infrastructure NSW, Transport for NSW and NSW State Emergency Service to deliver an Adaptive Management Framework to manage the flood evacuation risk for development within the Penrith City Centre. This Framework directs future planning decisions to ensure development is within the capacity of the regional evacuation routes. This is consistent with the NSW Government's policies to create a resilient Hawkesbury-Nepean Valley. The NSW Government has prepared the 'Development Assessment Guideline: An Adaptive Response to Flood Risk Management for Residential Development in the Penrith City Centre' so that future development does not impact on the safe evacuation of the community from the area in a flood.

Does the Penrith Lakes Scheme provide flood mitigation?

It has been suggested the Penrith Lakes Scheme will provide significant regional flood mitigation benefits. The ability of the lakes to mitigate floods in the Hawkesbury-Nepean Valley is very limited. In a major flood, the lakes would have little effect on the rise and fall of the flood and almost no effect on the downstream flow. It's also important to note that evacuation downstream of Penrith Lakes is likely to have been triggered before floodwater starts entering the lakes.



For more information about flooding in the Hawkesbury-Nepean Valley, visit www.myfloodrisk.nsw.gov.au

For more information about the Flood Strategy, visit www.insw.com/flood-strategy