Transport for NSW

Frequently Asked Questions

Hawkesbury-Nepean Valley
Flood Evacuation Road Resilience Program
July 2024

Australian Government

NSW GOVERNMENT

Transport for NSW acknowledges the Dharug people as the Traditional Custodians of the lands on which we work and pays respect to Elders past and present.

About the program

What is the Hawkesbury-Nepean Valley Flood Evacuation Road Resilience Program?

The Hawkesbury-Nepean Valley Flood Evacuation Road Resilience Program (the program) seeks to address risk-to-life by preventing early closure of evacuation routes due to local/flash flooding.

The program aims to:

- improve road resilience through targeted drainage improvements and road raisings on the road network to better withstand local flash flooding
- increase the road evacuation capacity during major flood evacuation events.

The program proposes over 100 improvements across the Penrith, Hawkesbury, The Hills and Blacktown local government areas.

Where are the improvements located?

The evacuation routes that have been identified for improvement include Castlereagh Road, Londonderry Road, The Northern Road, Llandilo Road, and Pitt Town. Several roads that connect to these evacuation routes and others have also been identified for improvement.

What are the improvements?

Our work will raise some road sections and improve drainage at key low points to make the road network more resilient to flash flooding and stay open for longer.

To help increase road capacity during major flood events, shoulder widening will provide a second evacuation lane during emergency flood evacuations.

To make the evacuation routes work better, improvements are proposed at some intersections with congestion issues that could delay evacuation of residents from flood affected areas.

The program also proposes a new bridge to keep an evacuation route open for longer, in the event of localised flash flooding.

How have the proposed improvements been developed?

A review of the flood risk in the Hawkesbury-Nepean Valley (the Valley) identified options to improve the flood evacuation road network.

Following extensive flood modelling and consultation with key stakeholders including local councils, the NSW SES and NSW Reconstruction Authority, over 100 improvements were identified as priority projects that would provide the best benefits to the flood evacuation road network, making it more resilient to flooding.

Why is the program required?

There are evacuation constraints and complexities in the Valley, this means during major flooding events it's not possible to safely evacuate the whole population on time.

Across the Valley communities rely on common roads to evacuate, resulting in constrained and congested flood evacuation roads during flood events.

Many roads across the area have low points and are cut off before the higher inhabited areas are inundated creating flood islands. This isolates population centres, potentially placing people at risk.

Additionally, social research indicates there is low community flood awareness in the Valley, which can increase the risk to life in floods as people may delay or refuse to evacuate, drive through flood waters or sight-see in flood areas.

There is a growing urban population in the Valley, up to 134,000 people live and work on the floodplain potentially requiring evacuation.

The population is forecast to double over the next 30 years.

Why the Valley?

The Valley covers over 500 square metres from Bents Basin, near Wallacia, to the Brooklyn Bridge.

The Valley has the highest flood exposure in NSW because of its unique landscape and large existing population. Floods in the Valley can be deep and extensive, and can have a significant impact on people's lives, livelihoods and homes.

When will the program be delivered and what is the budget?

We are continuing to work on environmental assessments and designs for improvements to flood evacuation routes through to 2025.

The NSW and Australian Governments have committed $33 million towards planning for more than 100 improvements that will make the Hawkesbury-Nepean Valley flood evacuation road network more resilient to flooding.

Delivery of the program is subject to further funding approval through an investment decision by the NSW Government to progress to the detailed design, construction, and delivery stages.

When can community provide feedback?

The Review of Environment Factors (REF) for proposed improvements on The Northern Road and Londonderry Road Flood Evacuation Routes is currently on public display. Members of the community are invited to provide feedback on the REF until 20 August 2024.

We are continuing to work on environmental assessments and designs for other flood evacuation routes. We will engage with local communities further as we progress, including the opportunity to provide feedback on the design.

What else is being done to address the issue of flooding in this area?

The NSW Government is currently developing a high-priority regional Disaster Adaption Plan to address flood risk in the Hawkesbury-Nepean Valley.

The NSW Reconstruction Authority (NSWRA) recently completed the 2024 Hawkesbury-Nepean River Flood Study, one of the most comprehensive flood studies undertaken in Australia.

The new Study will inform the Disaster Adaptation Plan currently being developed by the RA to address flood risk in the Valley.

What is the Disaster Adaptation Plan (DAP)?

There is no single solution to managing or reducing the Valley's high flood risk. NSW Reconstruction Authority is developing a Disaster Adaptation Plan that will include a suite of integrated measures to reduce risk where possible and adapt where the risk cannot be adequately reduced.

Transport for NSW's Flood Evacuation Road Resilience Program will progress along with the DAP, which may also identify potential additional evacuation improvements for the Valley.For more information on the DAP, visit: www.nsw.gov.au/reducingrisk/dap

What is the Flood Study?

The Valley is an incredibly complex floodplain with one of the highest flood risks in Australia. Up-to-date technical information is critical for community safety, evacuation and emergency management, as well as land use planning and infrastructure investment prioritisation.

Subject to two independent reviews and including 12 technical reports, the Flood Study is a leading example of best-practice scientific analysis. The NSWRA used new technology to model how water moves through the Valley and provide high resolution flood level, depth and velocity data to better understand flood risk. More than 20,000 different scenarios were analysed, and the work was informed by and tested against recent flood events in the Valley.

The Flood Study is considered the most up-to-date and reliable source of flood information for

the Hawkesbury-Nepean River and should be used to inform all flood-related decision making from June 2024.

To find out more and view the Flood Study, visit https://www.nsw.gov.au/departments-and-agencies/nsw-reconstruction-authority/our-work/hawkesbury-nepean-valley-flood-risk-management

What about the Flood Strategy?

The Resilient Valley, Resilient Communities – Hawkesbury-Nepean Valley Flood Risk Management Strategy (Flood Strategy) was released in 2017.

The Flood Strategy is the result of years of investigation into the best ways to reduce impacts of flooding in the Valley. It uses a regional approach as floods from the river system cover a wide area, with impacts felt in eight local government areas.

How does the program fit in with the DAP?

The NSW Government continues to deliver the Flood Strategy, together with local councils, businesses and the community, while the DAP is being developed.

The program is a deliverable under the 2017 Flood Strategy Outcome 8 – Adequate Local Roads for Evacuation, which identified the need to deliver a resilience roads package to maintain and upgrade local evacuation roads to ensure access to major regional evacuation routes. Local flood modelling and technical assessments were undertaken to identify and prioritise appropriate road upgrades for the package. A strategic-level business case has been developed for NSW Government consideration.

The other Flood Strategy outcomes which were led by Transport are:

- **Flood Evacuation Model:** coordinating the development of a regional evacuation model that identifies the flood evacuation capacity requirements for different areas in the Valley
- **Regional Evacuation Road Master Plan (Retitled Guidelines)**: Developing Regional Evacuation Road Guidelines that identifies the flood evacuation road network design requirements for the Valley
- **Evacuation Route Signage**: Design and rollout of flood evacuation road signage across the regional evacuation routes in the valley (completed in 2018).

How is Transport engaging with community on this program?

Transport has been doing planning work on the Hawkesbury-Nepean Valley Flood Evacuation Road Resilience Program for several years.

There has been ongoing engagement with key stakeholders including Penrith, Hawkesbury, Blacktown and The Hills Shire councils and other government agencies.

In 2022, Transport advised community of upcoming investigation work to inform the concept design and provided a further update on the program in October 2023.

In July 2024, Transport announced the public display of the Review of Environmental Factors for the proposed improvements along The Northern Road and Londonderry Road evacuations routes. At the end of the REF display period, we will publish a submissions report on the project website. The report will include a summary of the community feedback received on the proposal and our responses.

How will the program address local flooding?

Program investigations have identified low points in eight major flood evacuation road routes in the Valley which can be potentially cut off during heavy rainfall.

Potential work being investigated along flood evacuation routes are:

- road shoulder widening
- minor road raising
- upgrades to existing culverts
- new drainage culverts and pipes
- new vegetated and concrete drainage channels.
- minor intersection upgrades to reduce evacuation congestion (pinch point improvements)
- a new bridge

Can some parts of the program be completed and result in a faster evacuation?

No, when flooding occurs, it is likely to be widespread across the Valley and the flood evacuation routes to higher ground share a

common road system. For example, The Northern Road is a key regional evacuation route for Richmond, Windsor, Londonderry and parts of Penrith. Completing an individual project or road section will not improve the evacuation time or reduce flood risks as traffic blockages or constraints will be moved further along the route.

Moving traffic blockages or constraints further down an evacuation route may create greater congestion and may potentially increase the potential for loss of life.

Why is the program a critical initiative? The program is critical due to the following reasons:

The Valley has the highest flood exposure in NSW

The unique geography in the Valley affects the extent and depth of flooding in the region. Most river valleys tend to widen as they approach the sea. The opposite is the case in the Valley, which means floodwaters flow into the valley more quickly than they can flow out, causing them to back up and rise rapidly. Much like a bathtub with five taps (the major tributaries) turned on, but only one plug hole to let the water out. Explainer video here.

Limited transport options

Due to the deep, rapid and extensive flood risk in the Valley and limited public transport options, progressive self-evacuation by private vehicles is the primary method of reducing the flood risk to life during major flood events. As well due to the speed of impact and scale of area, longer lead times are required to allow people time to drive to safety on higher ground away from the flood islands and flood impacted areas.

It's Sydney's fastest growing region

This section of Western Sydney is one of Australia's fastest growing, culturally diverse regions. Population is forecast to double over the next 30 years. Currently 134,000+ people live and work in the floodplain. The expanding demand and growth within the Valley will only serve to increase the exposure of individuals and property to flood hazards.

Past flooding experience

After nearly three decades without serious floods, the floods between 2020 and 2024 are a reminder of the risk of damaging floods in the Valley.

Documented reports of flooding date back to 1789 - the longest flood record in Australia. The largest was in 1867, reaching 19.7 metres above sea level at Windsor - nearly six metres higher than the July 2022 flood.

In 1867, floodwater in Penrith almost reached the corner of High and Woodriff Streets, and much of Emu Plains was under water.

If the 1867-magnitude flood event occurred today, 90,000 plus people would need to be evacuated and $2 billion in damages would be incurred.

Why hasn't more been achieved before now (2024)?

This program is a complex undertaking, requiring extensive planning, coordination with multiple agencies, and thorough environmental assessments. The work completed to date is essential for ensuring the proposed improvements are effective and meet the needs of the community.

Timeline of work

The 2017 HNV Flood Risk Management Strategy identified an initial 40 projects in the Flood Evacuation Road Resilience Program.

Since the release of the strategy in 2017 the NSW Government has undertaken flood modelling and technical assessments to identify over 100 low-lying locations where improvements would have the greatest impact on flood evacuation. Some of the locations were nominated by Councils, having been identified during previous flood events.

In 2018, we completed the first of our four key deliverables under the Flood Strategy – the implementation of 'Evacuation Route Signage'.

In January 2022, The NSW and Australian Governments committed $33 million towards planning for more than 100 improvements that will make the Valley's flood evacuation road network more resilient to flooding.

The planning phase for these 100 improvements is now underway, which will confirm the locations and designs for projects. Site investigation work (survey, utility, environmental and geotechnical investigations) have been underway since late 2022 and will continue until the end of 2024.