Transport for NSW

M1 Pacific Motorway extension to Raymond Terrace

Managing Flood Impacts - FAQ

July 2025

Australian Government | BUILDING AUSTRALIA

NSW GOVERNMENT

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

River view of Viaduct looking north

The Australian and NSW governments are investing in the M1 Pacific Motorway extension to Raymond Terrace. This information has been developed to provide more detail about potential flooding impacts relating to the M1 Pacific Motorway extension project and to provide answers to frequently asked questions from stakeholders and the community.

What factors contribute to floods?

Floods are influenced by many factors including the volume and intensity of rainfall, the capacity of dams, creeks and rivers to carry runoff, tidal influence, soil moisture, other weather conditions and localised land use.

What causes flooding on the Lower Hunter River floodplain?

Flooding on the Lower Hunter River floodplain is a result of both mainstream flooding from the Hunter River and local catchment runoff. The Williams River joins the Hunter River just upstream of Raymond Terrace, where their combined waters then flow southwest, across the Hunter River floodplain which varies in width.

What flood immunity does the project have?

Flood immunity refers to the level at which land is protected from a flood event, or a flood event for which the land will remain dry.

The project is immune to flooding in a 1 in 20-year event, and traffic will continue to use the new motorway during that event. Some existing roads that will connect to the motorway would be affected in a 1 in 20-year event. The proposed 2.6-kilometre viaduct over the Hunter River floodplain is immune to flooding in a 1 in 100-year event.

The project would also provide a new flood emergency and evacuation access route for the communities between Black Hill and Raymond Terrace, providing increased resilience for future flood events, similar to those that occurred across the Hunter region in 2022.

Flood immunity refers to the level where land is protected from a flood or a flood event where the land will remain dry

Has the project design considered impacts due to flooding?

Yes, the project design has been developed using a process that identified and assessed possible project route alignments against a range of engineering, environmental, social, land-use and economic criteria.

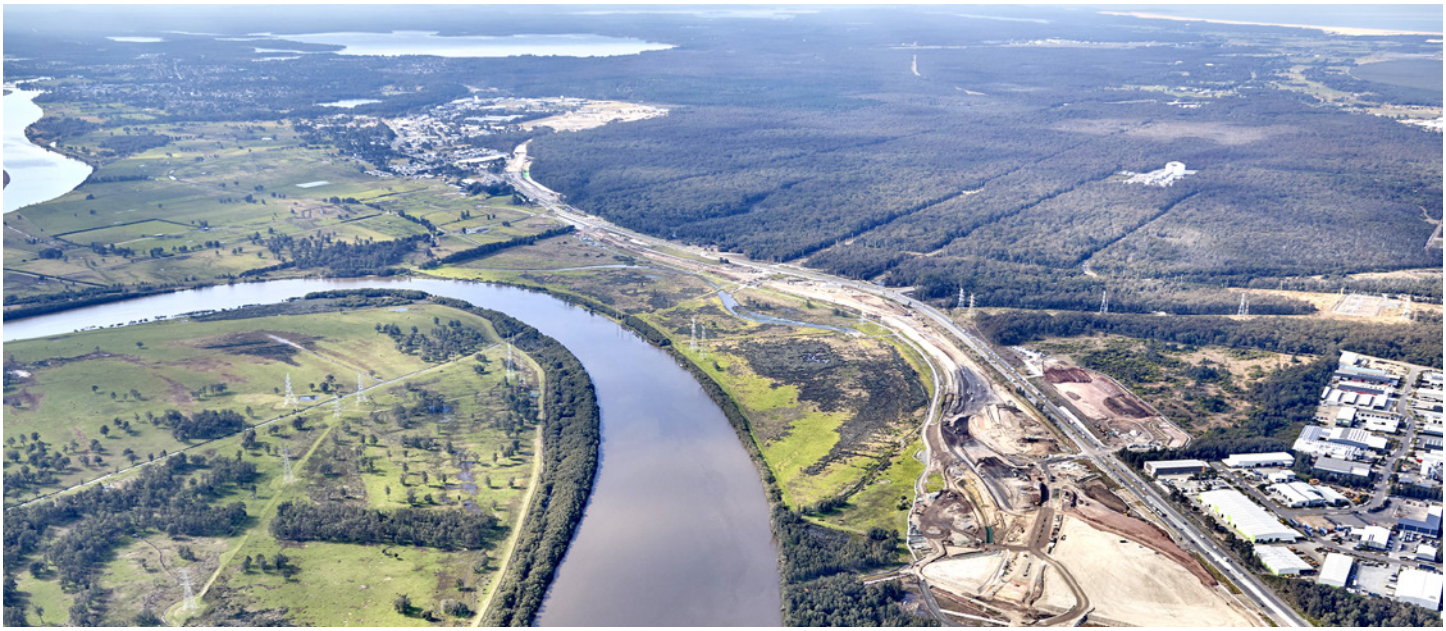
This process determined that the project alignment outlined in the Environmental Impact Statement (EIS) represented the best balance after a detailed analysis of all known constraints and opportunities, including those related to flooding.

What changes have been made to the design to reduce flooding impacts?

As a result of ongoing design refinements, the alignment has been moved closer to the New England Highway and other existing infrastructure corridors, crossing the Hunter River 1.4 kilometres north of originally planned location.

In addition to shifting the alignment, we have:

- Reduced upstream flooding impacts through design of a 2.6 kilometre viaduct instead of an embankment across the Hunter River floodplain
- Reduced impacts on drainage capacity, flood storage, and water flow in the swamp area upstream near Hexham, which would have been affected by the previously proposed embankment.
- Lowered the height of maintenance access tracks on the floodplain.



Work along Pacific Highway looking north towards Heatherbrae

How does flood modelling help you to plan for future flood events?

A complex flood model has been used to inform all aspects of floodplain management for the project. The model assists us to better understand and predict flood behaviour within a defined catchment.

The flood model used for the project has been validated and checked against previous flood events in the area to ensure accuracy. This involves comparing and adjusting the flood model where flood levels are known, based on monitoring devices installed within the project study area.

How do you classify flood events?

Flood events are expressed as Annual Exceedance Probability (AEP), which is the probability of that event occurring in any one year. For example, a 20% AEP event has a 20% chance of occurring in any year and is often expressed as a 1 in 5-year event. A 10% AEP event is often expressed as a 1 in 10-year event.

Once the flood model is validated against known flood events, other events are modelled, including up to the 1% AEP event (1 in 100 years).

As outlined earlier, the project is immune to flooding in a 1 in 20-year event, and traffic can continue to use the new motorway during that event.

Our updated flood model incorporates the latest hydrologic data from the Hunter River catchment to assess potential project impacts on flood behaviour across a range of design scenarios.

This model, verified as a reliable tool for current flood management, has undergone independent review. An independent hydrologist, approved by the NSW Department of Planning, Housing, and Infrastructure (DPHI), reviewed both the model and its outputs, endorsing the findings presented in the Flood Design Report.

What is the difference between rain events and floods?

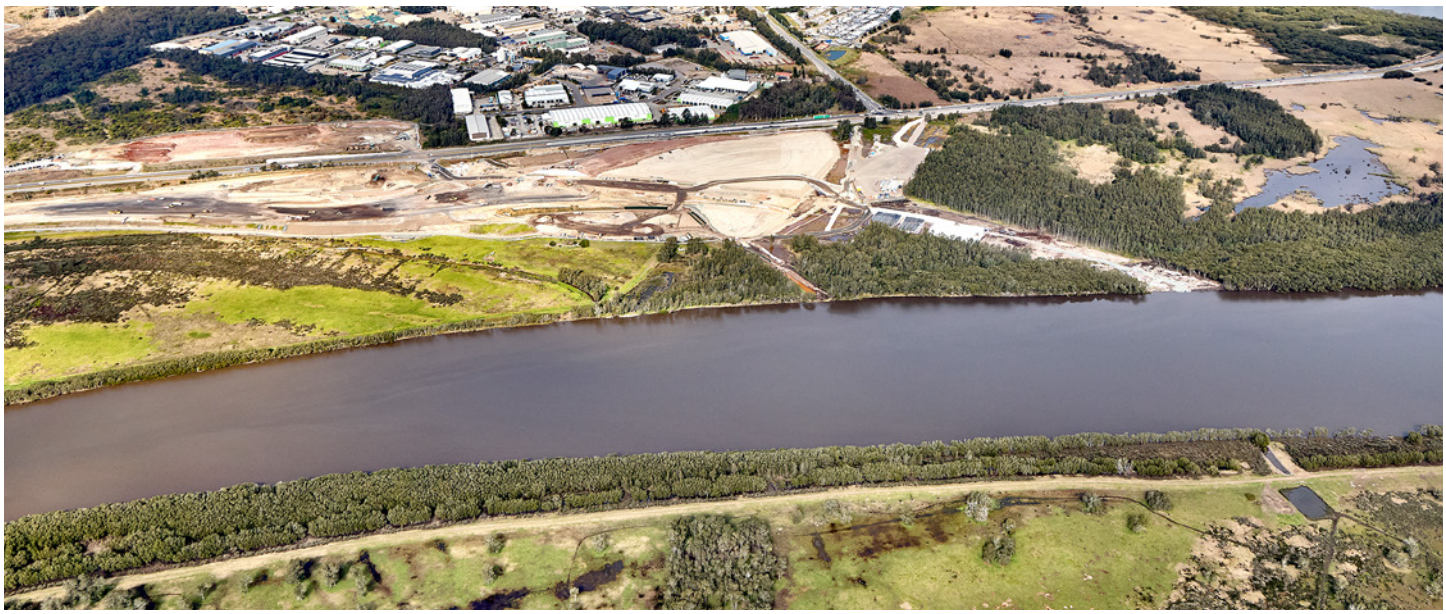
Rain events and floods are different. A rain event is measured by the amount of rain that is recorded at a specific location. A flood is the response of the catchment to the rain event.

A flood does not always reflect the rain event as the response of the catchment depends on a number of factors, for example, how widespread was the rain and how saturated was the catchment before the rain event. Therefore, it is common for a rain event to be higher than a flood. An example of this is a 1 in 100 year rain event recorded at a specific rain gauge location may only produce a 1 in 5 year flood in the main waterway if the catchment was dry before the rain and if the rain was not widely distributed across the entire catchment.

Have you assessed past flood events in the area, including how floodwater movement will change once the project is built?

Yes, as part of our ongoing planning for the project we have carried out a detailed analysis of existing flooding characteristics within the project area. We've also carried out detailed analysis on predicted flood impacts as a result of the project being constructed.

Work along Pacific Highway at Tomago looking south



Work along Pacific Highway at Tomago, looking south-east towards Newcastle

What area does the flood model cover?

As part of the model, we have considered the distinct flooding behaviour of the Hunter, Williams and Paterson River catchments which are subject to frequent and extensive flooding.

The study area spans 473 km^2 and extends from the mouth of the Hunter River, west of the Project along the Hunter River to Oakhampton and north along Williams River to East Seaham. To the east, the study area extends to Grahamstown Dam and Williamtown.

The study area also covers the adjacent floodplain areas including swamp areas and coastal wetlands within Hexham Swamp Nature Reserve, the Fullerton Cove overflow onto the Tilligerry Creek floodplain and the Tilligerry Creek outlet to Port Stephens.

The eastern section of the project is also within the Tomago Sandbeds Catchment Area, classified as a Special Area under the Hunter Water Act 1991 and protected as a drinking water supply.

How are you preparing to reduce flooding impacts to residential properties during construction?

We are committed to minimising and/or eliminating adverse impacts in residential developments located near the project area. Following exhibition of the EIS, refinements to temporary ancillary facilities and site access have been made along the project corridor. Refinements include reducing the size of ancillary facilities or not using nominated sites to minimise flood and biodiversity impacts.

What consultation have you done with stakeholders about flooding in the area?

We consulted extensively with the community regarding the flood assessment process. We conducted flood focus group meetings before the environmental impact assessment process for the project commenced, and gave the community the opportunity to ask questions, raise concerns and provide information about the nature of potential flooding near the project. Throughout the EIS development, the community was encouraged to make a submission in relation to the project, including on the chapter titled hydrology and flooding.

We consulted extensively with the community regarding the flood assessment process and conducted flood focus group meetings

We will ensure the project complies with the Minister's Conditions of Approval (CoA) which were decided on in November 2022. As part of these conditions, we will consult with and provide full disclosure of likely impacts resulting from any adverse effects above the specific limits set by the Department of Planning Housing and Infrastructure. To learn more about our flooding Conditions of Approval, access our documents and notifications page on our interactive portal at **nswroads.work/m12rtportal**

We will continue to work directly with stakeholders impacted by flooding due to the project and address individual requests where feasible and reasonable.

Can you fully flood proof this project so it will not flood in the future?

The ability to fully mitigate flooding impacts on all existing and new road projects will always be challenging and must be balanced with impacts to the road networks and cost.

Transport for NSW works with key partners such as local government to identify the most appropriate overall network investment to provide economic benefits to the wider community and reinstate and reconnect community journeys faster during or after any natural disasters.

Where significant flood levels impact road networks, the priority is the safety of all users of the transport network and surrounding communities. The focus of Transport for NSW is to provide real-time advice via targeted communications channels, to ensure motorists are kept informed of delays and other impacts on the network until the flood impacts have subsided.

How have temporary flooding impacts been assessed?

Potential impacts to flooding during construction have also been considered. These have been assessed using the same methodology as the operational impacts for both the Lower Hunter regional flood plain and the local catchments.

The temporary flood modelling considers the worst-case during construction. This is when our work would have the biggest impact on the floodplain. As a result, this assessment is conservative.

Temporary impacts have also been assessed and categorised according to the dominant land use and the potential for the work to impact on that land use. For example, matters considered include increased flood water levels at private property, impacts to property access and duration of impacts on land.

We plan for rain and flood events and focus on reducing the effect of our work and minimising disruptions to property owners

How will you manage flood impacts during construction?

We proactively plan for rain and flood events and are focused on reducing the effect of our work and minimising disruptions to local property owners and communities.

We are prepared for rain and flood events and are well placed to respond.

Before predicted rain events, we:

- Confirm drainage is clear of obstructions
- Remove items from the flood plain which may create obstructions
- Relocate and remove equipment and machinery to higher ground out of low-lying flood prone areas
- work with councils, floodplain managers and emergency services to ensure that property owners have access to resources required to implement effective flood management plans / procedures.

During rain events, we:

- Monitor conditions closely and are on standby to implement flood emergency response plans
- Communicate and work with Transport maintenance response teams.
- Work to keep travel safe and information available including using electronic message boards to provide information about road conditions
- Have our emergency management response team available 24 hours, with access to machinery and equipment to provide assistance if it is safe to do so and in collaboration with other emergency services
- Use drones and other equipment to monitor water flows through the project area and capture information to assess our flooding targets.

After rain events, when it is safe to do so, we assess the impact, ensure sites are safe and prioritise our work to reduce disruption to peoples' access or use of their property.

If a community member or stakeholder has any concerns about a recent rain event and the project, please encourage them to contact us on **1800 094 895**.

During major rain events the M1 extension toll free community information line (1800 094 895) is monitored 24/7. For life threatening emergencies call 000.

Will there be a flooding impact at my property?

Unless the M1 extension team has contacted the resident/property owner directly then the impact at their property is within the project's Quantitative Design Limits (QDL). More specific information on any potential impact at their property can be obtained by looking at the flooding maps available online at **nswroads.work/m12rt** or speaking with a member of the project team.

What will you do if my property is flooded?

If a community member's or stakeholder's property has been flooded as a result of the project temporary works, as soon as it is safe to do so, we will:

- Investigate their concerns
- Develop actions to be taken to reduce and, if possible, remove the impacts on their property
- Consult with them regarding our potential mitigation measures
- Action these mitigation measures, after they are agreed.

If a community member or stakeholder believe their property has been flooded as a result of the project, please ask them to contact the project team on **1800 094 895**.

Where can I find more information?

The outcomes of the flooding assessment is included in the flood design report which can be found on the project website **nswroads.work/m12rtportal**

Alternatively, please contact the team on **1800 094 895** or at **m12rt@transport.nsw.gov.au** The project's interactive portal also has a range of Frequently Asked Questions and information relating to hydrology and flooding. These resources can be accessed at **nswroads.work/m12rt**

Additional information and resources in relation to flooding can be accessed here:

Newcastle City Council
www.newcastle.nsw.gov.au/living/environment/flooding

Port Stephens Council
www.portstephens.nsw.gov.au/development/flood-safety

Maitland City Council
https://maitland.disasterdashboards.com/dashboard/overview

Department of Planning Housing and Infrastructure (DPHI)
https://www.planning.nsw.gov.au/policy-and-legislation/resilience-and-natural-hazard-risk/flooding

NSW State Emergency Service
To assist households and businesses in preparing for potential flooding, the NSW State Emergency Service (SES) has developed the Home Emergency Plan and the Business FloodSafe Toolkit, both accessible at **www.sesemergencyplan.com.au**

The SES also provides informative factsheets detailing what actions to take when an Evacuation Warning or an Evacuation Order is issued. For evacuation warnings and related information, please visit **www.ses.nsw.gov.au** or call **132 500**.

More specific information can be obtained by looking at the flood design report online at **nswroads.work/m12rt** or by speaking with a member of the project team.

We would like to thank all residents, local landowners, industry partners, flood focus group members, and local authorities

Contact us:

24-hour project Infoline: **1800 094 895**

Email: **M12rt@transport.nsw.gov.au**

Website: **nswroads.work/m12rt**

Customer feedback: **Locked Bag 2030 Newcastle NSW 2300**

Visit the online portal: **nswroads.work/m12rtportal**

For the latest traffic updates:
Call 132 701, visit live traffic.com or download the app Live Traffic NSW

Interpreter service

For languages other than English please call **131 450**

https://www.transport.nsw.gov.au/about-us/transport-privacy