



Transport for NSW

Heathcote Road bridge widening

Review of Environmental Factors



Executive summary

The proposal

Transport for NSW proposes to widen Bridge 152 over the Woronora River (referred to as the Heathcote Road bridge) and its approaches (the proposal). The proposal is located about halfway along Heathcote Road between New Illawarra Road in Lucas Heights and Princes Highway in Heathcote, New South Wales (NSW) within the Sutherland Shire local government area (LGA).

Key features of the proposal include:

- widening of the bridge by about 1.4 metres on each side to provide one wide 3.5 metre lane in each direction with 1.2 metre shoulders
- widening and adjustments to the northern and southern bridge approaches about 250 metres either side of the bridge to improve the road alignment, increase lane and shoulder widths and reinstate the existing breakdown bays either side of the bridge
- new bored-pile retaining walls to support the slope along both bridge approaches, which would be up to two metres high and range in length up to 100 metres
- slope stabilisation measures including rock scaling, shotcreting, rock bolting, rock netting, and vegetation removal
- new and modified drainage infrastructure including replacement and extension of existing cross culvert pipes on the approaches for the widened road pavement, improved drainage gutter along the base of the rock cuttings, new longitudinal drainage outlet at each abutment and scour protection at all discharge points
- adjustments to optical fibre conduits for the length of the proposal area
- repair and maintenance work to the existing bridge structure including:
 - repairs to cracks
 - replacement of all bearings
 - joint replacement
 - application of an anti-carbonation coating on the bridge structure including piers
 - installation of new steel maintenance staircase for side access to the bridge for bridge inspections
- other ancillary work required to support construction of the proposal including two off site construction compounds and establishment of a temporary access track, waterway crossing and crane pads

The proposal would require the full closure of Heathcote Road between New Illawarra Road and the Princes Highway for up to six months during construction due to the constraints of the location including the steep terrain of the surrounding area and narrow width of existing roadway. Construction is proposed to be carried out 24 hours per day, seven days per week to minimise the duration of full road closures required.

It is anticipated that construction would start in late 2021 and take up to two years to complete, subject to weather.

Need for the proposal

The Heathcote Road bridge was built during World War II by the military to provide a basic east-west transport route over the Woronora River. The bridge was built with narrow lane widths and steep curved approaches that do not meet current road design standards and provide little room for motorist error, which increases the risk of road incidents. The risk of road incidents is supported by the crash history statistics within 500 metres of the bridge, which include two fatalities and six serious injuries between 2009 and 2019. In 2018, the Minister for Roads, Maritime and Freight announced a commitment to improve the safety of the Heathcote Road bridge due to a history of community concern for motorist safety when crossing the bridge.

The section of Heathcote Road between New Illawarra Road and the Princes Highway is part of the 'A6' road corridor, which is a major arterial road that services north–south journeys for freight and general traffic in Sydney. The strategic phase of the proposal was funded by Transport for NSW's 'Gateway to the South Pinch Point Program', which focuses on short to medium term solutions to improve reliability for road traffic, as the A6 section of Heathcote Road was identified as a key pinch point for traffic within southern Sydney. The proposal has since secured \$73 million funding for development and delivery.

The need for upgrades to the section of Heathcote Road within the A6 road corridor has been identified in several NSW and local government strategic plans and policies. This includes *Future Transport Strategy 2056* (NSW Government, 2018), which specifically lists Heathcote Road improvements as an initiative for investigation. The proposal would contribute to achieving the 'safety and performance' outcome of this strategy as well as form part of the 'safe roads' component of the *Road Safety Plan 2021* (a supporting plan of the *Future Transport Strategy 2056*), which is aimed at reducing fatalities on NSW roads by 30 percent by 2021 (Transport for NSW, 2018a).

Proposal objectives

The objectives of the proposal are to:

- improve road safety by increasing the road and shoulder lane widths on the Heathcote Road bridge and approaches
- improve network reliability
- deliver a design solution that has the ability to be implemented in the short-term

Options considered

Transport for NSW identified two strategic options, Heathcote Road bridge duplication (single lane each bridge) or Heathcote Road bridge widening, and a baseline 'do nothing' option. These options were investigated and assessed with respect to development criteria which included property acquisition, environmental impacts, Commonwealth issues, value for money, constructability and whether they could meet the proposal objectives. The Heathcote Road bridge widening option was selected as the preferred option. Despite the bridge duplication option providing slightly greater safety benefits due to the separation of opposing traffic flows, it would result in far more substantial environmental impacts as well as a longer and substantially more complex approval, land acquisition and construction duration compared to the Heathcote Road bridge widening option. The 'do nothing' option would not meet the proposal objectives.

Following this, Transport for NSW developed three sub-options for the proposal related to different ways to widen the Heathcote Road bridge: widening on one side only supported by new piers, widening on both sides with steel brackets or widening on both sides through headstock expansion. The preferred sub-option was to widen the Heathcote Road bridge on both sides using headstock expansion as it would result in the lowest environmental impacts, property acquisitions, constructability issues and ongoing maintenance needs.

Statutory and planning framework

The proposal is for the purpose of a road and road infrastructure facilities and is to be carried out by Transport for NSW. In accordance with Clause 94 of the State Environmental Planning Policy (Infrastructure) 2007 (ISEPP), the proposal can therefore be assessed under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Development consent from council is not required. This REF fulfils Transport for NSW's obligation under Section 5.5 of the EP&A Act including to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

An assessment of the proposal concluded that it would not significantly impact on the matters of national environmental significance protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or significantly affect threatened species or ecological communities and their habitats under the *Biodiversity Conservation Act 2016* (BC Act). Therefore, the proposal is a valid development to be taken forward under Division 5.1 of the EP&A Act and no further planning approval requirements would be triggered under the EPBC Act or BC Act.

Community and stakeholder consultation

Transport for NSW carried out a targeted community consultation campaign in May and June 2020 for the proposal, which provided an opportunity for early community and stakeholder feedback on the proposal. The campaign involved a letterbox drop, a Facebook video advertisement and live event, posters, an online questionnaire, a media release, dedicated email inbox, and variable message signs. It is noted that the consultation approach for the proposal to date has largely avoided face-to-face consultation activities due to the COVID-19 restrictions and social distancing requirements.

Various government agencies and key stakeholders have been consulted about the proposal via email and phone calls including consultation with (but not limited to):

- National Parks and Wildlife Service in accordance with the ISEPP due to the proposal being located directly adjacent to Heathcote National Park
- DPI Fisheries with regards to the proposed temporary waterway crossing structure
- Heritage NSW due to potential impacts on an item listed on a s170 heritage register
- Aboriginal stakeholders in accordance with the *Procedure for Cultural Heritage Consultation and Investigation* (Roads and Maritime, 2011)

The key issues raised related to the need for measures to protect fauna and flora and their habitat, the proposed road closure during construction and options considered for the proposal design. The issues raised were considered in the proposal design, options assessment and/or addressed in the REF. In particular, Transport for NSW acknowledges the concern regarding the proposed full road closure and are investigating innovations and alternative construction methodologies to minimise the duration and/or eliminate the need for daytime road closures, where possible. Transport for NSW will continue to seek feedback from the local community, Sutherland Shire Council, ANSTO, National Parks and Wildlife, Emergency Services organisations, Heritage NSW and other key stakeholders as the design progresses.

Environmental impacts

Traffic and transport

During construction, the proposal would require the full closure of Heathcote Road between New Illawarra Road and the Princes Highway for up to six months. Most of the traffic that would normally use the Heathcote Road bridge would use the proposed detour route, which would increase traffic volumes on the proposed detour route and increase travel times between New Illawarra Road and the Princes Highway by an average of 29 minutes compared to normal conditions without the road closure.

Transport for NSW would continue to consult with the Transport Management Centre, Emergency Services and other key stakeholders to minimise potential traffic impacts associated with implementation of the proposed detour route as well as any cumulative traffic impacts with the planned Linden Street upgrade. Transport for NSW are also investigating ways to modify the construction methodology to eliminate the need for continuous daytime road closures during certain construction activities, where possible.

During operation, the proposal is expected to result in benefits to road users including:

- increased road safety on the Heathcote Road bridge and its approaches due to the provision of wider traffic lanes and shoulders that meet current road design standards
- improved reliability along the A6 section of Heathcote Road due to the increased lane and shoulder width that would allow vehicles to pass broken-down vehicles or road incidents and minimise the need for larger vehicles to slow on approach to the bridge
- a potential decrease in the frequency of incidents and their associated traffic delays

Noise and vibration

The potential noise impact of key construction activities was assessed using Transport for NSW's Noise Estimator Tool and based on conservative scenarios. The assessment results indicated that during night time scenarios, the proposal may exceed noise management levels for surrounding residential receivers. However, actual construction noise levels may be lower than predicted due to the topography and dense vegetation. Construction noise would be managed in accordance with the *Construction Noise and Vibration Guideline* (Roads and Maritime Services, 2016), which specifies several standard mitigation measures as well as the need to consider additional mitigation measures for sensitive receivers who are predicted to experience noise levels that would exceed the adopted criteria. Construction verification monitoring would be carried out to confirm accurate construction noise levels and assess the performance of the implemented mitigation measures.

The predicted vibration levels during the construction of the proposal show that during some construction scenarios, larger vibration intensive construction equipment may exceed the adopted vibration criteria for heritage structures at distances of less than 10 metres as well as the maximum night-time levels for residences within 390 metres of construction activities. A Vibration Risk Assessment would evaluate feasible and reasonable mitigation measures to be implemented during construction, such as validation monitoring, specific notifications and equipment substitution to minimise the potential for vibration impacts.

The proposal is not expected to result in any noticeable change in noise or vibration during operation.

Biodiversity

The proposal would involve the removal of up to 3.08 hectares of native vegetation, of which 0.05 hectares is consistent with an Endangered Ecological Community (EEC) listed under the *Biodiversity Conservation Act 2016* (BC Act) (Sydney Freshwater Wetlands in the Sydney Basin Bioregion), which could lead to a reduction of threatened fauna habitat within the proposal area. There may also be a risk of fauna injury and mortality from construction movements and disturbance to aquatic habitat during the establishment and use of the temporary waterway crossing. However, it is unlikely that any threatened fauna species would be reliant on the habitat within the proposal area considering the extensive high-quality habitat nearby within Heathcote National Park and Holsworthy Military Reserve.

The proposal has the potential to impact the roosting habitat of Southern Myotis (*Myotis macropus*), which is listed as vulnerable under the BC Act and was recorded within the proposal area during field surveys. A Microbat Management Plan is proposed to manage potential construction impacts on this species. Opportunities to incorporate microbat roosting provisions into the bridge structure would also be investigated during detailed design.

An analysis of relevant literature and koala records indicates that the proposal area is used as a north-south movement corridor for koalas. The proposal provides an opportunity to provide fauna connectivity features under the bridge such as fauna furniture to facilitate Koala crossing beneath the bridge. The final design solution would be confirmed during detailed design in consultation with specialist ecologists.

Overall, the proposal is not likely to significantly impact threatened species, populations, ecological communities or their habitats.

Water quality and soil

Construction of the proposal has the potential to result in water quality and soil impacts from earthworks, which can result in soil erosion as well as sedimentation of local waterways. The risk of water quality and soil impacts from the establishment of the new temporary access track, crane pads and waterway crossing is particularly notable, as this would involve the disturbance of soil close to the Woronora River and high potential for soil erosion due to the steep gradient and soil erodibility in this area. The inadequate containment of fuels, chemicals, materials and litter from construction activities could result in spills, leaks or localised accumulation of potentially contaminated materials into the surrounding environment. This would need to be carefully managed during activities such as (but not limited to) the operation of plant and equipment above waterways, the application of the anti-carbonation coating for bridge piers, hydro-demolition on the bridge, rock drilling and shotcreting. These potential impacts would be managed in accordance with a Soil and Water Management Plan (SWMP). The SWMP would include site-specific Erosion and Sedimentation Control plans, an emergency spill plan, a stabilisation plan, a surface water quality monitoring program as well as other safeguards and management measures to minimise potential water quality and soil impacts.

Potential impacts on water quality and soil during the operation of the proposal would be minor, and minimised through provision of scour protection at the outlets of stormwater drains and slope stabilisation measures as well as Water Sensitive Urban Design (WSUD) measures to capture and treat runoff from the road corridor, which would be confirmed during detailed design.

Hydrology and flooding

Construction of the proposal has the potential to impact hydrology and flooding due to:

- the establishment and use of the new temporary waterway crossing, which would directly alter flow conditions within the Woronora River and has potential to cause:
 - changes in channel velocity and flooding conditions
 - localised erosion and scouring
 - deposition of fine and coarse sediments
 - degradation and/or changes to aquatic habitat
- changes to ground surface levels associated with the temporary access track and laydown area, which may change the flow paths of surface water runoff and drainage
- new areas of hardstand within laydown areas, which may increase surface water runoff

These potential impacts would be temporary, as the waterway crossing structure would be removed and the access track and laydown area would be rehabilitated after construction to return the disturbed areas to pre-existing conditions. In addition, potential impacts associated with the establishment and use of the new temporary waterway crossing have been minimised by designing the waterway crossing to include appropriate pipe outlets, scour protection and flood immunity.

Impacts on hydrology and flooding during operation of the proposal would be negligible, as the headstock expansion methodology would avoid the need for new bridge piers in the waterway.

Non-Aboriginal heritage

The existing bridge structure is listed on the Roads and Maritime Services s170 heritage register and is recognised as having state significance though not formally listed on the state heritage register. One of the heritage criteria which contributes to heritage significance of the bridge is its aesthetic value. Potential impacts on the aesthetic value of the bridge were minimised through sympathetic bridge design based on heritage advice. The heritage assessment concluded that although the aesthetics of the bridge would be impacted, the adoption of heritage recommendations in the detailed design of the bridge would mitigate the impacts to an acceptable level and would not prevent the bridge from being formally listed in the future. Further safeguards and management measures would be implemented to minimise potential non-Aboriginal heritage impacts, including the preparation of a Conservation Management Plan and carrying out archival recording of the bridge prior to construction.

The assessment also identified a potential minor impact on a small portion of the Commonwealth listed Cubbitch Barta National Estate heritage place, which has both non-Aboriginal and Aboriginal heritage significance, associated with the cutting back of the rock slope.

Aboriginal cultural heritage

One known Aboriginal cultural heritage site is located in the proposal area, however this site would be avoided during construction through the implementation of a five metre exclusion zone. Additionally, a vibration risk assessment and a Ground Vibration Management Plan will be prepared to manage any indirect risk from vibration generating activities on this site. Therefore, the proposal is not expected to result in any direct or indirect impacts on this site.

Other impacts

Other notable impacts associated with the proposal include:

- property impacts from the acquisition of up to 1.5 hectares of land, including partial acquisition of one Crown Land lot and one Crown Waterway from the NSW Government
- landscape character and visual changes associated with the removal of vegetation and the widened bridge structure and approaches
- socio-economic impacts from restricted access to the A6 section of Heathcote Road during construction, which may lead to short-term inconvenience and feelings of severance for the local community, surrounding businesses and stakeholders

Justification and conclusion

The proposal would involve widening the Heathcote Road bridge and its approaches to achieve compliance with current road safety standards.

The proposal would meet the proposal objectives and need to improve the safety and reliability associated with the use of the Heathcote Road bridge in the short-term. The need for the proposal has been driven by existing community concern for motorist safety and the poor crash history record on the Heathcote Road bridge and its approaches. The proposal is also aligned with several strategic policies and government strategies, such as *Future Transport Strategy 2056* (TfNSW, 2018a) and *Road Safety Plan 2021 – Towards Zero* (NSW Government, 2018a).

Several potential environmental impacts from the proposal have been avoided or reduced during the concept design development and options assessment. However, the proposal would still result in some short-term impacts on traffic, noise and vibration, water quality, hydrology and flooding during construction as well as some longer-term minor biodiversity, non-Aboriginal heritage, property and visual impacts. Environmental safeguards and management measures as detailed in this REF would minimise these expected impacts.

Overall, the proposal is justified on the basis that it best meets the proposal objectives and results in long-term benefits on safety and reliability that would outweigh the potential adverse impacts, which would mainly occur during construction. Moreover, the proposal would not result in any significant negative long-term impacts on society, the biophysical environment or the local economy.

Display of the review of environmental factors

This REF is on display for comment between Wednesday 9 December 2020 and Wednesday 17 February 2021.

You can access the documents as pdf files on the Transport for NSW website at nswroads.work/Heathcote.

How can I make a submission

To make a submission about this proposal, please:

- visit the Heathcote Road Bridge Virtual Information Centre at nswroads.work/Heathcote
- email us at HeathcoteRoadBridge@transport.nsw.gov.au

All submissions must be received by Wednesday 17 February 2021.

Submissions will be managed in accordance with the [Transport for NSW Privacy Statement](#).

What happens next

Transport for NSW will collate and consider the submissions received during public display of the REF.

After this consideration, Transport for NSW will determine whether or not the proposal should proceed as proposed and will inform the community and stakeholders of this decision.

If the proposal is determined to proceed, Transport for NSW will continue to consult with the community and stakeholders prior to and during construction.
