Great Western Highway Upgrade Program – Little Hartley to Lithgow (West Section)

Review of Environmental Factors

Transport for NSW | November 2021

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Prepared by Jacobs and Arcadis Joint Venture and Transport for NSW

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Executive summary

The proposal

Transport for NSW (Transport) proposes to upgrade the Great Western Highway between Little Hartley and Lithgow, NSW (the proposal), located immediately to the west of the Blue Mountains within the Lithgow City local government area. The upgrade will reduce congestion, deliver safer, more efficient and reliable journeys for those travelling in, around and through the Blue Mountains, and better connect communities in the Central West.

Key features of the proposal include:

- Upgrade of about 14 kilometres of the Great Western Highway between Little Hartley and Lithgow to a four lane divided highway with two lanes in each direction
- Provision of service roads
- Provision of two rest areas, one eastbound and one westbound
- Provision of five new bridges
- Upgrade of the existing bridge over River Lett.

The proposal has been designed in four sections to allow flexibility in construction staging and delivery and includes:

- Little Hartley to River Lett Hill
- Coxs River Road
- River Lett Hill to Forty Bends
- Forty Bends to Lithgow.

Subject to planning approval, construction of the proposal is planned to commence in 2022 and the current program would take about three years to complete.

Need for the proposal

The Great Western Highway is the main road corridor between Central West NSW and the Sydney road network, and the major arterial road through the proposal area. The existing Great Western Highway between Little Hartley and Lithgow is mostly a two-way undivided carriageway with one lane in each direction. There are limited overtaking lanes or auxiliary lanes to help drivers overtake and negotiate steep grades.

The Great Western Highway services local, tourist, freight and general traffic, with varying traffic volumes from about 12,000 vehicles near Little Hartley and about 11,000 vehicles per day near Lithgow. A growth rate of about 0.4 per cent for light vehicles and 1.3 percent for heavy vehicles per annum is expected on the Great Western Highway at the proposal location. In particular, there is a relatively high proportion of heavy vehicles (between 12 and 24 per cent), reflective of the 18,000 tonnes of freight transported daily between the Central West and Sydney.

Without the proposal, travel times and intersection level of service would deteriorate to unacceptable levels. The proposed upgrade would improve network performance, safety, and resilience on the highway between Little Hartley and Lithgow, and as a result, drive economic development and productivity particularly for the Central West. The proposal is also intended to either maintain or improve the urban and rural amenity for townships along the route, which is constrained by the current performance of the Great Western Highway.

The proposal would increase the capacity of the Great Western Highway between Little Hartley and Lithgow, reduce congestion and improve intersection performance. Increasing the number of lanes on the

highway would allow traffic to flow smoothly and reduce travel time for motorists. This would lead to reduced travel time for motorists travelling along Great Western Highway. When considered with other upgrades to the Great Western Highway planned between Katoomba and Lithgow, it is expected that motorists would experience a reduction in travel time of up to 10 minutes.

Proposal objectives

The proposal primary objectives are:

- Improve travel time between Katoomba and Lithgow
- Improve road safety for all road users
- Improve road freight efficiency
- Support economic development in the Central West and Orana.

The secondary proposal objectives are:

- Provide landscape outcomes which complement the surrounding environment
- Minimise the social, environmental and heritage impact of the proposal
- Maximise the ability to manage incidents
- Minimise disruption to traffic during construction
- Avoid/minimise work, health and safety risk during construction and operation
- Provide a value for money solution.

Options considered

The NSW Government first announced an upgrade from Mount Victoria to Lithgow in May 2008. Four corridors were identified within the initial study area, along with the Newnes Plateau alternative corridor. The Newnes Plateau route was investigated and found not to be viable as the Department of Defence required the necessary land at Marangaroo. Routes to the north and south of the Department of Defence land were considered, but found not to be viable due to increased road length, steep grades, and travel time impacts. In addition, the Newnes Plateau option would not offer improved connectivity to Jenolan Caves Road and Oberon, from which a significant amount of tourism traffic is generated, as well as timber and quarry-related freight.

The preferred option corridor was selected as it would avoid potential environmental, social, and topographical constraints. The preferred option route would also pose the least issues from a constructability standpoint and provide the fastest travel times.

Statutory and planning framework

As the proposal is for a road and road infrastructure facilities and is to be carried out on behalf of Transport, it can therefore be assessed under Division 5.1 of the *Environmental Planning and Assessment Act 1979*. Development consent from Lithgow City Council is not required.

Transport is the determining authority for the proposal. This Review of Environmental Factors (REF) satisfies Transport's requirements under section 5.5 of the *Environmental Planning and Assessment Act 1979* to "examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity". The REF also fulfils the requirements of the strategic assessment approval granted by the Federal Government under the *Environment Protection and Biodiversity Conservation Act 1999* in September 2015, with respect to the impacts of Transport's road activities on nationally listed threatened species, ecological communities and migratory species.

A Biodiversity Development Assessment Report (BDAR) has been prepared in accordance with the Biodiversity Assessment Method (BAM) (2020), as required by *Biodiversity Conservation Act 2016*. The assessment found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land. As the proposal would require the removal of native vegetation and potential fauna habitat from the subject land, Transport is required to offset these impacts on biodiversity.

The *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) applies to this proposal. Clause 94 of ISEPP permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent. A portion of the proposal is on land currently reserved as national park. Transport has commenced a process to revoke a portion of the Hartley Historic Village to keep the alignment away from the village to avoid impacts to heritage buildings. If the revocation is passed by Parliament, Transport would be able to utilise clause 94 of ISEPP and the proposal would be permissible without consent.

The proposal is located within the boundary of the Sydney Drinking Water Catchment. Consequently, the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011* (SEPP) is applicable to the proposal. Clause 9 of the SEPP states that any development or activity within this catchment should incorporate the Sydney Catchment Authority's current recommended practices and performance standards that relate to the protection of water quality. Clause 12 of the SEPP states that: 'A public authority must, before it carries out any activity to which Part 5 of the Act applies, consider whether the activity would have a neutral or beneficial effect on water quality.' Water quality considerations and a qualitative Neutral or Beneficial Effect (NorBE) water quality assessment have been included as part of this REF.

The following permits and licenses as relevant would be obtained before commencing the proposal:

- Aboriginal Heritage Impact Permit(s) under the *National Parks and Wildlife Act 1974*
- Road Occupancy Licence/ Road Occupancy Permit under the *Roads Act 1993*
- Environment Protection Licence under the Protection of Environment Operations Act 1997
- Licenses/ leases under the Crown Land Management Act 2016
- A Water Supply Works approval under the *Water Management Act 2000*
- Permit(s) under the Part 7 of the *Fisheries Management Act 1994*
- Section 60, Section 140 and Section 139(4) permits under the *Heritage Act 1977.*

Community and stakeholder consultation

Transport has consulted with the community, and relevant agencies and stakeholders throughout the proposal planning and design process, which began in 2008. Transport has carried out a number of community consultation activities to increase public awareness of the proposal and seek community input and feedback. A community consultation and stakeholder engagement plan (communications plan) was developed and implemented to guide consultation activities.

The community consultation activities have included:

- Public exhibition of the Mount Victoria to Lithgow Background and Proposed Project Development Report (RTA, 2008) in June 2008
- Public exhibition of the Study Area Investigation and Corridor Identification Report (RTA, 2008) and the Strategic Evaluation of the Newnes Plateau Corridor Report (RTA, 2008) in November 2008 for community submission
- Public exhibition of the four modified corridors in the Submissions Report – corridors in which routes may be feasible (RTA, 2008) released in April 2009
- Public exhibition of the Route Options Report (RTA, 2009) and associated working papers in October 2009 for community submissions
- Public exhibition of the Preferred Route Report (RTA, 2010) in May 2010 for community submission

- Public exhibition of the strategic corridor for the Great Western Highway Upgrade Program between Katoomba and Lithgow in November 2019 for community submission
- Targeted consultation undertaken throughout 2021 with communities along the proposal alignment including the Hartley District Progress Association.

The community consultation has been accomplished through a proposal website, community meetings and displays, community newsletters, direct mail and email notifications, media releases and advertisements issued by Transport.

Transport has consulted with the Aboriginal community in accordance with the Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) and in accordance with Department of Planning, Industry and Environment (formerly DECCW) consultation guidelines.

Transport has consulted with government authorities and agencies including Lithgow City Council, National Parks and Wildlife Services, and State Emergency Services (SES) throughout the development of the proposal in accordance with the *State Environmental Planning Policy (Infrastructure) (ISEPP) 2007* framework. This has included regular meetings with key proposal stakeholders about the design and issues that may have arisen during proposal development. Stakeholders were also invited to participate in workshops across the development of the proposal.

Further information on consultation undertaken as part of the broader Great Western Highway Upgrade Program is available at ***nswroads.work/gwhd***

Transport will continue to work closely with the community and relevant stakeholders through all stages of the proposal.

Environmental impacts

Transport engaged the Jacobs/Arcadis Joint Venture to manage the environmental assessment process for the REF. A number of detailed technical investigations were completed to assess the potential impacts of the proposal and to identify safeguards and management measures to mitigate these impacts.

An overview of the key environmental impacts of the proposal is provided below. A summary of all the potential environmental impacts considered for the proposal are identified in Section 6 of this REF and supported by relevant technical working papers in the REF appendices.

Biodiversity

A Biodiversity Development Assessment Report (BDAR) has been prepared in accordance with the Biodiversity Assessment Method (BAM) (2020), as required by *Biodiversity Conservation Act 2016 (BC Act)*. The land in which biodiversity values have been assessed by this BDAR is known as the subject land.

The BAM credit calculator identified:

- Eighteen candidate threatened flora species credit species associated with the Plant Community Types (PCT) identified in the subject land. Of these, nine threatened flora species are considered to have the potential to occur within the subject land and have therefore been retained as candidate species for survey.
- Thirty-eight candidate threatened fauna ecosystem credit species and 17 candidate threatened fauna species credit species associated with the PCTs identified in the subject land.

Targeted surveys for threatened flora species will be undertaken in spring/summer 2021 to meet the recommended survey periods for the target flora species, to maximise the chance of detection. The survey results will be included in the Response to Submissions report.

Review of records within 10 kilometres of the subject land, paired with the presence of potential habitat, identified one additional threatened fauna species to be included in the assessment. Ten threatened fauna

species listed under the EPBC Act and/or BC Act were recorded in the subject land or immediately adjacent during surveys carried out for the proposal.

Additional targeted surveys for Purple Copper Butterfly and Booroolong Frog, and surveys to detect breeding of Gang-gang Cockatoo, will be carried out in spring 2021, and findings will be included in the Response to Submissions report.

Direct impacts of the proposal on biodiversity include:

- Removal of 75.19 hectares of native PCTs, of which
  - 17.59 hectares is consistent with Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregion, listed as Endangered under the BC Act and
  - 5.82 hectares is consistent with White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions, listed as Critically Endangered under the BC Act
  - 3.6 hectares is consistent with White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland, listed as Critically Endangered under the EPBC Act
- Removal of 215.32 hectares of non-PCT vegetation comprising native and exotic plantings
- Removal of 75.19 hectares of potential habitat for threatened fauna species
- Mortality/injury of terrestrial fauna species, with potential mortality/injury of threatened fauna species. This should be minimised through pre-clearing procedures during construction and installation of fauna fencing during operation.

Biodiversity management measures would be implemented in accordance with Transport's Biodiversity Guidelines (RTA, 2011) to reduce any impacts due to the proposal.

Biodiversity offsets required for the proposal under the BC Act will be confirmed upon completion of remaining targeted spring/summer surveys.

The proposed culvert extension and scour protection would potentially impact in-stream habitat of several creeks mapped as Key Fish Habitat. Under the Policy and guidelines for fish habitat conservation and management (NSW DPI, 2013) this would require offsetting. Final offset calculations will be carried out following further design development.

Traffic and transport

Traffic modelling of future year periods indicates that the proposed upgrade would provide a safer, reliable and more efficient road corridor on the Great Western Highway between Little Hartley and Lithgow. The proposal would provide travel time savings of about 10 minutes between Katoomba and Lithgow from about 40 minutes without the proposal to about 29 minutes with the proposal. The proposal would also provide significant benefits with respect to increased safety and road network performance. Analysis indicates that the proposal is predicted to reduce the total crash rate on the highway between Little Hartley and Lithgow by 57 per cent.

Daily traffic volumes between Little Hartley and Lithgow are predicted to grow by 0.4 per cent per annum for light vehicles and about 1.3 per cent per annum for heavy vehicles between now and 2036. This would mean average weekday traffic volumes would grow from 11,100 vehicles per day in 2021 to 11,400 vehicles per day in 2026. In 2036, traffic volumes between Little Hartley and Lithgow are predicted to increase to an average 12,100 vehicles per day, equivalent to about 109 per cent of current (2021) traffic volumes. Traffic volume data between Little Hartley and River Lett Hill shows that heavy vehicles represent about 20 per cent of total traffic in 2021, or up to 2,380 heavy vehicles per day on an average weekday. The proportion of heavy vehicles is forecast to increase to 22 per cent in 2036, or up to 2,706 heavy vehicles per day on an average weekday.

Travel times and intersections level of service would also deteriorate to unacceptable levels without the proposal. By 2026, the level of service on the Great Western Highway near Little Hartley is predicted to reach operational capacity (level of service E). Future traffic growth would further increase delays at intersections on the Great Western Highway. Five intersections with the Great Western Highway are predicted to operate with an unsatisfactory level of service E or F during peak periods. This includes the Great Western Highway intersections with Coxs River Road/Ambermere Drive, Mid Hartley Road, Carroll Drive, Kelly Street, and Jenolan Caves Road/Blackmans Creek Road. With the proposal, the majority of intersections are predicted to operate at a level of service A during the AM peak and PM peak periods.

During the construction periods, there is potential for additional traffic to be generated. Construction traffic is expected to increase volumes between Little Hartley and Lithgow by between two per cent to eight per cent, depending on the package of works and locations. The increase in traffic volumes would be minor and would not impact the operational performance of the Great Western Highway. The construction staging design maintains one travel lane in each direction. However, there will be some instances during off peak times that lane closures or contraflow arrangements are required to complete works such as pavement resurfacing on the main carriageway. Throughout the construction period, haulage or traffic movements would be required to travel along the existing Great Western Highway and the connecting local road network. Traffic management plans and construction staging would be progressively developed and refined during construction to facilitate the safe and efficient movement of traffic through and around the proposal area and to and from construction locations and ancillary facilities.

Noise and vibration

Construction

Receivers in the study area are typically sparsely distributed rural residential properties with a small number of commercial properties at various points along the alignment. Receivers are relatively close to the alignment along the length of the proposal although they are generally few in number. The highest impacts are expected to occur when noise intensive equipment is being used, such as rockbreakers, concrete saws, chainsaws or chippers. These items of equipment would, however, be required occasionally and would be unlikely to be in use for long periods of time. Periodic blasting would be required for construction at River Lett Hill however, these blasts would be of short duration and undertaken during standard working hours (see below).

Impacts during the daytime are predicted to be ‘highly intrusive’ or ‘moderately intrusive’ within 10 of the 13 noise catchment areas during some of the noisier scenarios such as site establishment, earthworks, utility works and road works. The worst-case noise levels are predicted to be around 85 to 90 dBA at the nearest receivers when noise intensive equipment is being used close to receivers. When noise intensive equipment is not used the noise levels are expected to be substantially lower, with worst-case levels of around 70 dBA predicted at the closest receivers.

Residential receivers that are subject to noise levels of 75 dBA or greater are considered highly noise affected. Up to 12 receivers in NCA12 may be highly noise affected, up to six receivers in NCA12 and NCA13, and between one and four receivers in NCA01, NCA03, NCA04, NCA06, NCA07, NCA08, NCA09 and NCA10. The highest noise levels are conservative and would likely be apparent for relatively short periods.

Only certain work would be completed during the night-time, including transportation of bridge girders, asphalting and road tie-in work where connections to the existing road network are necessary. Worst-case noise levels may reach ‘highly intrusive’ levels in 9 of the 13 NCAs, however only a relatively small number of receivers are predicted to be impacted. Sleep disturbance screening criterion is also likely to be exceeded at these residential receivers when night work occurs. Where possible, noisy work would be completed as early as possible in each night work shift. Appropriate respite would also be provided to affected receivers in accordance with the Transport Construction Noise and Vibration Guideline (Roads and Maritime, 2016) (CNVG). Any work outside of standard construction hours would also be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009) (ICNG).

Occupants of affected buildings located within the human comfort minimum working distances may be able to perceive vibration impacts at times when vibration intensive equipment is in use. Where impacts are perceptible, they would likely only be apparent for relatively short durations when vibration intensive equipment is nearby. Mitigation measures will be considered for receivers located near to the work within the minimum working distances for cosmetic damage.

A Construction Noise and Vibration Management Plan (CNVMP) would be prepared prior to work commencing which would detail the approach to providing noise and vibration mitigation during construction. The CNVG contains a number of 'standard mitigation measures' for mitigating and managing construction noise and vibration impacts. The measures would be applied to construction of the proposal, where feasible and reasonable. Where noise impacts remain after the use of 'standard mitigation measures', the CNVG requires the use of 'additional mitigation measures' where feasible and reasonable. The 'additional mitigation measures' are determined on the basis of the exceedance of the appropriate management levels and range from notifications, phone calls, individual briefings, respite periods, to in some cases alternative accommodation.

Blasting

Construction of the deep cut through River Lett Hill will require a significant amount of blasting to remove the large volume of hard rock. A blasting specialist has been engaged and would further inform the blasting methodology, including times, road closures and diversions, as detailed design progresses. Blasting would only occur during standard construction hours and each blast would be of a short duration.

Twenty-seven buildings are within 170 metres of the proposed blasting location and have the potential to be impacted by structural damage and human comfort associated with blasting. Thirteen heritage items or areas are within 340 metres of the proposed blasting location. A blast management plan will be prepared prior to the start of blasting and include trial blasting plans, monitoring and notification requirements and mitigation measures. Building condition surveys should be completed before and after the work where buildings or structures are within the minimum working distances and considered likely to exceed the cosmetic damage criteria during the use of blasting activities.

Operation

The proposal is predicted to alter operational road traffic noise levels for many receivers in the study area due to the revised alignment of the Great Western Highway. Noise levels are predicted to reduce in locations where the alignment is proposed to be moved away from receivers, however, the alignment is closer in some locations and noise levels are predicted to increase in these areas.

Exceedances of the relevant criteria are predicted at the nearest residential receivers. These exceedances are generally due to a mixture of increasing noise levels, exceedances of the cumulative limit criteria and acute road traffic noise levels.

For these areas, forty-seven sensitive receivers are considered eligible for consideration of additional noise mitigation. At property treatment is likely to be the most appropriate form of mitigation however, the final noise mitigation strategy would be determined during detailed design.

Aboriginal heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was prepared to provide an assessment of Aboriginal cultural values potentially impacted by the proposal.

Test excavations carried out for the proposal at 16 locations found repeated evidence of Aboriginal stone artefacts in the areas of River Lett Hill and Hartley, camping activity along River Lett at Jenolan Caves Road, and artefact scatters along tributaries associated with Whites Creek, Butlers Creek and Boxes Creek. Evidence of activities along minor watercourses and occupation at the western margin of the construction footprint were also confirmed.

Consultation with Aboriginal community members has confirmed that the entire proposal area is significant to Aboriginal people. A number of specific sites near to the proposal have been identified as having high cultural significance, with several falling within or partly within the proposal area.

Based on the results of the ACHAR and in consultation with registered Aboriginal parties (RAPs) it is considered that there are 20 Aboriginal sites within the construction footprint that would be directly impacted by the project. These direct impacts range from negligible to major. In addition, nine Aboriginal sites are located within the study area, but outside of the construction footprint, including two sites that will be subject to minor indirect impacts associated with vibration and settlement, and one site subject to moderate indirect impacts also associated with vibration and settlement.

Management recommendations have been developed in consultation with RAPs to avoid impacts where possible and where impacts are unavoidable, to effectively mitigate them. Management of Aboriginal sites would include protection and salvage measures, development of a curation policy for salvaged Aboriginal objects and procedures for unexpected discovery of Aboriginal objects. Site specific management measures would be described in an Aboriginal Heritage Management Plan (AHMP) that would form part of the construction environmental management plan (CEMP) that would be developed for the project.

Non-Aboriginal heritage

Construction activities associated with the proposal have the potential to directly and indirectly impact on heritage items within the study area including demolition/destruction of items, vibration impacts, and works within the heritage curtilage.

A review of previous heritage studies, aerial imagery, and a search of relevant heritage registers identified 36 listed heritage items and 14 locations of heritage potential (including archaeological potential) within the study area. Following the desktop assessment, 25 listed heritage items and six areas of heritage potential situated within or adjacent to the construction footprint were further assessed. One potential item, the causeway of Billesdene Grange has been considered as part of the listed heritage item.

The proposal would have a major impact to one listed heritage item, Lyndoch Orchard (LEP I019) that would experience major direct (physical) and indirect (visual) impacts.

The proposal would also have major impacts on three unlisted heritage items. The bridge over the River Lett (located on the Old Great Western Highway, over the River Lett) would experience major direct (physical) and indirect (visual and vibration) impacts. Archaeological potential on an unidentified Lot would experience major direct (physical) and archaeological impacts. The historic bullock track and creek crossing would experience major direct (physical) and indirect (visual) impacts.

The proposal would have a moderate impact to three heritage listed items. Billesdene Grange (LEP I023) would experience direct (physical), indirect (visual) and archaeological impacts. The state heritage listed Hartley Historic Village (SHR00992 and LEP I020) would experience direct (physical), indirect (visual and vibration) and archaeological impacts. The state heritage listed Fernhill (SHR00225 and LEP I043) would experience direct (physical) and indirect (visual and vibration) impacts. There would also be a moderate impact to one unlisted heritage item, Mitchell's Road.

The proposal would also have a negligible or minor impact to 23 heritage or potential heritage items.

Management and mitigation measures would be implemented to address these impacts based on the impact type and level, including but not limited to archival recording, archaeological test excavation, landscaping and sympathetic plantings, monitoring of ground disturbance works and engagement of subject matter experts (such as heritage structural engineer and an arborist) where appropriate.

Soils and surface water

Construction of the proposal will include earthworks along the proposed alignment, access tracks and site compounds. Earthworks have the potential to impact soil and surface water quality through erosion and sedimentation. Earthworks also have the potential to expose acid sulfate rock.

A Neutral or Beneficial Effect on water quality assessment has been conducted for the proposal. The assessment indicates that with the proposed mitigation measures, the proposal will have a beneficial effect on water quality with reduced pollutant loads compared to existing conditions.

Hydrology and flooding

Potential flooding impacts associated with the proposal would be confined to River Lett (including Boxes Creek) and Rosedale Creek. The results of the flooding analysis showed that most of the predicted impacts would be localised to waterways and pre-existing flooded areas. Flood level increases would be within the current industry accepted tolerances for the land uses surrounding the proposal.

Landscape character and visual impact

During construction, there would be temporary landscape character and visual impacts. These impacts would include views of large earthmoving and construction equipment, construction activities, stored materials and stockpiles, activities in and around ancillary facilities, vegetation clearing and excavation.

Construction, particularly out of hours work, would require lighting at ancillary facilities and work areas. These locations could result in light spill impact on adjoining properties. This may result in a temporary visual impact at night, particularly near residences. Safeguards and management measures have been identified for temporary construction works to manage landscape character and visual impacts. Impacts from lighting are anticipated to be minor as a majority of the works will be conducted during standard hours.

During operation, the proposal would result in a moderate to high impact on landscape character due to the intensification of road infrastructure in a sensitive rural landscape. There would be varied visual impacts as a result of the operation of the proposal. 27 viewpoints have been assessed that represent a range of directions, distances and sensitive receivers within the proposal area. 13 of the viewpoints are expected to have a visual impact considered greater than moderate with four viewpoints experiencing high visual impacts.

The landscape character and visual impacts associated with the proposal would generally be consistent with other similar projects, either completed or under construction along the Great Western Highway. A number of urban design principles have been developed for the proposal which take into account urban design and visual character of the surrounding area. These urban design principles would be incorporated into the detailed design to integrate the project within the surrounding rural landscape to minimise the visual impact of the proposal.

Socio-economic

During construction, potential impacts on communities, businesses, visitors and motorists in the study area would mainly be associated with disruptions for motorists and road users during construction, temporary changes to local amenity, noise and light spill during night works, and clearing of vegetation from bushland areas, rural properties and the road reserve.

Once operational, the proposal would have long term positive impacts on access and connectivity for local and regional communities, business, and industry. It would support faster, more reliable and safer regional connections and links to and from destinations within the study area and surrounding Blue Mountains, Lithgow, Central West, Orana and greater Sydney. Removal of through traffic, including heavy vehicles, within the Little Hartley village would support safer access and enhanced amenity for residents and businesses within the village.

Changes to the alignment of the highway, new access roads and widening of the existing highway will intensify road infrastructure at some locations and move the alignment closer to residential users. Traffic noise from the proposal has potential to impact on amenity for residents, including during the evening and night-time given the relatively low existing noise environment. The proposal would improve conditions for pedestrians and cyclists by providing a range of improvements to the existing active transport network and facilities as detailed in Section 6.2.3. Design development has considered the future development of shared

paths in the vicinity of the proposal. The alignment and structure of the future shared paths would be developed and finalised during future design development and in consultation with Lithgow City Council and other relevant stakeholders.

Property and land use

The proposal would require the partial or full acquisition of private property for the widening and realignment of the highway, local road changes and new access roads. Full acquisition of four lots owned by the National Parks and Wildlife Service, and one lot vested in Lithgow City Council would also be required. Temporary leases would be required over some properties for temporary construction facilities such as site compounds and stockpile sites.

Short term property impacts would potentially occur during construction as a result of activities such as land use changes and changes to property access, as well as leasing land for ancillary facilities and temporary sediment basins. Access to properties and businesses would be maintained for the full duration of construction. Alternative access arrangements would be provided where the proposal would impact access to residential and commercial properties.

Nine lots would be partially leased for the duration of construction. Consultation with landowners would be held in relation to leasing these properties (see Section 5 Consultation).

Contamination

A number of potential contamination sources (Areas of Environmental Interest) have been identified within the study area including groundwater contamination from underground fuel storage associated with a former service station, groundwater in vicinity of Hartley Cemetery, soil contamination from disturbance of waste dumping/burial, sheep/cattle dips, septic tanks and chemical or fuel use and ground storage areas. One contaminated site within the study area is listed on the EPA Contaminated Sites Record of Notices - a Shell Coles Express Service Station on the Great Western Highway in South Bowenfels. Further testing and investigation would be undertaken during detailed design to determine the likelihood and extent of any potential contamination on the proposal.

Justification and conclusion

The proposal to upgrade the Great Western Highway between Little Hartley and Lithgow forms part of the Great Western Highway Upgrade Program, which aims to reduce congestion and deliver safer, more efficient and reliable journeys for those travelling in, around and through the Blue Mountains, while also better connecting communities in the Central West.

Traffic modelling has indicated that the proposal will improve travel times along the Great Western Highway and is predicted to reduce the total crash rate by 57 per cent between Little Hartley and Lithgow. Reduction of through traffic, including heavy vehicles, within the Little Hartley village would support safer access and enhanced amenity for residents and businesses within the village.

The proposal would have some negative social impacts during the construction phase of the proposal, however once operational, there would be long term positive impacts on access and connectivity for local and regional communities, business, and industry. The proposal represents a cost-efficient investment in public infrastructure that would maximise the long-term social and economic benefits, while minimising the long-term negative impacts on communities and the environment. By improving local and regional transport facilities, the proposal would better enable movement of people, goods and services.

Measures to avoid, minimise or offset potential environmental impacts have been considered throughout the options development process for the proposal. An important consideration has been to minimise potential impacts on biodiversity and particularly the removal of native vegetation.

The proposal as described in the REF best meets the proposal objectives but would still result in some impacts such as construction noise and vibration, changes to access and traffic delays during construction, land acquisition and property adjustment, visual and landscape changes, loss of native vegetation, Aboriginal and non-Aboriginal heritage impacts. Safeguards and management measures as detailed in this REF would minimise these expected impacts. The proposal would cater for future population and traffic growth in the region. The proposal would benefit future generations by improving safety and helping to address the future increases in traffic volumes and traffic congestion associated with movement of traffic along the Great Western Highway. On balance the proposal is considered justified.

Display of the review of environmental factors

This REF is on display for comment between 22 November 2021 and 21 December 2021. You can access the documents in the following ways:

Internet

The documents are available as pdf files on the Transport website at **nswroads.work/gwhwestconsult**.

Printed copies

The documents can be viewed at the following locations:

Lithgow City Council Administration Centre

180 Mort Street, Lithgow NSW 2790

Hours of operation:

- Monday to Friday 8.30am–4.15pm

Lithgow Library Learning Centre

157 Main Street, Lithgow NSW 2790

Hours of operation:

- Monday to Friday 9am–6pm
- Saturday 9am–12pm

Copies by request

Printed and electronic copies are available by contacting the project team at 1800 953 777 or gwhd@transport.nsw.gov.au.

Public displays

The project team will be delivering a combination of online and face-to-face consultation sessions:

General online sessions

- Tuesday 30 November 6.30pm–8.00pm
- Saturday 11 December 12.30pm–2.00pm

Targeted online sessions

- Coxs River Road/Baaners Lane - Thursday 2 December 6.30pm–8.00pm
- Jenolan Caves Road/River Lett Hill – Thursday 9 December 6.30pm–8.00pm

Face-to-face sessions

- Saturday 4 December 1.00pm–3.15pm – Lithgow Civic Ballroom – Tony Luchetti Showgrounds, George Coates Avenue, Lithgow (book for a 45 minute session)
- Tuesday 7 December 5.30pm–7.45pm – Hartley Community Hall, Corner Great Western Highway and Mid Hartley Road, Hartley (book for a 45 minute session)

Register for a consultation session at **nswroads.work/gwhwestconsult.**

Bookings are essential for face-to-face sessions, which will be held pending COVID restrictions or the occurrence of local cases at the time of the events. QR code sign in and proof of double vaccination status will be required.

Contact the project team on 1800 953 777 or ***gwhd@transport.nsw.gov.au*** to book a personal phone consultation.

How can I make a submission?

To make a submission about this proposal, use the online submission form at **nswroads.work/gwhwestconsult**, email **gwhd@transport.nsw.gov.au** or send your written comments to

Great Western Highway Upgrade Program
Little Hartley to Lithgow REF and Concept Design
PO Box 334
Parkes NSW 2800

Submissions must be received or postmarked by midnight, Tuesday 21 December 2021.

Transport for NSW will collect information from your submission (including your name, contact details and comment) to use for the purpose of public consultation, including on the Great Western Highway Upgrade Program - Little Hartley to Lithgow ("the proposal"), and to contact you for feedback on our consultation process more generally.

Transport may release reports which outline how community feedback on the proposal has been considered but will not disclose any personal information provided as part of your submission in those reports. Providing personal information is voluntary, however we rely on your participation to ensure the accuracy and reliability of the information obtained and we may not be able to communicate with you directly if you do not provide your personal information. Your personal information will not be disclosed without your consent, except where required by law. Your personal information will be held and managed by Transport for NSW in accordance with the *Privacy and Personal Information Protection Act 1998 (NSW)*. For further information about how we manage your personal information, please see our Privacy Page at ***www.transport.nsw.gov.au/about-us/transport-privacy*** or contact us at ***privacy@transport.nsw.gov.au***

What happens next?

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

After this consideration, Transport 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 will continue to consult with the community and stakeholders prior to and during construction.