

8. Conclusion

This chapter provides the justification for the proposal taking into account its biophysical, social and economic impacts, the suitability of the site and whether or not the proposal is in the public interest. The proposal is also considered in the context of the objectives of the EP&A Act, including the principles of ecologically sustainable development as defined in Schedule 2 of the Environmental Planning and Assessment Regulation 2000.

8.1 Justification

The New England Highway is recognised for its strategic importance to national and regional economic growth, development and connectivity. The strategic need for the proposal stems from the importance of the New England Highway in providing safe and efficient access as a major freight and commuter route for the Upper and Lower Hunter. The proposal is considered consistent with a number of relevant strategic planning and policy frameworks, as listed in Section 3.2.1.

The preferred option for the proposal was selected because it would best meet the project objectives. The REF has assessed the potential biophysical, social and economic impacts of this option.

The proposal would:

- Reduce traffic volumes along the New England Highway through Singleton
- Improve average travel times on the New England Highway
- Improve road safety along the New England Highway through Singleton
- Support growth in the Hunter region through improved freight movements.

The proposal would result in some adverse environmental impacts during as a consequence of the proposal, including impacts to heritage sites (both Aboriginal and non-Aboriginal), air and noise emissions, biodiversity and reduced visual amenity for some residents and road users. However, these have been avoided or minimised wherever possible through design and site-specific safeguards provided in Section 7 would help to reduce these impacts.

Overall the proposal is justified on the basis that the adverse impacts of the proposal would be outweighed by the long-term beneficial impacts of improved traffic flow, reduced congestion and improved safety for roads users and residents within Singleton.

8.1.1 Social factors

Full and partial property acquisition would be required for the proposal, and construction activities may result in altered access arrangements for some residents. A SEIA was conducted for the proposal as discussed in Section 6.12.

The proposal would have long-term beneficial impacts by maintaining the New England Highway as an important freight and commuter route and improving travel reliability through Singleton. The proposal would provide better access to the town centre by providing a heavy vehicle bypass, thus removing freight traffic through the town centre. This would reduce travel times and congestion and improve road safety and efficiency for through and local traffic in Singleton. The proposal also provides an effective flood evacuation route, while only having a minor impact on flooding.

The proposal has been designed to reduce the social impacts on the community as far as possible, and the remaining impacts would be managed by the safeguards identified in Section 7.

8.1.2 Biophysical factors

Potential impacts to a range of biophysical factors have been assessed throughout Section 6 and mitigation measures would be implemented to manage potential impacts.

The proposal would result in a loss of around 15.2 hectares of vegetation listed under the BC Act. About 16.9 hectares of the Central Hunter Valley eucalypt forest and woodland, listed as critically endangered under the EPBC Act will also be impacted. This would result in a reduction of habitat, including hollow-bearing trees, for a range of birds and mammals including threatened species, and loss of fauna habitat connectivity. An aerial fauna crossing over the New England Highway would be provided to help reduce potential impacts.

An assessment of significance has been carried out for threatened species and ecological communities that are likely to occur in the proposal area. The assessment found that the proposal is unlikely to have a significant impact on all matters listed under the BC Act. It was found that the proposal is likely to have a significant impact on Central Hunter Valley eucalypt forest and woodland listed as critically endangered under the EPBC Act. Roads and Maritime's strategic assessment has been applied to the proposal.

8.1.3 Economic factors

The proposal meets the proposal objectives whilst designing for low maintenance and being economically viable. The proposal's benefit-cost ratio is estimated as 1.3, with a six per cent first year rate of return and an internal rate of return of nine per cent (Roads and Maritime, 2016).

The proposal would improve transport connections, reduce commuting times and lower vehicle operating costs between employment and tourist destinations. This section of the New England Highway is a major transport artery for freight travelling between the Port of Newcastle and the Hunter Valley and has supported the substantial growth in transportation for coal and agricultural industries and employment in NSW.

8.1.4 Public interest

The proposal is considered to be in the public interest as it would improve road safety, traffic efficiency and access through the Hunter Valley and the town centre of Singleton, while also improving amenity such as air quality and reduced noise levels within the township. Whilst the community would experience some negative impacts as a result of the proposal, most would be temporary and would be minimised with the safeguards provided in Section 7.

The diversion of traffic, in particular heavy vehicles, to the bypass would reduce the volume of traffic through Singleton and this in turn is expected to reduce the number crashes and the existing conflict between pedestrians and vehicles.

8.2 Objects of the EP&A Act

Object	Comment
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	<p>The proposal would provide better access through the town centre of Singleton and would reduce travel times and congestion and improve road safety and efficiency for through and local traffic.</p> <p>The proposal would, where feasible, limit its use of</p>

Object	Comment
	natural and artificial resources and would source locally where possible. Socio-economic impacts are assessed in Section 6.12. The assessment includes management measures to avoid and/or minimise impacts.
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	The proposal has considered relevant economic, environmental and social considerations. Ecologically sustainable development is considered in Section 8.2.1 to 8.2.4 below. Potential impacts have been minimised through concept design and would be further mitigated using the measures in Section 7.
1.3(c) To promote the orderly and economic use and development of land.	The proposal is needed to improve safety on the New England Highway and in Singleton. The proposal would provide for future growth and development in Singleton due to reduced traffic volumes and improved movement of heavy freight vehicles. Potential impacts to the development of the land have been minimised through concept design and are discussed in Section 6.11.
1.3(d) To promote the delivery and maintenance of affordable housing.	Not relevant to the proposal.
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	<p>The proposal would result in a loss of around 15.2 hectares of vegetation listed under the BC Act. About 16.9 hectares of the Central Hunter Valley eucalypt forest and woodland, listed as critically endangered under the EPBC Act would also be impacted.</p> <p>An assessment of significance has been carried out for threatened species and ecological communities that are likely to occur in the proposal area. The assessment found that the proposal is unlikely to have a significant impact on all matters listed under the BC Act. It was found that the proposal is likely to have a significant impact on Central Hunter Valley eucalypt forest and woodland listed as critically endangered under the EPBC Act. Roads and Maritime's strategic assessment has been applied to the proposal. Impacts to biodiversity are discussed in Section 6.1.</p>
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The proposal would result in potential impacts to both Aboriginal and non-Aboriginal cultural heritage. The management of Aboriginal heritage and non-Aboriginal heritage is considered in Section 6.7 and Section 6.8, respectively.
1.3(g) To promote good design and amenity of the built environment.	<p>The proposal would promote good design and amenity of the built environment.</p> <p>As noted in section 3.2.1, the proposal would be constructed in accordance with the following standards:</p> <ul style="list-style-type: none"> • Guide to Road Design – Austroads (Austroads, 2017) • Guide to Road Safety – Austroads (Austroads, 2009) • Roads and Maritime Austroads Guide Supplement (Roads and Maritime, 2017)

Object	Comment
	<ul style="list-style-type: none"> • Road Design Guide (Roads and Traffic Authority of NSW (undated)) • Guidelines for Road Safety Audit Practices (Roads and Maritime Services, 2011) • Beyond the Pavement, RTA urban design policy, procedures and design principles (Roads and Traffic of NSW, 2009) • Roads and Maritime Delineation Manual (Roads and Maritime, 2008-2015) • Roads and Maritime Road Technical Directions • NSW Speed Zone Guidelines (Roads and Traffic Authority of NSW, 2011).
1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their	Not relevant to the proposal.
1.3(i) To promote the sharing of the responsibility for environmental planning and	Not relevant to the proposal.
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	community and relevant key stakeholders during the development of the proposal. Details of this consultation can be found in Section 5.

8.2.1 The precautionary principle

The precautionary principle states ‘if there are threats of serious or irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation’.

The assessment of alternative options has aimed to reduce the risk of serious and irreversible impacts on the environment. Consultation considered issues raised by stakeholders and a range of specialist studies were carried out for key issues to provide accurate and independent information to assist in the development process.

A number of safeguards have been proposed to minimise potential impacts and would be implemented during detailed design, construction and operation of the proposal. No safeguards have been postponed as a result of lack of scientific certainty.

A CEMP would be prepared before construction starts and would ensure the proposal achieves a high-level of environmental performance.

8.2.2 Intergenerational equity

The intergenerational equity principle states, ‘the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations’. This principle includes both intragenerational equity (within generations) and intergenerational equity (between generations).

The proposal would result in amenity impacts for some residents of Singleton and road users however would not result in any impacts that are likely to adversely impact on the health, diversity or productivity of the environment for future generations. The proposal would benefit future generations by ensuring road safety and freight efficiency is improved along the New England Highway.

The proposal has included a number of specialist reports to assess social equity both in terms of environmental, social and economic costs and benefits to the current community and future generations. Should the proposal not proceed, the principle of intergenerational equity may be compromised, as public safety may be affected by future traffic incidents associated with the existing New England Highway.

8.2.3 Conservation of biological diversity and ecological integrity

This principle states the ‘diversity of genes, species, populations and communities, as well as the ecosystems and habitats to which they belong, must be maintained and improved to ensure their survival’.

The route selection and the development of the concept design have sought to avoid and minimise biodiversity impacts as far as practical.

The proposal will result in a loss of around 15.1 hectares of vegetation listed under the BC Act. About 16.9 hectares of the Central Hunter Valley eucalypt forest and woodland, listed as critically endangered under the EPBC Act will also be impacted. This would result in a reduction of habitat, including hollow-bearing trees, for a range of birds and mammals including threatened species, and loss of fauna habitat connectivity. An aerial fauna crossing over the New England Highway would be provided to help reduce potential impacts.

An assessment of significance has been carried out for threatened species and ecological communities that are likely to occur in the proposal area. The assessment found that the proposal is unlikely to have a significant impact on all matters listed under the BC Act. It was found that the proposal is likely to have a significant impact on Central Hunter Valley eucalypt forest and woodland listed as critically endangered under the EPBC Act. Roads and Maritime’s strategic assessment has been applied to the proposal.

8.2.4 Improved valuation, pricing and incentive mechanisms

This principle requires ‘costs to the environment should be factored into the economic costs of a project’.

The REF has examined the environmental consequences of the proposal and identified mitigation measures to manage the potential for adverse impacts. The requirement to implement these mitigation measures would result in an economic cost to Roads and Maritime. Incorporating environmental mitigation measures into the physical design and contractual requirements ensures that the costs of environmental impacts and mitigation are recognised by the proposal.

The concept design has been developed with an objective of minimising potential impacts on the surrounding environment. This indicates that the proposal is being developed with an environmental objective in mind.

8.3 Conclusion

The proposed New England Highway bypass of Singleton, NSW, is subject to assessment under Division 5.1 of the EP&A Act. This REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

This has included consideration (where relevant) of conservation agreements and plans of management under the NPW Act, biodiversity stewardship sites under the BC Act, wilderness areas, areas of

outstanding value, impacts on threatened species and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the Federal EPBC Act.

A number of potential environmental impacts from the proposal have been avoided or reduced during the concept design development and options assessment. The proposal as described in the REF best meets the project objectives but would still result in some impacts including:

- Implications for traffic and transport
- Noise and vibration impacts
- Impacts on flora and fauna
- Flooding impacts
- Surface and groundwater impacts
- Landscape and visual amenity changes
- Impacts to Aboriginal and non-Aboriginal heritage
- Property and land use issues
- Socio-economic impacts.

Safeguards and management measures as detailed in this REF would ameliorate or minimise these expected impacts. The proposal would also result in long-term beneficial impacts including improved road safety, improved freight efficiency and access through the Hunter Valley and the town centre of Singleton. It would also improve amenity within Singleton. On balance the proposal is considered justified.

Significance of impact under NSW legislation

The proposal would be unlikely to cause a significant impact on the environment. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposal is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

Significance of impact under Australian legislation

The proposal is likely to have a significant impact on threatened species, ecological communities or migratory species, within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*. This REF has considered the consistency of the activity with relevant recovery plans, threat abatement plans, conservation advices and guidelines provided by the Australian Government. The REF finds that the activity will not threaten the long term survival of nationally listed biodiversity matters and that suitable offset measures can be secured as set out in the Biodiversity Offset Strategy for the proposal.

This REF has been prepared to meet the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* strategic assessment approval for Roads and Maritime Division 5.1 road activities. A referral to the Australian Department of the Environment and Energy is not required.

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Terms and acronyms used in this REF

Term / Acronym	Description
<i>'Do minimum' option</i>	The 'do minimum' option represents the scenario if the proposal was not to proceed. It is called 'Do Minimum' rather than Do Nothing as it assumes that ongoing improvements would be made to the broader road and public transport network including some new infrastructure and intersection improvements to improve capacity and cater for traffic growth.
AADT	Annual Average Daily Traffic The total volume of traffic passing a roadside observation point over a period of a year, divided by the number of days per year. It is calculated from mechanically obtained axle counts.
AAR	Aboriginal Archaeological Report
ABL	Assessment Background Levels
ABS	Australian Bureau of Statistics
Aboriginal object	Any deposit, object or material evidence (not being a handicraft made for sale), including Aboriginal remains, relating to the Aboriginal habitation of NSW.
Aboriginal place	Any place declared to be an Aboriginal place under s.94 of the National Parks and Wildlife Act 1974.
Aboriginal stakeholders	Members of a local Aboriginal land council, Aboriginal groups or other Aboriginal people who have registered their interest with Roads and Maritime to be consulted about a proposed Roads and Maritime project or activity.
ACHAR	Aboriginal Cultural Heritage Assessment Report
Acid sulfate soils	Naturally acid clays, mud and other sediments usually found in swamps and estuaries. They may become extremely acidic when drained and exposed to oxygen and may produce acidic leachate run-off that can pollute waters and liberate toxins.
ACM	Asbestos Containing Material
AEC	Areas of Environmental Concern
AECOM	AECOM Australia Pty Ltd
AEP	Annual Exceedance Probability
AFG	Aboriginal Focus Group AFG meetings are held to consult with Aboriginal stakeholders who have registered their interest to be consulted regarding an RMS project.
AHD	Australian height datum The standard reference level used to express the relative height of various features. A height given in metres AHD is essentially the height above sea level. Mean sea level is set as zero elevation.
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit

Term / Acronym	Description
Alluvium	Unconsolidated deposit of gravel, sand or mud formed by water.
AM peak period	AM peak period – 6 - 10am weekdays
<i>Ambient noise</i>	The all-encompassing noise at a point composed of sound from all sources near and far.
Amenity	Amenity refers to the quality of a place, its appearance, feel and sound, and the way its community experiences the place. Amenity contributes to a community's identity and its sense of place.
ANZECC	Australian and New Zealand Environment Conservation Council
Archaeology	The scientific study of human history, particularly the relics and cultural remains of the distant past.
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ARTC	Australian Rail Track Corporation
Arterial Roads	The main or trunk roads of the State road network that carry predominantly through traffic between regions.
Asphalt or asphaltic concrete	A dense, continuously graded mixture of coarse and fine aggregates, mineral filler and bitumen usually produced hot in a mixing plant.
ASL	Above Sea Level
ASRIS	Australian Soil Resource Information System
<i>Assessment background level [ABL]</i>	The overall background level for each day, evening and night period for each day of the noise monitoring.
<i>Background noise</i>	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L ₉₀ sound pressure level is used to quantify background noise.
BaPTEQ	Benzo(a)pyrene Toxic Equivalence Quotient
BC Act	Biodiversity Conservation Act
BDAR	Biodiversity Development Assessment Report
BMT WBM	BMT Group Pty Ltd
BoM	Bureau of Meteorology
Bore	A cylindrical drill hole sunk into the ground from which water is pumped for use or monitoring.
Borehole	A hole produced in the ground by drilling for the investigation and assessment of soil and rock profiles.
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CBD	Central Business District
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan

Term / Acronym	Description
CHPP	Coal Handling and Preparation Plant
CLM	<i>Contaminated Land Management Act 1997</i>
CMSC Act	Coal Mine Subsidence Compensation Act 1961
CNVMP	Construction Noise and Vibration Management Plan
CO	Carbon Monoxide
Community cohesion	Community cohesion refers to the connections and relationships between individuals and their neighbourhoods.
Compound site	Facilities used to support the operation of a construction site including site offices, workshops, delivery areas, storage areas, crib sheds, staff vehicle parking, materials, plant and equipment.
Concept design	Initial functional layout design for a road or road system, to establish feasibility, to provide a basis for estimating, and to determine further investigations needed for detailed design.
Construction fatigue	Construction fatigue relates to receivers that experience construction impacts from a variety of proposals over an extended period of time with few or no breaks between construction periods.
Consultation	Inviting feedback from the community and stakeholders to inform a proposal
CoPC	Contaminants of Potential Concern
CSEP	Community and Stakeholder Engagement Plan
CSM	Conceptual Site Model
CTMP	Construction Traffic Management Plan
Cumulative Impacts	Impacts that, when considered together, have different and/or more substantial impacts than a single impact assessed on its own.
Curtilage	The land around a bridge, building or any structure or object that is essential or contributes to the value, function and enjoyment of that object (e.g. a heritage building and surrounding buildings and trees that relate to it form an entire setting).
DA	development application
Day	The period from 0700 to 1800 h Monday to Saturday and 0800 to 1800 h Sundays and Public Holidays.
dB	Decibels – A scale unit used in the comparison of powers and levels of sound energy. Used for measuring noise.
dB(A)	A-weighted decibels A-weighting is applied to instrument-measured sound levels in effort to account for the relative loudness perceived by the human ear, as the ear is less sensitive to low audio frequencies.
DCP	Development Control Plan
DECC	Department of Environmental and Climate Change.
DECCW	NSW Department of Environment, Climate Change and Water

Term / Acronym	Description
<i>Design noise model</i>	A model of the proposal as it was designed, that calculates road traffic noise levels.
<i>Design option</i>	This scenario includes the proposal design alignment. The Road Noise Policy, Noise Criteria Guideline, and Noise Mitigation Guideline refer to this as the 'Build' scenario.
<i>Design year</i>	Ten years after the proposal opens (2036).
DNG	Derived Native Grassland
DoEE	Department of the Environment and Energy
DPE	NSW Department of Planning and Environment
DPI	Department of Primary Industries
EC	Electrical Conductivity
ECC	Endangered Ecological Communities
EIA	Environmental impact assessment
EIA-N05 (Practice Note)	<i>Environmental Impact Assessment Practice Note – Socio-economic assessment</i>
ENMM	Environmental Noise Management Manual (ENMM)
Environment	As defined within the Environmental Planning and Assessment Act 1979 (NSW), all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW). Provides the legislative framework for land use planning and development assessment in NSW.
EP&A Reg	<i>Environmental Planning and Assessment Regulation 2000</i> (NSW)
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
EPL	Environmental Protection Licence
ESCP	Erosion and Sediment Control Plan
<i>Evening</i>	The period from 1800 to 2200 h Monday to Sunday and Public Holidays
Existing road traffic noise model	A model of the existing roads that calculates existing road traffic noise levels. This is used for model validation purposes with concurrently measured road traffic noise levels and traffic counts.
GDE	Groundwater Dependent Ecosystems
GHG	Greenhouse Gas
GNR	geographical name register

Term / Acronym	Description
GSP	NSW State Gross Product
Heavy vehicle	A heavy vehicle is classified as a Class 3 vehicle (a two axle truck) or larger, in accordance with the Austroads Vehicle Classification System.
HRMP	Hazard and Risk Management Plan
HRSTS	Hunter River Salinity Trading Scheme
Hydrology	The study of rainfall and surface water runoff process.
IAQM	Institute of Air Quality Management (IAQM)
ICNG	Interim Construction Noise Guideline
IER	Index of Economic Resources
Impact	Influence or effect exerted by a proposal or other activity on the natural, built and community environment.
Industry value add	This metric refers to the total value of goods and services produced by an industry, minus the cost of goods and services used in the production process.
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
ISEPP	State Environmental Planning Policy (Infrastructure) 2007.
km	Kilometre
km/h	kilometres per hour
KTP	Key Threatening Process
kV	Kilovolt
L_{10}	The sound pressure level exceeded for 10% of the measurement period. For 10% of the measurement period it was louder than the L_{10} .
L_{90}	The sound pressure level exceeded for 90% of the measurement period. For 90% of the measurement period it was louder than the L_{90} .
L_{Aeq}	A-weighted equivalent sound level
LCVIA	Landscape Character, Visual Impacts Assessment
LCZ	Landscape Character Zones
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
LGA	Local Government Area
LLS	Hunter Local Land Services (LLS)
L_{max}	The maximum sound pressure level measured over the measurement period.
L_{min}	The minimum sound pressure level measured over the measurement period.
Local Road	A road or street used primarily for access to abutting properties.
Local Study Area	The local study area refers to the Singleton Statistical Area Level 2 (SA2) as defined by the Australian Bureau of Statistics.

Term / Acronym	Description
LoS	Level of service – A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers.
Magnitude of impacts	Severity or scale and intensity, spatial extent and duration of the impact.
Mtpa	Million tonnes per annum
NBN	National Broadband Network
NCA	Noise Catchment Area
NCG	Noise Critical Guideline
NEPC	National Environmental Protection Council
NEPM	National Environment Protection (Assessment of Site Contamination) Measure
NES	Matters of national environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
<i>Night</i>	The period from 2200 to 0700 h Monday to Saturday and 2200 to 0800 h Sundays and Public Holidays.
NLTN	National Land Transport Network
NMG	Noise Mitigation Guideline
NML	Noise Management Level
NO ₂	Nitrogen dioxide
NO _x	Oxides of Nitrogen
NP&W Act	National Parks and Wildlife Act 1974
NPfI	Noise Policy for Industry
NSW	New South Wales
NSW DI - Water	NSW Department of Industry – Water Division
NTU	nephelometric turbidity unit
NVIA	Noise and Vibration Impact Assessment
NVTA	Noise and Vibration Technical Assessment
OEH	NSW Office of Environment and Heritage
ONVR	Operational Noise and Vibration Review
PAC	Planning Assessment Commission
PACHCI	Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PAD	Potential Archaeological Deposit Any location considered to have a moderate to high potential for subsurface archaeological material.
PAH	Polycyclic Aromatic Hydrocarbons

Term / Acronym	Description
Passing trade	Passing trade refers to customers who choose to visit a business because they see it when walking or driving past, or as a matter of convenience when on route to another destination, rather than an intentional trip with that business as the desired destination.
PCB	Polychlorinated biphenyls
PEI	Preliminary Environmental Investigation Report
PFAS	Per and Poly FluoroAlkyl Substances
PIARC	Permanent International Association of Road Congress
Pinch point	A place of point where congestion occurs
PM peak period	PM peak period
PM ¹⁰	Particulate matter less than 10 microns in diameter.
POEO Act	<i>Protection of the Environmental Operations Act 1997</i>
Property	Based on ownership, with the potential to contain more than one lot and Deposited Plan (DP)
Proposal	The proposal is an eight kilometre bypass west of Singleton with a single lane in each direction.
Proposal area	The proposal area departs the New England Highway near Newington Lane in Whittingham, heads north-west over the Main North railway line across the floodplain over Putty Road and continues over the Hunter River, west of Singleton, before crossing the New England Highway west of Gowrie Gates and re-joining the highway north of McDougalls Hill.
Ps	Singleton Coal Measures (Sandstone, shale, mudstone, conglomerate and coal seams)
Public transport	Includes train, bus (government and private), ferry (government and private) and light rail (government and private) services.
RAPs	Representative Aboriginal Parties
<i>Rating background level [RBL]</i>	The overall background level for each day, evening and night period for the entire length of noise monitoring.
RBL	Rating background levels
REF	Review of Environmental Factors
Regional Study Area	The regional study area refers to the area within the Singleton Local Government Area (LGA)
REMPAN	REMPAN Economy
Rest areas	A roadside area with restrooms and other facilities for the use of motorists
RMS	NSW Roads and Maritime Services
RNP	Road Noise Policy
Roads and Maritime	NSW Roads and Maritime Services

Term / Acronym	Description
ROL	Road Occupancy Licence
RTA	Roads and Traffic Authority, former Roads and Maritime
SA2	Statistical Area Level 2 (ABS)
SEIA	Socio – Economic Impact Assessment
SEIFA	Socio – economic indices for areas
Sensitive receiver	Includes residences, educational institutions (including preschools, schools, universities, TAFE colleges), health care facilities (including nursing homes, hospitals), religious facilities (including churches), child care centres, passive recreation areas (including outdoor grounds used for teaching), active recreation areas (including parks and sports grounds), commercial premises (including film and television studios, research facilities, entertainment spaces, temporary accommodation such as caravan parks and camping grounds, restaurants, office premises, retail spaces and industrial premises).
Sensitivity of affected stakeholders	Defined by the susceptibility or vulnerability of people, receivers or receiving environments to adverse changes caused by the impact, or the importance placed on the matter being affected.
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SES	State emergency consultation
SHR	State Heritage Register
SIS	Species Impact Statement
Social infrastructure	Social infrastructure facilities generally operate at a local, district and/or regional level and are defined by the scale of the population catchment they serve.
Socio-economic	Involving combination of social and economic matters
SoHI	Statement of Heritage Impacts
Specialised sporting facilities	Bowling clubs, tennis courts, golf courses, basketball courts and gymnasiums (which includes the public swimming pool in Singleton).
SPR	Source Pathway-Receptor
SSD	State Significant Development
State Heritage Register	A register kept by the NSW Heritage Council that lists places, buildings, works, relics, moveable objects or precincts that the Minister for Planning considers are of state heritage significance.
SWMP	Surface Water Management Plan
Sydney-Brisbane Corridor	This transport network is funded by the Australian and State governments and is recognised for its strategic importance to national and regional economic growth, development and connectivity.
TAGG	Transport Authorities Greenhouse Group
TBA	To Be Announced
TEC	Threatened Ecological Communities

Term / Acronym	Description
<i>Traffic noise</i>	The total noise resulting from road traffic. The L_{eq} sound pressure level is used to quantify traffic noise.
TRAQ	Tool for Roadside Air Quality
TRH	Total Recoverable Hydrocarbons
TSPD	Threatened Species Profile Database
TSS	Total Suspended Solids
UNSW	University of New South Wales
WM Act	Water Management Act 2000
WMP	Waste Management Plan
WQO	Water Quality Objectives
<i>Year of opening</i>	The year that the proposal opens (2026).
Zoning	Zoning regulates land use within an environmental planning instrument (usually by different colour codes on a map accompanying a local environmental plan). Land use tables set out the various purposes for which land may or may not be used or developed in each zone.