

New England Highway bypass of Singleton

Addendum Socio-economic Impact Assessment

15-Sep-2023

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15-Sep-2023

Job No.: 60558931

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Document New England Highway bypass of Singleton
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economics\appendix h_singleton addendum socio-
economic_e_230915.docx

Date 15-Sep-2023

Prepared by James Hugo

Reviewed by Neil Standen

Revision History


Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
A	24-Sep-2021	First draft	Ian Leach Project Manager	
B	01-Nov-2022	Final draft	Ian Leach Project Manager	
C	28-Jul-2023	Final draft revised	Ian Leach Project Manager	
D	07-Aug-2023	Final draft revised	Ian Leach Project Manager	
E	15-Sep-2023	Final	Ian Leach Project Manager	

Table of Contents

Executive Summary		i	
1.0	Introduction	4	
	1.1	Project background	4
	1.2	The proposed modification	4
	1.3	Purpose of this report	4
	1.4	Methodology	7
	1.5	Existing environment	9
2.0	Assessment of construction impacts	10	
	2.1	Property impacts	10
	2.2	Amenity	10
	2.3	Access and connectivity	15
	2.4	Impacts to community values, business and economy	15
3.0	Assessment of operational impacts	16	
	3.1	Property	16
	3.2	Amenity	16
	3.3	Access and connectivity	19
	3.4	Social infrastructure, business and economy	19
4.0	Assessment of cumulative impacts	20	
	4.1	Review of other major projects	20
5.0	Environmental management	22	
	5.1	Management of impacts	22
6.0	Conclusion	24	
7.0	References	25	

Executive Summary

Purpose

Transport for NSW proposes to modify the New England Highway bypass of Singleton project by providing a full interchange at Putty Road for ease of access to Singleton's town centre from the bypass as well as reconfiguration of the design at the southern connection to improve flood performance.

The purpose of this addendum Socio-economic Impact Assessment (SEIA) is to assess the potential socio-economic impacts that may occur as a result of the construction and operation of the proposed modification and recommend appropriate mitigation measures to manage these impacts. This addendum SEIA has been prepared in accordance with the Transport for NSW *Environmental Impact Assessment Practice Note – Socio-economic assessment 2020*.

Existing socio-economic environment

The New England Highway is a major freight and commuter route, passing through Singleton and forming the main road access through the town and to the town centre. The route allows for the transport of goods to domestic and international markets via Newcastle and Sydney. Due to mining activities in the region, the route also accommodates the transport of mining equipment and vehicles, which are often oversize and/or over-mass vehicles. Average daily traffic volumes indicate that up to 28,000 vehicles use the highway through Singleton each day, with around 15 per cent of these being heavy vehicles.

Singleton is a vibrant and diverse regional town, located at the centre of the Hunter Valley, 200 kilometres north west of Sydney and 75 kilometres from Newcastle via the Hunter Expressway. The population of the Singleton Local Government Area (LGA) was 24,577 in 2021.

Singleton has a diverse economic base including key industries such as mining, agriculture, tourism and retail. Residents of Singleton have access to eight public schools, two private schools, a TAFE NSW campus, a community college and the town is in close proximity to the University of Newcastle. It also has generous sporting amenities, shopping options and modern public amenities. There are a range of health facilities, a variety of church and religious presences and many active service clubs.

The main streets of Singleton are George Street and John Street where the majority of businesses are located. Businesses range from retail, to eateries/cafes, banking and finance, automotive services, accommodation and other goods and services.

Potential impacts

The proposed modification would lead to both socio-economic impacts and benefits for communities in Singleton.

Property impacts

There would be no additional property acquisitions associated with the proposed modification. No social infrastructure would be acquired. As such, the potential socio-economic impacts associated with property acquisition as part of the proposed modification are consistent with the approved project.

Amenity impacts

Noise and vibration

Exposure to noise and vibration during construction has the potential to:

- Create annoyance
- Interfere with daily activities or the enjoyment of these activities
- Interfere with concentration and memory
- Disrupt sleep and rest patterns.

Potential construction noise impacts would occur at residential receivers along the bypass and would be focused around where construction activities are closest to residential areas including at Putty Road.

Once operational there would be increases in road traffic noise at residential receivers located in proximity to the bypass to the north and east.

Air quality

Potential air quality and amenity impacts to nearby residential receivers and social infrastructure in Singleton anticipated as part of the construction works include:

- Annoyance due to dust deposition on surfaces and visible dust plumes
- Elevated particulate (PM₁₀) concentrations due to dust-generating activities
- Exhaust emissions from diesel-powered plant and equipment.

Once operational the proposed modification is unlikely to impact on air quality.

Visual amenity

During construction, visual amenity would be affected by factors such as:

- Removal of established vegetation
- Installation of construction ancillary facilities
- Presence of construction equipment.

Construction activities would only be visible to those with views of the proposed modification which is primarily limited to properties located to the south of the town with views to the Hunter River floodplain and motorists travelling on the New England Highway and Putty Road.

Once operational, the built form components of the proposed modification would result in alterations to existing views for a number of properties. During operation, amenity within the Singleton town centre is expected to improve due to the absence of heavy vehicles from the town centre, resulting in less engine noise and exhaust emissions, as well as safer conditions for motorists and pedestrians.

Access and connectivity

Public transport and active transport

Negligible impacts on public transport or active transport are expected during construction and operation of the proposed modification. The reduction in traffic forecast on key roads once the project is operational is expected to improve the reliability of bus services and access to public transport (i.e. train stations).

There are no anticipated impacts on existing pedestrian and cyclist facilities as a result of the proposed modification.

Road Network

Impacts on traffic on the New England Highway during construction would be minor and temporary in nature. Potential impacts caused by construction traffic would include increased travel time due to reduced speed limits and short-term partial or complete road closures on Putty Road and the New England Highway.

Once operational, the project is forecast to improve travel times, reduce congestion and reduce travel costs.

Parking

The construction compounds would provide parking for both light and heavy vehicles, including sufficient parking for workers. Therefore, impacts to parking availability are considered negligible.

Once operational, there are no anticipated impacts to on-street parking.

Social infrastructure, business and economy

No further impacts to social infrastructure, business and the local economy are anticipated as a result of the construction and operation of the proposed modification to those identified in the project SEIA.

Cumulative impacts

One other roads project in the vicinity of the project was identified. It was determined that there is the potential for cumulative impacts, particularly to motorists, if construction periods overlap or occur one after the other. However, these potential impacts are considered relatively minor as impacts would be limited to tie-in works and the existing road network would otherwise remain fully operational during construction.

Management measures

Mitigation measures would be put in place to minimise the impacts and disruptions to affected parties. This would include the implementation of on-going consultation throughout the construction period.

1.0 Introduction

1.1 Project background

In 2019, Transport for NSW (formerly Roads and Maritime Services) prepared a Review of Environmental Factors (REF) (the project REF) under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the proposed construction and operation of the New England Highway bypass of Singleton. This REF was placed on public display for comment and a submissions report was prepared in response to comments received during the exhibition period.

Subsequent design changes have been identified and are the subject of this assessment.

1.2 The proposed modification

Transport for NSW proposes to modify the New England Highway bypass of Singleton project by providing a full interchange at Putty Road for ease of access to Singleton's town centre from the bypass as well as reconfiguration of the design at the southern connection to improve flood performance.

Key features of the proposed modification would include:

- Reconfiguration of the southern connection to include a bridge structure over the floodplain, with the southern connection northbound exit ramp to pass under the bridge structure
- Increasing the bridge over the Main North railway line, Doughboy Hollow and Hunter River floodplain, Army Camp Road, Putty Road and the northbound entry and exit ramps at the Putty Road connection from 1.7 kilometres to 1.84 kilometres in length (bridge over the floodplain)
- Inclusion of a southbound entry ramp and northbound exit ramp at the Putty Road connection to create a full interchange via a new roundabout at Putty Road.

A Singleton Council water pump station located near Putty Road would also require relocation. The pump station would be relocated within the area assessed for the Waterworks Lane construction compound in the review of environmental factors (REF).

As part of the proposed modification, changes to construction ancillary facilities are proposed to avoid conflicts with the construction of the modified design. Additional signage would be installed to notify traffic of the upcoming bypass and the town.

The location of the project is shown in Figure 1-1 and an overview of the proposed modification is provided in Figure 1-2.

1.3 Purpose of this report

A comprehensive assessment of the socio-economic impacts of the full extent of the New England Highway bypass of Singleton project was previously undertaken and detailed the potential socio-economic impacts of the project (the project SEIA).

The purpose of this addendum Socio-economic Impact Assessment (addendum SEIA) is to identify and assess the changed or additional socio-economic impacts of the proposed modification to the project and recommend, where necessary, management and mitigation measures to address the identified impacts. This addendum SEIA has been prepared to support the addendum Review of Environmental Factors (addendum REF) for the project.

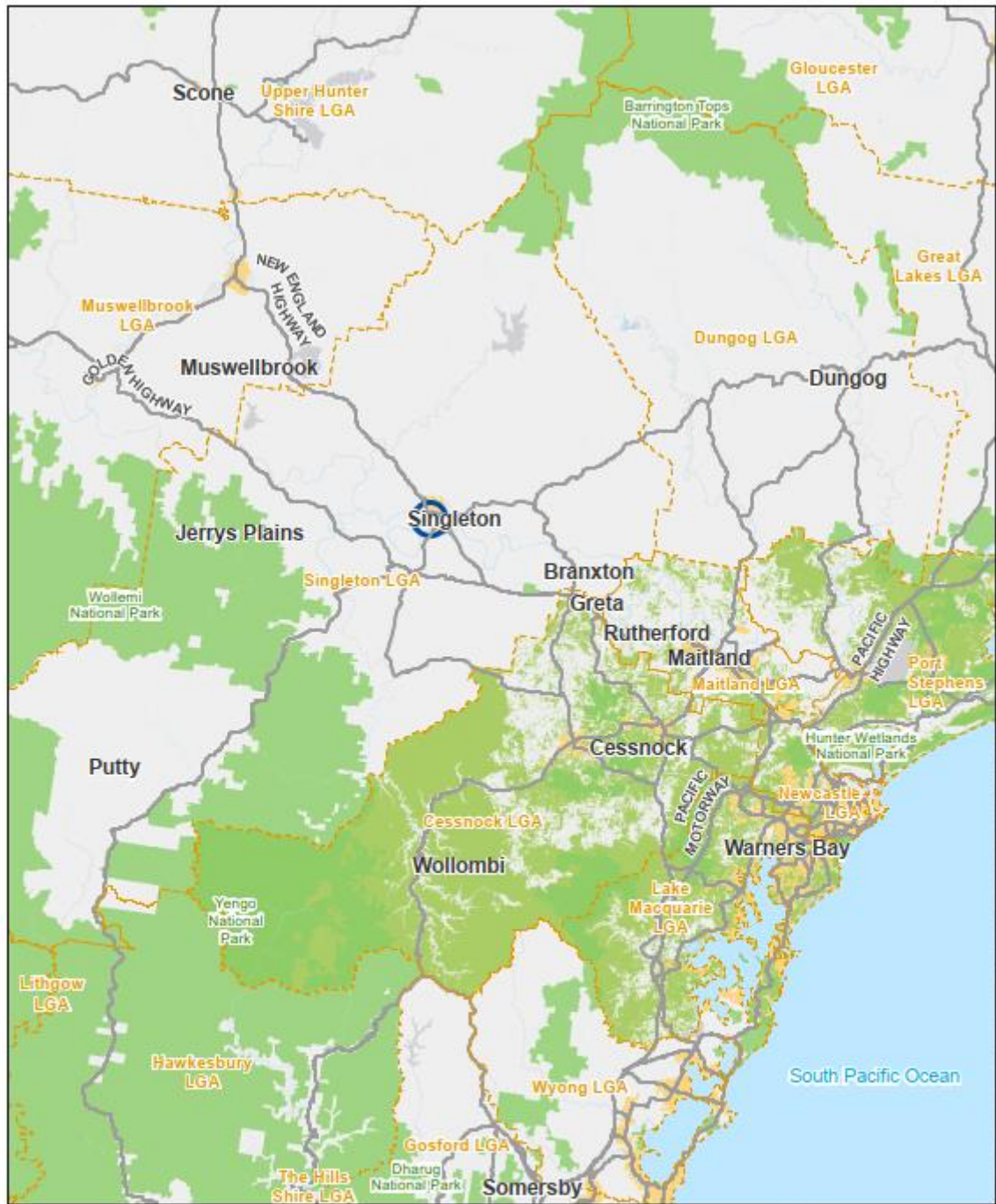


FIG. 1-1 LOCATION OF THE PROJECT

Legend

Project features

Project location

Other features

State roads

Local Government Area

Environment features

Watercourse

National Parks and Wildlife Estate

State Forest

Built up areas



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Figure 1-1 Location of the project

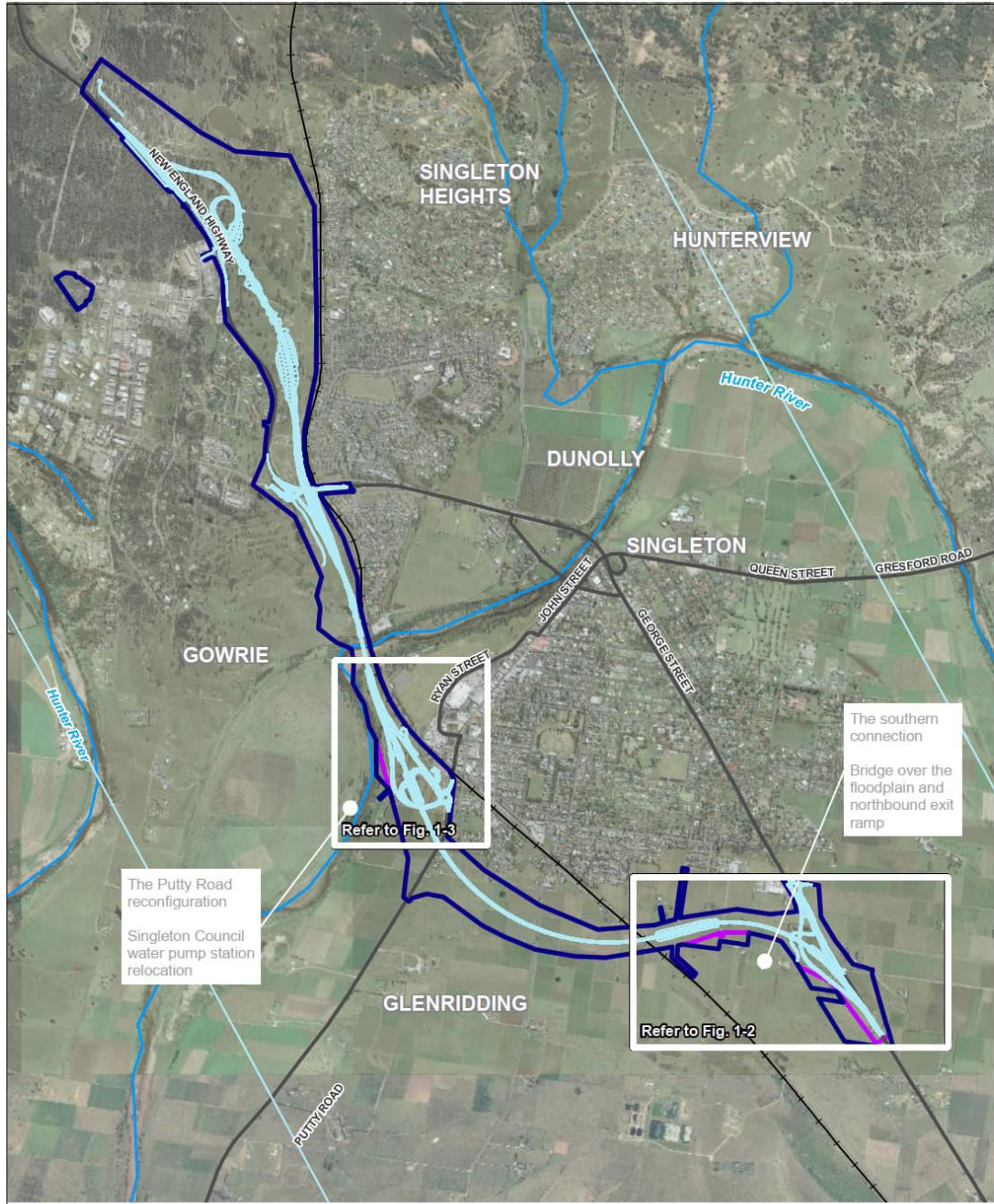


FIG. 1-2 Location of the proposed modification

Legend

Proposal features

- Project REF area
- Approved proposal area
- Proposed modification design

Other features

- State roads
- +— Main North railway line
- Watercourse



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Figure 1-2 Location of the proposed modification

1.4 Methodology

The methodology for the addendum SEIA of the proposed modification is consistent with the assessment prepared for the project REF. Much of the data and findings of the previous assessment remain relevant for the proposed modification.

The Australian Bureau of Statistics undertakes a survey of the entire Australian population every five years, known as the Census. The Census most recently occurred in 2021. Most of the data from this Census was available at the time of preparing this addendum SEIA and formed part of the assessment.

It is noted that the project SEIA was prepared in accordance with the *Environmental Impact Assessment Practice Note – Socio-economic assessment* (Roads and Maritime 2013). Transport for NSW have since released an updated Practice Note (Transport for NSW, 2020) and this has been considered in the preparation of this addendum SEIA.

A review of the project REF socio-economic assessment has formed part of this assessment of the proposed modification.

The study area for the assessment of socio-economic impacts with regard to the proposed modification comprises the local and regional boundaries, consistent with the project SEIA (shown in Figure 1-3). The local study area consists of the Singleton Statistical Area Level 2 (SA2) as defined by the Australian Bureau of Statistics (2022) and the regional study area comprises the Singleton Local Government Area (LGA). However, this addendum SEIA considers only the impacts of the proposed modification. For further details of the study area and the socio-economic impacts of the project refer to the project REF and SEIA.

The significance of each potential socio-economic impact during the construction and operation of the proposed modification was assessed as a function of the magnitude of the impact, based on the spatial extent, duration and severity of that impact, and the sensitivity of potentially affected stakeholders. This approach is aligned with both the Transport for NSW guidance and the project SEIA. The criteria for assessing the significance of each impact consists of the following:

- **Magnitude of impact**, which is made up of:
 - Scale and intensity (the types of works, operational uses and built form etc)
 - Spatial extent (e.g. the geographical area affected which may be local, suburb, regional, State, International or to community groups etc)
 - Duration (short, medium or long-term, hours of works, frequency, reversibility etc).
- **Sensitivity of affected stakeholders**, which is 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.

The above approach to assessing the significance of impacts is not applied to positive impacts however these are discussed where appropriate.

No additional consultation or surveys were undertaken for the purpose of this addendum SEIA.

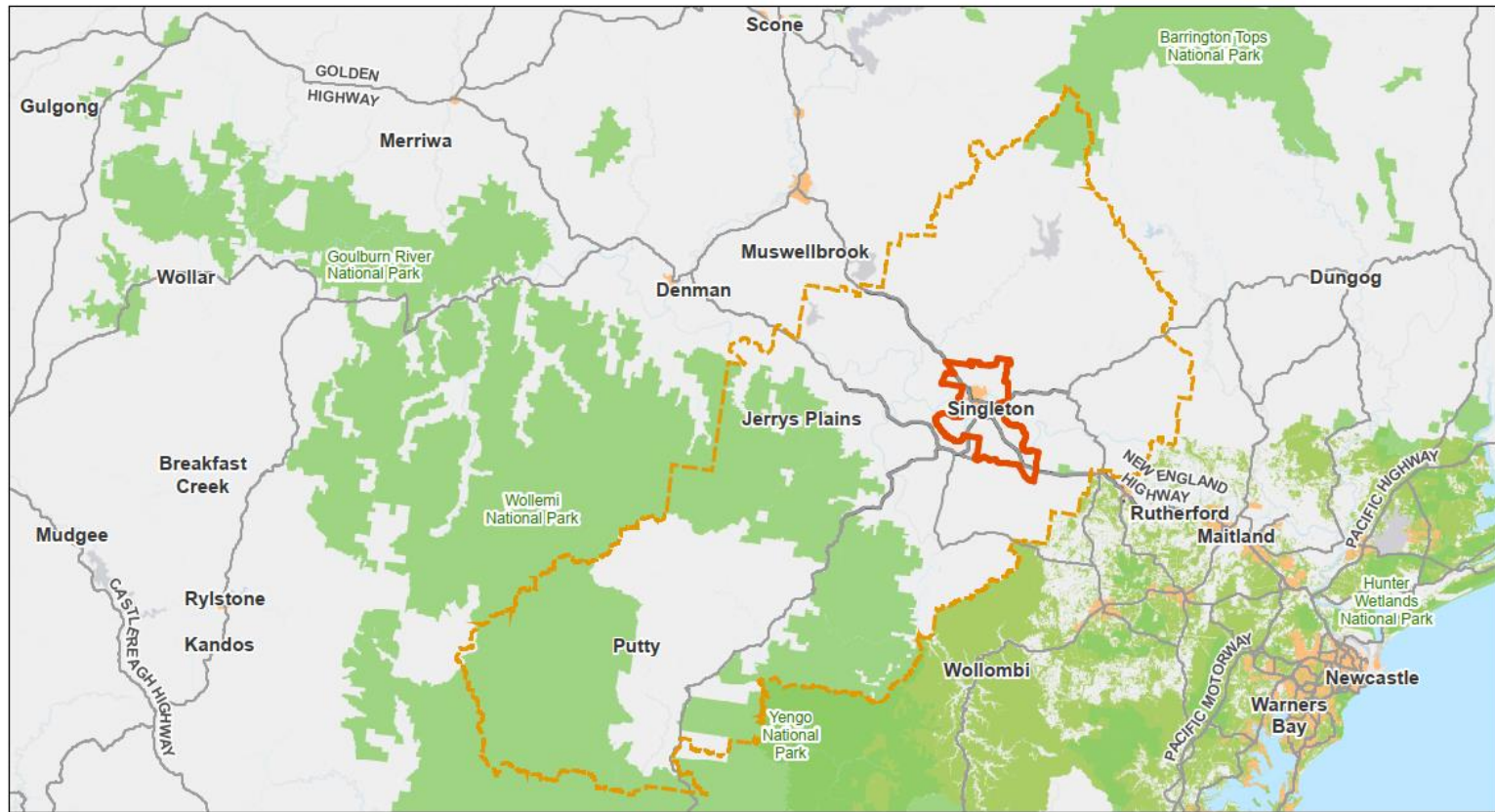


FIG. 1-3 SEIA STUDY AREAS

Legend

Study areas

- Regional (Singleton LGA)
- Local (Singleton SA2)

Built features

- State roads
- Built up areas

Environment features

- Watercourse
- National Parks and Wildlife Estate

State Forest



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Figure 1-3 SEIA study areas

1.5 Existing environment

Strategic context

The strategic context of the project is examined in the project SEIA. However, following the preparation of that report, the Singleton Socio-economic Development Strategy (Singleton Council, 2020) of relevance to the project has been released.

This Strategy communicates how Singleton Council will undertake socio-economic development for the benefit of the Singleton LGA and its residents. It recognises that social and economic development covers a wide breadth of activities and, as such, identifies those that are the most important to the community and are achievable within Council's means. The Strategy identifies strategic focus areas and associated actions to deliver socio-economic development in the region.

One of these strategic focus areas is infrastructure. It seeks to improve inter and intra-regional connectivity, improve infrastructure, services and amenities to sustain the region's growth potential. One of the actions to support this strategic focus area advocates for funding to fast track the Singleton bypass to improve safety, travel times and congestion. In fact, in her foreword to the Strategy, Singleton Mayor Sue Moore refers to the construction of the Singleton bypass as one of the more significant developments occurring in the region.

Therefore, the New England Highway bypass of Singleton is recognised as a key component of Singleton's ongoing socio-economic development.

Demographics

Singleton is located in the centre of the Hunter Region of New South Wales. The population of the Singleton LGA in 2021 was 24,577 of which 17,018 lived in the township of Singleton. The wider LGA and Singleton have relatively low cultural diversity with only 6.0 per cent of Singleton speaking another language at home in 2021 (consistent with 5.1 per cent in the Singleton LGA). Over 60 per cent (61.1) of the population was employed full time in 2021, with an unemployment rate of 4.2 per cent, both of which are consistent with the LGA average (59.9 per cent and 3.7 per cent).

Economy

The main economic drivers in the Singleton region are mining, tourism, agriculture and the defence industry. Coal mining industries have played a significant role in the Hunter and Singleton's history since the late 1800s and account for around one fifth of the resident labour force of Singleton today, directly employing about 2,800 workers. Around 20 coal mines operate in the Singleton LGA and produce approximately 57 million tonnes of coal annually. In total, the mining industry has contributed to 36 per cent of local employment and created \$5.1 billion in regional output annually.

There are around 112 businesses located along John Street and George Street in Singleton, with an additional 49 businesses located in Singleton Square. The range of businesses indicates that Singleton serves a variety of industries such as the mining, tourism and agriculture and provides administrative, retail, commercial, education and health services for local residents of Singleton and the region.

Social infrastructure

Singleton has a wide range of community facilities and assets ranging from places of worship to sporting grounds, recreation, education and essential facilities and services. Social infrastructure in the vicinity of the proposed modification includes:

- Rose Point Park - contains an array of BBQ facilities, seating and paths. It is located close to the Hunter River and the CBD. The park also provides for baseball, cricket, netball, rugby, soccer and AFL facilities
- Singleton off-leash dog Park
- Australian Christian College – Singleton
- Rainbows Early Learning Centre
- Singleton Neighbourhood Centre.

Further details on the existing socio-economic environment of Singleton are provided in the project REF and SEIA.

2.0 Assessment of construction impacts

2.1 Property impacts

Impacts to property as a result of the proposed modification would consist of adjustments to property acquisitions and temporary occupation of land. A discussion of these impacts is included in Section 6.6 of the addendum REF. Three of the construction ancillary facilities have also been adjusted to avoid conflicts with the modified design, being the southern connection, Gowrie Gates and Waterworks Lane sites (refer to Section 3.4 of the addendum REF). A new construction compound, namely the Northern Cut construction compound, is also proposed to be located to the east of the New England Highway at the intersection of Park View Crescent and New England Highway.

Land for the construction ancillary facilities would be leased by Transport for NSW for the construction of the project, including the proposed modification, or located on land that has been or would be acquired by Transport for NSW for the project. Lease arrangements would be negotiated with the property owners.

The changes to the Gowrie Gates construction compound sit partially outside of the acquisition area for the project. The modified area is partially located on land owned by Australian Rail Track Corporation (ARTC). A lease agreement would be negotiated with ARTC. This would temporarily impact the existing use of land for rail activities, however there is capacity in the surrounding land owned by ARTC that would ensure the ongoing operation of the Main North railway line.

The changes to the southern connection laydown area, although outside the project REF area, sit within the acquisition area for the project.

The new construction compound, Northern Cut construction compound, is proposed to be located on a property which has previously been acquired by Transport for NSW.

Property access impacts are discussed in Section 2.3. Long-term impacts of property acquisition is discussed in Section 3.1.

2.2 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 (Handy, 2002). Construction of the proposed modification has the potential to affect amenity as a result of changes to levels of noise and vibration, traffic, air quality and odour, and visual impacts.

The following sections describe potential impacts to amenity and community wellbeing during construction of the proposed modification.

Noise and vibration

An updated Noise and Vibration Technical Report was prepared by AECOM (2023) to assess the potential noise and vibration impacts associated with the proposed modification under reasonable worst-case construction scenarios.

Receivers in proximity to the proposed modification primarily comprise residential and commercial properties, with some limited social infrastructure. Where the proposed modification is in close proximity to residential receivers around Putty Road, noise impacts would be particularly felt by people who work from home, shift workers, the elderly and households with young children that are more dependent on quieter environments to work, rest and relax. Such impacts would be greater at night time, although night time works for the proposed modification would generally be limited to tie-in works at the southern connection and Putty Road connection to the existing road network.

Noise impacts from the proposed modification are expected to be further influenced by the existing noise levels from the New England Highway and the Main North railway line. Noise levels from the works associated with the proposed modification would exceed the noise management levels at nearby receivers during a number of scenarios. Most exceedances would be less than 10 dB(A), however some would be greater than 20 dB(A). Up to eight residences would be highly noise affected during these works.

Works outside of standard working hours for the proposed modification and at the new and modified ancillary facilities would exceed the noise management levels at nearby receivers during a number of scenarios. Pavement works are likely to cause the largest number of exceedances and sleep awakening reactions. Most exceedances would be less than 25 dB(A). Table 2-1 provides an assessment of whether the proposed modification is consistent with the work packages assessed in the Noise and Vibration Technical Paper (AECOM, 2019) prepared for the project REF and identified if additional mitigation measures are required.

Table 2-1 Consistency assessment of proposed modification on construction noise and vibration impacts

Proposed modification	Consistency with work assessed in Technical Paper (November 2019)	Mitigation measures
<ul style="list-style-type: none"> Reconfiguration of the southern connection to include a bridge structure over the floodplain, with the southern connection northbound exit ramp to pass under the bridge Increasing the bridge over the Main North railway line, Doughboy Hollow and Hunter River floodplain, Army Camp Road, Putty Road and the northbound entry and exit ramps at the Putty Road connection from 1.7 kilometres to 1.84 kilometres in length (bridge over the floodplain) Inclusion of a southbound entry ramp and northbound exit ramp at the Putty Road connection to create a full interchange via a new roundabout at Putty Road 	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the Technical Paper (November 2019) there are no substantial changes to the type of work or equipment there are changes to the location of some works additional receivers beyond those identified in the Technical Paper are anticipated to be impacted 	<p>Mitigation measures outlined in the Technical Paper (November 2019) would manage potential noise impacts associated with this activity. No additional mitigation measures are required.</p>
<ul style="list-style-type: none"> Minor modifications to property adjustments including access arrangements 	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the Technical Paper (November 2019) there are no substantial changes to the location, type of work or equipment 	<p>Mitigation measures outlined in the Technical Paper (November 2019) would manage potential noise impacts associated with this activity. No additional mitigation measures are required.</p>
<ul style="list-style-type: none"> Minor modifications to utility adjustments and drainage 	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the Technical Paper (November 2019) there are no substantial changes to the location, type of work or equipment 	<p>Mitigation measures outlined in the Technical Paper (November 2019) would manage potential noise impacts associated with this activity. No additional mitigation measures are required.</p>
<ul style="list-style-type: none"> Inclusion of Approach signage at intervals along the New England Highway prior to 	<ul style="list-style-type: none"> these works are considered to be minor in nature, would occur over a period less than three weeks and be undertaken during 	<p>No additional mitigation measures are required.</p>

Proposed modification	Consistency with work assessed in Technical Paper (November 2019)	Mitigation measures
reaching Singleton and the bypass	standard construction hours. Therefore, a quantitative assessment for these works has not been undertaken.	
<ul style="list-style-type: none"> Relocation of the Singleton Council water pump station and standpipe 	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the Technical Paper (November 2019) there are no substantial changes to the location, type of work or equipment as this work was considered within the compound scenario previously 	Mitigation measures outlined in the Technical Paper (November 2019) would manage potential noise impacts associated with this activity. No additional mitigation measures are required.
<ul style="list-style-type: none"> Changes to construction ancillary facilities including modifications to approved locations and inclusion of one additional site. 	<ul style="list-style-type: none"> this work is consistent with work previously assessed in the Technical Paper (November 2019) there are no substantial changes to the type of work or equipment there are changes to the location of some compounds and one additional compound additional receivers beyond those identified in the Technical Paper are anticipated to be impacted 	Mitigation measures outlined in the Technical Paper (November 2019) would manage potential noise impacts associated with this activity. No additional mitigation measures are required.

Overall noise amenity

While the changes to noise amenity as described above would be restricted to the construction period the magnitude is considered to be moderate due to the predicted noise levels and number of receivers which exceed noise management levels. It is important to note that for most scenarios in which noise management levels are exceeded, these activities would not persist throughout construction and would be temporary, short-term sources of noise. Alignment works are progressive in nature and receivers would not be affected for the whole duration of construction works.

The sensitivity of receptors within this area is considered to be moderate due to sensitivity of receivers to noise, which includes a large number of dwellings, businesses and social infrastructure including the Singleton Christian College, Rainbows Early Learning Centre, Rose Point Park and Singleton Neighbourhood Centre. As such the socio-economic impact of changes to noise amenity associated with the construction of the proposed modification would be moderate.

Construction traffic

No substantial changes to construction traffic volumes or movements would be required for the proposed modification, as it would form part of the overall construction program of the bypass. Access and haulage routes remain consistent with those nominated in the project REF.

The socio-economic significance of construction traffic impacts would be low, consistent with the project REF and SEIA.

Air quality

Construction activities have the potential to increase dust, air emissions and odour, and therefore may affect the amenity of the local environment. Increased dust can adversely affect human health and the cleanliness of infrastructure or surrounding land. Receptors more susceptible to air quality impacts during construction in the vicinity of the proposed modification include Australian Christian College - Singleton, Rainbows Early Learning Centre and Rose Point Park as well as any individuals with respiratory illness.

An air quality assessment is presented as part of the addendum REF in Section 6.4. The outcome of the assessment indicates that the unmitigated air emissions from the construction phase of the project, including the proposed modification, pose a high risk for both dust soiling and human health impacts, however with the implementation of mitigation strategies this would not be significant.

The magnitude of impacts on air quality is considered to be moderate given that while there is a high risk for dust soiling and human health impacts, the nature of the impacts are common to road construction projects and would be adequately managed through the implementation of mitigation measures. The sensitivity of affected receivers is considered to be moderate, given the location of the project, including the proposed modification, along the border of the township and the number of sensitive receptors in proximity to the works. As a result, the significance of air quality impacts associated with the proposed modification on the socio-economic environment is moderate, consistent with the project REF and SEIA.

Visual amenity

Visual amenity may be described as the pleasantness of the view or outlook of an identified receptor or group of receptors (e.g. residences, recreational users). Visual amenity is an important part of an area's character and offers a wide variety of benefits to the community in terms of quality of life, wellbeing and economic activity.

The construction of the proposed modification would result in visual impacts to a variety of receptors. These include road users, residents and businesses. Visual amenity may be affected by removal of vegetation, establishment of construction ancillary facilities, installation of construction hoardings and the visual appearance of construction sites, equipment, materials and site sheds. Other factors may include the alteration of view corridors to heritage items or places, open spaces or water bodies.

Table 2-2 shows a summary of the visual impacts of construction compounds and construction locations, along with their assessment of significance ratings.

Table 2-2 Visual impacts on local amenity during construction

Compound / construction area	Construction visual impacts	Magnitude	Sensitivity	Significance
Southern connection laydown area	<ul style="list-style-type: none"> Vehicles entering and leaving the compound site would be visible to commuters passing along Waddells Lane and the New England Highway south of Singleton Visible from properties along Waddells Avenue, Orchard Lane, Cemetery Lane with existing views of the floodplain as well as properties in the vicinity with frontage to the New England Highway Visible from the Singleton Christian College, the Rainbows Early Learning Centre and Lancaster Motor Group Vegetation is unlikely to obscure views. 	Low	Moderate	Low-moderate
Waterworks Lane construction compound	<ul style="list-style-type: none"> The compound is closest to Singleton town centre, however views from the east are blocked by the Main North railway line. The compound would be visible from Putty Road, Glenridding Road and nearby properties Vehicles entering and leaving the compound site would be visible to commuters travelling on Putty Road Trees would partially obstruct views to the site from the west. 	Low	Low	Low
Gowrie Gates construction compound	<ul style="list-style-type: none"> Existing rail noise walls separate houses located at Darlington from the railway track, blocking views Vegetation obstructs views. 	Low	Low	Low
Northern Cut construction compound	<ul style="list-style-type: none"> Vehicles entering and leaving the compound site would be visible to commuters passing along the New England Highway Visible from properties along Park View Crescent and partially visible from properties along Blaxland Avenue Vegetation is unlikely to obscure views. 	Moderate	Moderate	Moderate
Southern connection	<ul style="list-style-type: none"> Receivers expected to experience visual impacts include residents along the New England Highway, Orchard Lane, Waddells Avenue The construction of the bridge over the floodplain and northbound exit ramp would create the most impact to the area's visual amenity due to its height. 	Low	Low	Low
Putty Road connection	<ul style="list-style-type: none"> Receivers expected to experience visual impacts include residents along Putty Road, Carrington Street, Glenridding Road and Waterworks Lane. 	Low	Low	Low

Overall visual amenity

The overall magnitude of visual impact within the local area is considered to be low given the temporary nature of construction activities, the visibility of the impacts and the number of properties that would have views to construction activities. The sensitivity of receptors within the vicinity of the proposed modification is considered to be low-moderate given that there is a new construction compound proposed, although no new areas for construction work are proposed. As such the socio-economic impact of changes to visual amenity associated with the construction of the proposal would be moderate-low.

2.3 Access and connectivity

Access

Some existing accesses to residential properties may be temporarily impacted during the construction of the proposed modification. Residents of these properties may be inconvenienced through changes in pedestrian and vehicle access to their properties. Most of these impacts would be limited to short term closures and alternate access arrangements would be provided.

Construction activities may also cause temporary partial closure of roads and changes to speed limits on the New England Highway and Putty Road.

The magnitude of impacts to access associated with the proposed modification is considered to be low given the number of properties that would be impacted, that temporary access arrangements would be implemented to ensure access is maintained during construction, new permanent access arrangements would be provided where necessary and impacts to travels times would be minor. Rural-residential properties may have a degree of flexibility for alternate property access arrangements given lot size and land availability. Nevertheless, property access can be an important factor for agricultural activities, therefore the sensitivity of receptors is considered to be moderate. The socio-economic significance of the impact to access would be moderate-low.

Parking availability, public transport and active transport connectivity

The proposed modification would not alter the impacts identified in the project REF and SEIA for parking availability, public transport and active transport connectivity. Parking would be provided at the adjusted construction ancillary facilities for construction work vehicles. Therefore, the impacts to these aspects are considered negligible.

2.4 Impacts to community values, business and economy

The impacts of construction of the proposed modification on community values, business and the local economy are expected to be consistent with those identified in the project REF and SEIA. The Australian Government has committed \$560 million and the NSW Government \$140 million to plan, design and construct the Singleton bypass (TfNSW, 2021).

A review of the proposed modification against the Singleton Community Strategic Plan 2017-2027 did not identify any further impacts than those identified in the project SEIA. The proposed modification would form part of the overall construction program for the project and given that the sections of the bypass proposed to be modified formed part of the original proposal, there would be no further impacts to community values, business and the local economy.

3.0 Assessment of operational impacts

3.1 Property

Acquisition of property and future land use

There would be no additional property acquisitions associated with the proposed modification to those discussed in the project REF. No social infrastructure would be acquired. As such, the potential socio-economic impacts associated with property acquisition as part of the proposed modification are consistent with those identified in the project REF and SEIA.

Acquisition impacts on community wellbeing

The full or partial acquisition of land may result in major changes to the lives of those affected giving rise to a sense of anxiety or uncertainty, a loss of amenity, financial costs and isolation. Owners may experience health and emotional effects if required to sell their property and relocate as a result of the proposal. Acquisition has the potential to affect people with a deep connection to their property, which may have been in the family for generations. In some instances, it may be difficult to find another property with equivalent facilities and amenity to that being acquired. Property acquisition may result in the fragmentation of social networks and interaction as people move away from friends and family.

The potential impacts on community wellbeing associated with property acquisition as part of the proposed modification are consistent with those identified in the project REF and SEIA.

3.2 Amenity

Impacts to amenity arising from the operation of the proposed modification are anticipated to be consistent with the project REF. The function of the bypass reducing traffic volumes, particularly heavy vehicles, in Singleton and improving noise levels, air quality and pedestrian safety in town would not be affected by the proposed modification.

Visual amenity would be affected by the proposed modification as features of the design would change visual character, such as an embankment to a bridge, or the reconfiguration of the Putty Road connection.

The significance of visual amenity impacts from the operation of the project were considered high in the project REF and in the context of the overall project, the proposed modification is unlikely to increase this impact as the location of infrastructure in the landscape would not change.

Noise and vibration

Noise sensitive receptors include residents, certain businesses, and users of social infrastructure in the vicinity of the new road, as well as the existing road. The proposed modification would increase noise within the area surrounding the alignment. As discussed in Section 6.3 of the addendum REF, both the daytime and night-time noise criteria would be exceeded at a number of receptors. Specific noise impacts during daytime and night-time periods include:

- Road traffic noise levels are predicted to exceed the L_{Aeq} noise criterion at a total of 183 sensitive receivers
- Noise levels that exceed the applicable noise criterion are predicted to increase by more than 2 dB(A) at 67 sensitive receivers
- Noise levels are predicted to exceed the cumulative limit at eight sensitive receivers
- Noise levels exceed the relative increase criterion at 56 sensitive receivers
- 103 sensitive receivers are considered to be eligible for the consideration of additional feasible and reasonable noise mitigation measures.

One of the main goals of the project is to reduce heavy vehicle traffic through Singleton town centre. For receivers within the town, it is expected that the maximum noise events would decrease in both number and duration due to reduced traffic, particularly heavy vehicle traffic. This decrease in noise

would improve amenity for residents, businesses and visitors along and near the existing New England Highway.

Given the number of potential exceedances of the relevant operational noise criteria, the long-term nature of the impacts and the potentially reduced traffic noise impacts through the Singleton town centre, it is considered that the magnitude of the impact is moderate. The sensitivity of residents to the impact is considered to be moderate given the sensitivity of rural and rural-residential receivers to noise. The overall socio-economic significance is therefore also moderate.

Air quality

As discussed in Section 6.4 of the addendum REF, predicted roadside Carbon monoxide (CO) and Nitrogen Dioxide (NO₂) concentrations would comply with EPA criteria once the proposal is operational and ten years after opening (2036).

Regarding particulate matter, similar to the project REF, predicted annual average PM₁₀ and PM_{2.5} cumulative concentrations exceed the EPA criteria. This is largely attributed to the elevated background concentrations in the Singleton area as a result of nearby mining activities, with only small contributions from the bypass alignment and Putty Road connection.

Once operational the project, including the proposed modification, is unlikely to impact on air quality. Air quality may improve within the town as vehicles, particularly heavy vehicles would be able to bypass around the town instead of through it moving this source of emissions. The proposed modification (and project generally) is considered to have a positive socio-economic impact as vehicle emissions within Singleton town centre would be reduced.

Visual amenity

The proposed modification would alter the visual character of prominent features of the project, including the Putty Road connection, southern connection and the bridge at the southern connection replacing the previously proposed raised road and embankment. As such, an updated Landscape Character and Visual Impacts Assessment (LCVIA) (AECOM, 2023) was prepared to assess the impact of these changes. The viewpoints considered to represent the areas with the largest change to visual impacts are summarised in Table 3-1.

Table 3-1 Visual impacts during operation

Key viewpoint	Operational visual impacts
Ellen Avenue	<p>This view is representative for residents living along the southern edges of Singleton, and cyclists using the low traffic perimeter roads. The view looks across the pasture floodplain with sporadic old farmhouses and very low tree cover in the foreground.</p> <p>The proposed modification would alter the configuration of the southern connection, primarily such that the bypass would include a bridge over the exit ramp and floodplain.</p> <p>The existing views of the floodplain would be replaced with the embankment between the two bridge structures. The embankment would have a pasture grass cover similar to the existing floodplain. A three-metre-high noise wall would be installed along the top of the embankment. Each end of the noise wall would include coloured acrylic transparent panels that reflect the floodplain colours which would transition to a single acrylic colour through the centre of the noise wall to provide an unimpeded view of the floodplain landscape (subject to detailed design). Affected receptors would mostly consist of local residents situated around the floodplain to the south of Singleton.</p> <p>When comparing this view between the approved project and the proposed modification, the change includes a slight increase in the height of the embankment. The embankment would also transition into the bridge structures to the left of the viewpoint.</p>
Waterworks Lane	<p>This view is primarily representative of motorists travelling south-west from Singleton towards the Putty Road connection. The existing view consists of an agricultural floodplain, with crops in the foreground and an unpaved road and fencing emphasising the rural setting. Rolling hills and scattered rural properties can be seen in the distance.</p> <p>The proposed modification would include additional ramp connections and a roundabout to the east of Waterworks Lane. The roundabout would have four approaches, including Putty Road (east and west), the northbound bypass ramps, and southbound ramps. The southbound bypass ramp approach also provides connection to Waterworks Lane.</p> <p>The existing views of agricultural land would be replaced by the Putty Road connection consisting of a bridge to the southeast with a thin, intermittent line of agricultural floodplain visible below the bridge deck acknowledging the rural setting. The bridge then transitions to a battered embankment with native plantings for a short distance before transitioning again to a bridge over the Rose Point floodway. Affected receptors would consist of motorists and local residents situated around the agricultural floodplain.</p> <p>When comparing this view between the approved project and the proposed modification, the change would include the reconfiguration of this connection to include a full interchange.</p>

Collectively, the proposed modification would permanently alter the views of the rural landscape of residents near the project. However, in the context of the approved project, the proposed modification would have limited further visual impact on surrounding receptors. Moreover, the proposed modification and project in its entirety includes appropriate landscaping and design considerations to minimise visual impacts. Landscaping for the project is detailed in the updated LCVIA (AECOM, 2023). Receivers located in the township of Singleton (north and east of the Main North railway line) and north of Singleton Christian College would not be visually impacted by the proposed modification.

Impacts would primarily be limited to road users who have been exposed to similar views through their travels along the New England Highway. Many who have travelled along the Hunter Expressway to Singleton or further would see familiar scenes of bridges, walls, embankments, signage and roadside furniture. Visual impacts for motorists would be short-term in duration as frequent travellers through Singleton would become accustomed to the bypass and associated visual impacts.

The magnitude of impacts to visual amenity of the proposed modification in the context of the approved project is considered to be low given the modifications represent changes to already substantial visual features of the project. Although most impacts would be to road users, there would be some impacts to a limited number of residential receivers with existing views of the Hunter River floodplain. The sensitivity of these receivers is moderate, as their existing view would be altered by the project. As such, the operational socio-economic significance of visual amenity impacts of the proposed modification would be moderate-low.

3.3 Access and connectivity

Access

All properties affected by changed access arrangements as a result of the proposed modification would be provided with restored or new permanent access arrangements during operation, including properties that would be fragmented.

The magnitude of this impact is considered to be low given that although access would still be modified, the access point would be returned closer to the existing access condition. Other access impacts identified in the project REF and SEIA would be unaffected by the proposed modification. The sensitivity of receptors is therefore still considered to be moderate.

Road network and connectivity

A primary component of the proposed modification is the reconfiguration of the Putty Road connection to provide a full interchange. The Putty Road connection now includes a southbound entry ramp and a northbound exit ramp, in addition to the southbound exit ramp and northbound entry ramp presented in the project REF. The traffic modelling undertaken for the project REF indicated that traffic demand for these ramps would be low. However, following further community feedback and the recent announcement made by the Deputy Premier, a full interchange at the Putty Road connection is now proposed. This would provide better access to Singleton town centre from the bypass, also increasing connectivity of the town with the wider community and passing motorists.

Generally, the proposed modification is considered to provide a positive impact to the socio-economic environment, given better access to Singleton town centre would be provided and the need to close the bypass at a later date for a future road extension would be avoided.

Parking availability, public transport and active transport connectivity

There are no anticipated impacts to parking, public transport or active transport connectivity as a result of the operation of the proposed modification.

3.4 Social infrastructure, business and economy

No further impacts to social infrastructure, business and the local economy are anticipated as a result of the operation of the proposed modification and would remain consistent with those identified in the project SEIA.

4.0 Assessment of cumulative impacts

Cumulative socio-economic impacts relating to the project were examined in the project REF and SEIA. Between assessments there may have been new projects proposed in the area, or updates to previously identified projects. It is likely that the approved project would have been assessed as part of the cumulative impact assessments undertaken for these projects. Despite this, a review of the other projects in the vicinity was undertaken as part of this SEIA.

4.1 Review of other major projects

A review of the Department of Planning and Environment major projects website and Singleton Council website on 24 October 2022 did not identify any further major projects in the vicinity of the project than those discussed in the project SEIA.

However, Transport for NSW is undertaking various road upgrade and bypass projects in the region which may contribute to cumulative impacts where construction times overlap or occur one after the other. The New England Highway bypass of Muswellbrook project was identified as potentially contributing to cumulative impacts as listed in Table 4-1.

Table 4-1 Transport for NSW projects in the vicinity of the Singleton bypass and potential cumulative impacts

Project	Distance from project	Description	Cumulative impacts
New England Highway bypass of Muswellbrook	30 km to the north-west	<p>Transport for NSW is planning to deliver a bypass of Muswellbrook. At the time of preparing the project REF, the timing of construction of the Muswellbrook bypass was not confirmed.</p> <p>However, a preferred option was released in 2020 for feedback and construction is now anticipated to begin in 2023 (subject to environmental assessment and approval) and would coincide with construction of the Singleton bypass.</p> <p>The approved project was assessed as part of the cumulative impact assessment carried out as part of the REF for the Muswellbrook bypass.</p>	<p><i>Construction</i></p> <p>Given the construction stages of each project are likely to overlap, cumulative socio-economic impacts with this project are likely to occur. Depending on the timing of each construction phase, the ongoing and cumulative impacts of multiple road projects being undertaken back to back may result in construction fatigue impacts for motorists on the New England Highway and on residents and businesses in the region.</p> <p>The majority of the work proposed as part of the Muswellbrook bypass would be carried out off-line in agricultural land, similar to Singleton bypass, east of the current New England Highway route. This would reduce potential cumulative impacts to motorists as the Highway would be operational during construction.</p> <p><i>Operation</i></p> <p>No negative cumulative impacts are expected to occur as a result of the operation of both the proposal and the Singleton bypass. The upgrades of the New England Highway would improve road user experience, such as improved travel time and network efficiency, improved road safety in each bypassed town by reducing heavy vehicle interactions and improve the amenity of the towns.</p>

5.0 Environmental management

5.1 Management of impacts

The socio-economic impacts associated with other key environmental issues would be managed in accordance with the recommended management and mitigations outlined in their respective technical assessments for the proposed modification.

No further safeguards and management measures are proposed. Mitigation measures to address direct socio-economic impacts on sensitive receivers and to manage community concerns with regard to key environmental issues identified in the project REF are summarised in Table 5-1.

Table 5-1 Mitigation measures to be implemented

Impact	Environmental safeguards	Responsibility	Timing
Landowner impacts	Landowner surveys will be carried out to: <ul style="list-style-type: none"> Gather information about the current use and activities carried out on their property Identify how the proposal would affect ongoing land use and activities on their property Inform the development of appropriate mitigation measures. 	Transport for NSW	Detailed design
Community cohesion	A Communication Plan (CP) will be prepared and implemented as part of the CEMP to ensure provision of timely and accurate information to the community during construction. The CP will include (as a minimum): <ul style="list-style-type: none"> Mechanisms to provide details and timing of proposed activities to affected residents, including changed traffic and access conditions Contact name and number for complaints How the project webpage will be maintained for the duration of the proposal Minimum consultation activities to be carried out A complaints handling procedure. 	Transport for NSW	Detailed design and construction
Community cohesion	Property acquisition will be carried out in accordance with the <i>Land Acquisition Information Guide (Roads and Maritime, 2014)</i> and the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	Transport for NSW	Detailed design and construction
Business impacts	Transport for NSW will develop a signage strategy for the entrances to Singleton, in consultation with Singleton Council to encourage motorists to visit Singleton. This will include signage showing: <ul style="list-style-type: none"> The travel distances and estimated times for travelling routes via the bypass compared to travelling via the Singleton town centre Services and facilities available within the Singleton township Any visitor attractions within the Singleton township. 	Transport for NSW	Detailed design and operation
Business impacts	Transport for NSW will engage with Singleton Council and local businesses regarding the progress of the proposal to allow businesses time to prepare for changed traffic conditions through the town.	Transport for NSW	Detailed design and construction

6.0 Conclusion

This addendum SEIA has examined the effect of the proposed modification to the New England Highway bypass of Singleton on the socio-economic environment of Singleton.

The proposed modification has sought to minimise potential further negative impacts where feasible and has in fact increased positive impacts such as the provision of a full interchange at Putty Road to provide better access to Singleton town centre. Property acquisition impacts associated with the proposed modification are consistent with those identified in the project REF and SEIA.

Construction of the proposed modification would form part of the project's construction program and would largely be consistent with the previously identified impacts to the socio-economic environment of Singleton.

Operation of the proposed modification would contribute further to the overall major positive impact of the project to the area, by providing better access to Singleton town centre from the bypass. The proposed modification would also allow for the future development of vacant land by accommodating for a road extension to access the land.

Through the implementation of mitigation and management measures, the proposed modification overall would have a negligible effect on the project's impact to Singleton's socio-economic environment. Ongoing consultation with affected landowners forms an important component of the project and would continue throughout the planning process.

7.0 References

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