



Australian Government

**BUILDING OUR FUTURE**



# M1 Pacific Motorway extension to Raymond Terrace

Environmental impact statement –  
Chapter 13: Socio-economic

Transport for NSW | July 2021



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# 13. Socio-economic

This chapter describes the potential socio-economic impacts that may be generated by the construction and operation of the project and presents the approach to the management of these impacts.

The desired performance outcomes for the project relating to the socio-economic assessment as outlined in the SEARs, are:

- The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities
- The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure
- Effective engagement is undertaken with stakeholders during project design and delivery.

**Table 13-1** outlines the SEARs that relate to the socio-economic assessment and identifies where they are addressed in this EIS. The full assessment of socio-economic impacts is provided in the Socio-economic Working Paper (**Appendix M**).

Table 13-1 SEARs (socio-economic, land use and property)

Secretary’s requirement	Where addressed
12. Socio-economic, Land use and Property	
1. The proponent must assess social and economic impacts in accordance with the current guidelines (including cumulative ongoing impacts of the project).	Relevant guidelines are discussed in <b>Section 13.1</b> . Assessment methodology are discussed in <b>Section 13.2</b> . Assessment of social and economic construction and operational impacts are discussed in <b>Section 13.4</b> . Cumulative social and economic impacts are discussed in <b>Chapter 23</b> (cumulative impacts).
2. The proponent must assess impacts from construction and operation on potentially affected properties, businesses, Crown land, Council assets and services, recreational users, and land and water users (including recreational and commercial fishers, and oyster and aquaculture farmers), including property acquisitions/adjustments, access, amenity and relevant statutory rights.	Relevant impacts on businesses, commercial fishers (including oyster and aquaculture farmers), Council assets and services, recreational users, land and water users and amenity from construction and operation are discussed in <b>Section 13.4</b> . Relevant impacts on potentially affected properties and Crown land, including property acquisition / adjustments, access and relevant statutory rights from construction and operation are discussed in <b>Chapter 14</b> (land use and property).
7. A draft Community Consultation Framework must be prepared identifying relevant stakeholders, procedures for distributing information and receiving/responding to feedback and procedures for resolving stakeholder and community complaints during the design, construction and operation of the project. Key issues that must be addressed in the Framework include, but are not limited to:  <ul style="list-style-type: none"> <li>(a) traffic management (including property, cyclists and pedestrian access)</li> <li>(b) landscaping/urban design matters</li> <li>(c) hydrology and flooding</li> <li>(d) staging and timing of construction activities including out of hours work and utility relocations</li> <li>(e) noise and vibration mitigation and management</li> <li>(f) soil erosion and water quality management</li> <li>(g) interaction with existing land uses.</li> </ul>	A draft Community Consultation Framework is provided in <b>Appendix E</b> . Additional details on community consultation are provided in <b>Chapter 6</b> .

## 13.1 Policy and planning setting

The socio-economic assessment was prepared to assess the potential impacts of the project in accordance with the following relevant policy, plans and strategies:

- Hunter Regional Plan 2036 (DPE 2016)
- Hunter Regional Transport Plan 2014 (NSW Government 2014a)
- Greater Newcastle Metropolitan Plan 2036 (DPE 2018)
- Aboriginal Participation in Construction Policy (NSW Procurement 2018)
- Port Stephens Council strategies:
  - Port Stephens Community Strategic Plan 2018-2028 (Port Stephens Council 2018a)
  - Port Stephens Economic Development and Tourism Strategy 2018-2020 (Port Stephens Council 2018b)
  - Raymond Terrace and Heatherbrae Strategy 2015-2031 (Port Stephens Council 2015).
- City of Newcastle strategies:
  - Newcastle 2030 Community Strategic Plan (City of Newcastle 2018a).

Further detail on the above policy and planning framework, and how it applies to the project, is provided in **Chapter 3** and the Socio-economic Working Paper (**Appendix M**).

## 13.2 Assessment methodology

The socio-economic assessment was carried out in accordance with the Environmental Impact Assessment Practice Note – Socio-economic Assessment, January 2020 (Transport for NSW 2020c) to address the socio-economic matters outlined in the SEARs. The Environmental Impact Assessment Practice Note – Socio-economic assessment, January 2020 updates the previous version of the socio-economic practice note released in 2013.

Key steps in the assessment included:

- Scoping the likely range of potential socio-economic impacts and identifying communities likely to be affected by the project
- Describing existing socio-economic characteristics, values and conditions in the study area, including NSW Government and local government policies and strategies, population and demographic data, business and industry, existing social infrastructure and community values
- Identifying and evaluating the significance of potential impacts on and changes to socio-economic conditions and values in the study area as a result of the construction and operation of the project
- Identifying measures to avoid, minimise or mitigate socio-economic impacts that would arise from the construction and operation of the project.

The development of design options included consideration of social and economic values in the study area and opportunities to avoid or minimise potential impacts on these values, where possible.

Further detail on the assessment methodology is provided below and in the Socio-economic Working Paper (**Appendix M**).

## 13.2.1 Study area

The socio-economic study area is shown on **Figure 13-1**. The study area has been based on those communities that may experience changes to socio-economic conditions due to the location of the project, construction activities and changes in movement patterns for residents, workers and visitors.

It includes the Australian Bureau of Statistics (ABS) Statistical Areas Level 2 (SA2) geographies of:

- Beresfield-Hexham SA2, which includes the suburbs of Woodberry, Beresfield, Tarro, part of Black Hill, Lenaghan and Hexham
- Raymond Terrace SA2, which includes the suburbs of Eagleton, Kings Hill, Raymond Terrace, Heatherbrae and Tomago.

The project's benefits and impacts may also be experienced by communities in the wider area, such as surrounding LGAs and the Hunter Region. The socio-economic assessment considers impacts on communities and businesses in the LGAs of City of Newcastle and Port Stephens Council, through which the project passes, Maitland City Council located to the north of the project, Cessnock City Council located to the west of the project, and the wider Hunter Region, where relevant.

## 13.2.2 Data sources

The existing environment described in **Section 13.3** principally draws on information from the ABS Census of Population and Housing 2016, supplemented with information and data from:

- Government agencies such as the NSW Department of Planning, Industry and Environment (DPIE), Department of Primary Industries and Destination NSW
- City of Newcastle and Port Stephens Council publications, reports, guidelines and websites
- Observations made during a site visit to the study area in 2016
- A survey of local businesses in the study area and car parking surveys at key locations within Heatherbrae and Beresfield
- Community and stakeholder consultation carried out for the project, including information on existing community values and key issues raised about the project.

## 13.2.3 Local business surveys

A survey of local business owners/managers and a car park survey were conducted in September 2016 to gather information on local businesses in the study area. It was proposed to conduct updated surveys in 2020, however, in response to the COVID-19 pandemic, a range of restrictions were introduced impacting on the movements of residents, tourists and businesses within NSW and interstate. It is expected that these restrictions would have caused changes to the business environment and shopper behaviour. As a result, it was considered that an updated survey would not provide an accurate representation of usual business conditions.

A desktop review of businesses in the study area in July 2020 indicates that there has not been a substantial change to the type or nature of businesses in the study area since 2016. As such, it is considered that the feedback collected through the 2016 surveys remains relevant to this assessment.

### ***Survey of local business owners and managers***

A business survey was carried out to gather information on the type and nature of businesses, business operations, and business owners' perceptions of potential benefits and impacts during construction and operation of the project. Surveys were conducted with owners and managers of retail and service-related businesses within Heatherbrae and Beresfield. These locations were selected as they are a focus for retail and service-related businesses in the study area and businesses that are more likely to rely on passing motorists for their trade. A total of 42 surveys were distributed with 26 surveys completed.

### ***Car park (number plate) survey***

The car park survey involved recording vehicle number plates at four locations at Heatherbrae and Beresfield to gather information on the origin of business customers. Information was provided by Transport at a suburb level only to ensure anonymity. The surveys were conducted over two days and number plates were recorded at each location about every two hours. A total of 792 unique number plates were collected in Heatherbrae, and 217 in Beresfield.

## **13.2.4 Community and stakeholder consultation**

A range of engagement strategies were used by Transport to consult with the community and other stakeholders since investigations started in 2004 and have formed an integral part of the project development. In addition, Transport has carried out ongoing community and stakeholder consultation throughout the development of the refined concept design and environmental assessment including:

- Public display of the revised concept design in October 2015
- Public display of concept design changes in August 2016
- Community update on further design updates in November 2020
- Targeted consultation with business owners affected by the project from 2016 through to 2019 and 2020
- Consultation with directly affected land owners.

Further details of the consultation carried out as part of the project development can be found in **Chapter 6**. The socio-economic assessment was informed by the outcomes of this consultation, including the identification of existing features and values important to communities in the study area.

Key issues relevant to the socio-economic assessment raised by communities and stakeholders during consultation for the project are provided in **Chapter 6** and the Socio-economic Working Paper (**Appendix M**).

## **13.2.5 Evaluation of significance**

An evaluation matrix was used to evaluate the significance of potential negative socio-economic impacts associated with the construction and operation of the project. This was based on the evaluation framework developed as part of the Environmental Impact Assessment Practice Note – Socio-economic Assessment (Transport for NSW 2020c). The matrix assesses the levels of sensitivity of receptors and the magnitude of the proposed work and is presented in the Socio-economic Working Paper (**Appendix M**).

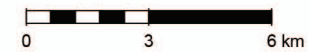
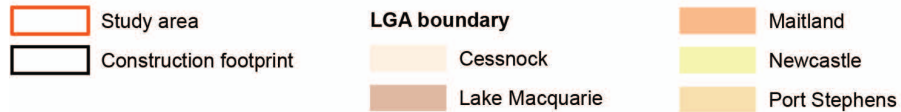
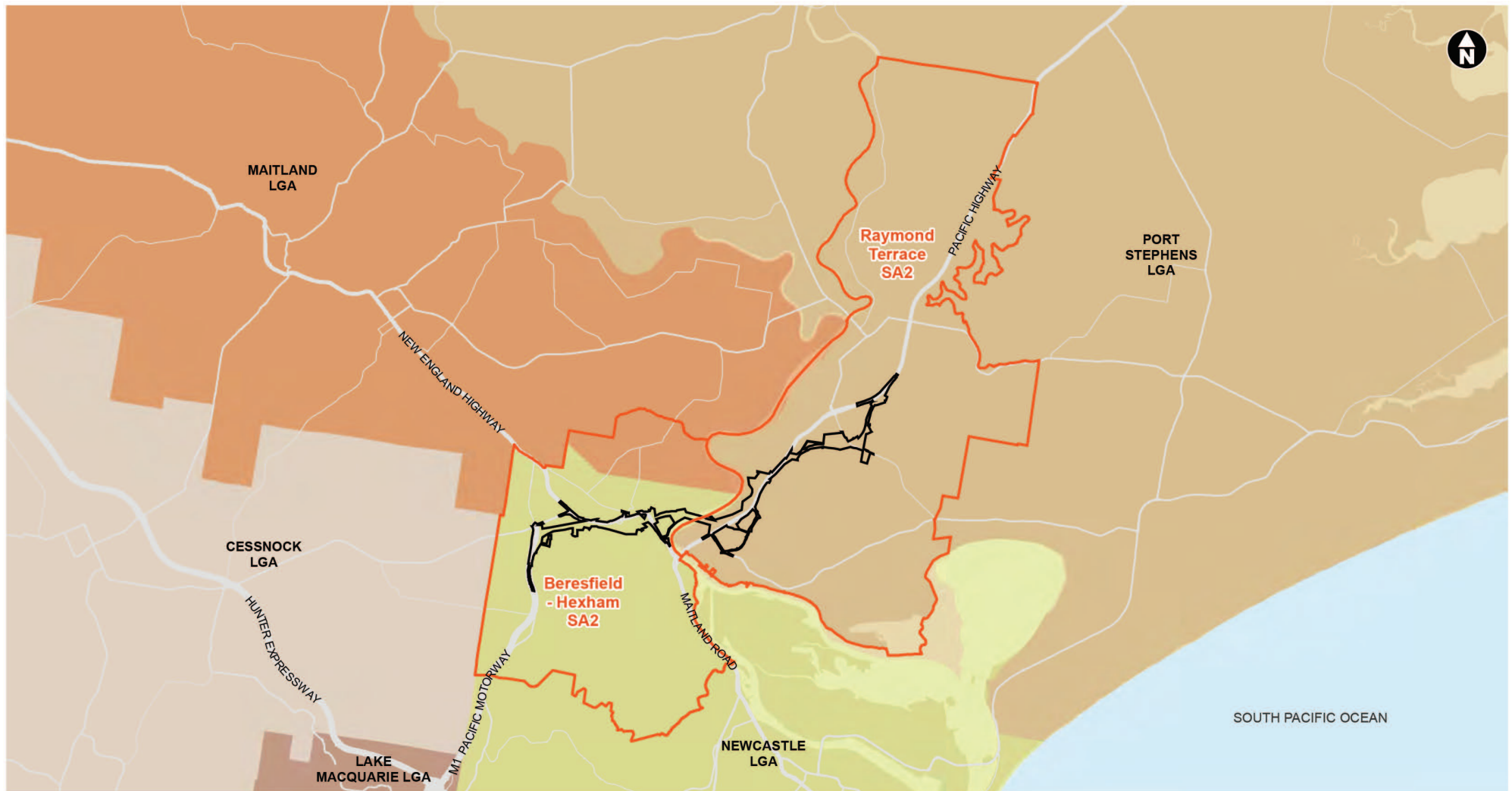


Figure 13-1 Study area used for the socio-economic assessment

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## 13.3 Existing environment

### 13.3.1 Regional context

The project is located within the City of Newcastle LGA and the Port Stephens Council LGA.

The City of Newcastle is predominantly a residential and industrial area, with agricultural land uses located in the north west. Newcastle is the economic, administrative and cultural centre of the Hunter. In 2019, the City of Newcastle has an estimated resident population of about 165,571 people, with this projected to increase to 199,680 people by 2041. The City of Newcastle supports about 102,800 jobs and has an annual economic output for \$35.7 billion, of which manufacturing generates the largest output. Key commercial centres in the study area include Black Hill, Tarro and Beresfield. Major features in the City of Newcastle LGA include the Newcastle central business district, the Port of Newcastle, major community facilities such as The University of Newcastle and John Hunter Hospital, Newcastle Art Gallery and Newcastle Museum, and natural areas such as the Hunter River. The Port of Newcastle is Australia's largest coal export port by volume and is a growing multi-purpose cargo hub.

The Port Stephens Council LGA had an estimated resident population of 73,481 people at June 2019, with this projected to increase to 82,068 people by 2041. The Port Stephens Council LGA supports about 27,346 jobs and has an annual economic output of \$12.3 billion, of which manufacturing makes the greatest contribution. Newcastle Airport and Williamstown RAAF base are key features and economic drivers for Port Stephens Council LGA and wider Hunter. Key commercial centres within the study area include Tomago, Heatherbrae and Raymond Terrace. Heatherbrae is located south of Raymond Terrace and has been identified as an 'enterprise corridor' and destination for bulky goods retail.

### 13.3.2 Community profile

#### ***Population size, growth and mobility***

The study area had an estimated resident population of 22,484 people in June 2019. The Raymond Terrace SA2 had a larger resident population with 13,994 people, compared to 8490 people in the Beresfield-Hexham SA2. The population of the study area generally remained the same between 2009 and 2019, decreasing by about 110 people. Between 2009 and 2019 the population of City of Newcastle and Port Stephens Council LGAs grew at an average of about one per cent annually, which was below the average rate of growth for NSW, at 1.5 per cent.

The City of Newcastle and Port Stephens Council LGAs are expected to grow at a lower rate than NSW as a whole over the 25 years to 2041. By 2041, the combined population of the City of Newcastle and Port Stephens Council LGAs is projected to increase by about 49,900 people to about 281,748 people. Most of the population growth is expected to occur within the City of Newcastle LGA (about 38,973 people).

Communities in the study area generally had lower levels of population mobility compared to the NSW and City of Newcastle and Port Stephens Council LGAs. This likely reflects the older population and more rural nature of the Beresfield-Hexham area.

#### ***Age profile***

The study area had a slightly older population compared to the NSW average, with a higher median age and higher proportion of older people. The study area also had proportions of children aged 14 years or younger above the NSW average. While Beresfield-Hexham has an older population, Raymond Terrace reported a median age the same as NSW and a higher proportion of children and lower proportion of older people.

## ***Cultural diversity***

Overall, communities in the study area had lower levels of cultural diversity compared to NSW.

The study area had a relatively high proportion of Indigenous people, with about 7.6 per cent of people who reported as being Aboriginal and/or Torres Strait Islander, more than double the NSW average. At the same time, the study area had lower proportions of people who were born overseas and people who speak a language other than English at home compared to the NSW average.

The study area had relatively low proportions of people who speak a language other than English. Levels of English proficiency in the study area were generally high, with less than one per cent of the population only indicating that they did not speak English well or at all, compared to 4.5 per cent in NSW.

## ***Households and families***

There were 8,214 households in the study area in 2016. Family households were the predominant household type, representing nearly 70 per cent of households in the study area. The study area had a higher proportion of lone person households and a lower proportion of group households compared to NSW.

There were about 5,886 families in the study area, of which about 38.3 per cent comprised families with children aged under 15 years. Overall, the study area had higher proportions of families with children and lower proportions of couple only families compared to NSW and the City of Newcastle and Port Stephens Council LGAs.

## ***Housing***

The study area had the following housing and vehicle ownership profile:

- About 92.6 per cent of the 8,870 dwellings in the study area were occupied on Census night
- Separate houses were the predominant dwelling type, accounting for about 78.1 per cent of dwellings in the study area, which was above the proportion of separate houses in NSW and City of Newcastle and Port Stephens Council LGAs
- Levels of owner-occupied houses were below the NSW average, although this was mainly due to very low proportions of houses that were owned outright or owned with a mortgage in Raymond Terrace
- Relatively high proportion of houses being rented compared to the NSW average, with 34.3 per cent of occupied private houses in the study area being rented, compared to 31.8 per cent in NSW. In Raymond Terrace, 38 per cent of occupied private houses are being rented. The study area had a relatively high proportion of houses being rented from a state authority, with this more than double the NSW average
- Relatively low housing costs, with median weekly rent and monthly mortgage costs below City of Newcastle and Port Stephens Council LGAs and NSW medians
- Lower levels of housing stress related to mortgage costs compared to NSW, although some households experienced levels of rental housing stress with proportions of households paying 30 per cent or more of household income on rental costs similar to or above the NSW average.

## ***Socio-economic disadvantage and need for assistance***

Some areas near the project demonstrated higher levels of relative disadvantage in general when measured using the ABS Socio-Economic Indexes for Areas index. Communities near Tomago and Heatherbrae generally indicated a relative lack of economic resources in general, while communities in Beresfield, Tarro and Woodberry generally displayed moderate levels of economic resources (ABS 2016a).

Overall, the study area had relatively high levels of people needing assistance compared to averages for NSW and City of Newcastle and Port Stephens Council LGAs. About 7.8 per cent of people in the study area indicated they have a need for assistance with self-care, mobility or communication. This is compared to 5.4 per cent in NSW (ABS 2016a).

### 13.3.3 Economic profile

#### ***Income and employment***

Communities in the study area generally had lower incomes compared to NSW and the City of Newcastle and Port Stephens Council LGAs. The study area also had higher proportions of households with an income of less than \$650 per week and lower proportions of households with an income of more than \$2500 per week.

The study area had a labour force participation rate of 53.1 per cent (about 9,444 people). This is below the proportion of people who were participating in the labour force in NSW as a whole (59.2 per cent). The study area had a relatively high rate of unemployment, with 10.5 per cent of the study area's labour force unemployed. Key industries of employment for residents in the study area include:

- Health care and social assistance (13.2 per cent)
- Retail trade (11.7 per cent)
- Manufacturing (10.5 per cent)
- Construction (9.3 per cent)
- Accommodation and food services (7.8 per cent).

The proportion of people employed in each of these industries was above the NSW averages.

#### ***Vehicle ownership***

The study area had lower proportions of households with access to a motor vehicle and households with two or more vehicles in the study area was slightly below the NSW average.

#### ***Worker population profile***

There were about 16,663 people who worked within the study area, of which about 60 per cent worked in the Raymond Terrace SA2, reflecting employment areas such as Tomago industrial area and Heatherbrae and Raymond Terrace commercial areas (ABS 2016b).

Manufacturing was the main industry of employment for people working in the study area, employing 23 per cent of workers. Other key industries of employment for people working in the study area included construction (12.2 per cent of workers), retail trade (7.8 per cent of workers), transport, postal and warehousing (5.8 per cent of workers), and public administration and safety (5.2 per cent of workers).

About 84.5 per cent of people working in the study area used a car for all or part of their commute to work, compared to 63.5 per cent in NSW. A further 1.3 per cent of workers either walked or cycled to work, well below the NSW average at 4.6 per cent. Workers in the study area had an average commuting distance of 23.6 kilometres between their home and work, compared to 16.1 kilometres in NSW.

### 13.3.4 Local business and industry

#### ***Businesses in the study area***

There were 1,521 registered businesses in the study area in 2019, of which just over half were non-employing businesses (that is, sole traders or partnerships with no employees in addition to the business owners). Construction related business accounted for the highest proportion of businesses in the study area (at about 20.8 per cent), which is above the proportion of these businesses in NSW. Rental, hiring and real estate services comprised the second largest proportion of businesses (at 12.2 per cent), followed by manufacturing (8.9 per cent) and transport, postal and warehousing (8.7 per cent). The proportion of these businesses in the study area were all above the average for NSW.

## ***Businesses near the project***

A range of businesses at Beresfield, Hexham, Tomago and Heatherbrae have the potential to experience impacts from the project's construction and operation due to their location near the project or along the New England Highway and Pacific Highway. These include businesses that service the needs of local and regional communities as well as travelling motorists, such as:

- Service stations
- Accommodation services (including motel accommodation and caravan park)
- Food services (takeaway bakeries, cafes and restaurants)
- Retailers (including recreational goods, household and electrical goods, hardware, building and garden supplies, pet supplies, caravans, clothing and footwear)
- Manufacturers (including metal products, machinery and equipment)
- Wholesalers (including building products)
- Construction services (such as machinery and equipment hire, repair and maintenance).

Businesses located near the project or with a frontage to the New England Highway and Pacific Highway are shown on **Figure 13-2**. Commercial and industrial uses are also located within the Tomago Industrial Precinct and Beresfield industrial area.

A train support facility for Aurizon coal trains is also located at Hexham, west of the Main North Rail Line. The facility services Aurizon's Hunter Valley coal freight business and alleviates capacity pressures in the coal supply chain.

Overall, Beresfield, Tomago and Heatherbrae have differing business environments. Beresfield comprises mainly light industrial, freight and logistics and manufacturing businesses. Tomago mainly comprises major industrial and manufacturing uses within the Tomago Industrial Precinct. The majority of businesses in Beresfield and Tomago are considered 'destination uses', which are likely to attract customers from a wide catchment and who deliberately plan to use a particular business due to specific goods and services being offered.

Heatherbrae comprises a mix of business uses, including retail and service uses, light industrial and manufacturing uses. The customer base for businesses in Heatherbrae would include a mix of customers who have deliberately planned to use a particular business and customers who access a business because they refer to it while they are driving past ('passing trade').

## ***Findings of business and car park surveys***

Heatherbrae and Beresfield have established business environments, with most businesses surveyed indicating they had operated for more than ten years, with seven businesses indicating they had been operating for more than 20 years. The number of people employed by businesses surveyed varied, with six businesses employing between two to five people, and seven businesses employing between 21 and 50 people. Two businesses indicated they employed more than 50 people.

Most businesses surveyed indicated that the business services a wide catchment, including the Newcastle, Maitland, Port Stephens, Lake Macquarie and Greater Sydney regions. Some businesses, for example accommodation providers, also indicated that their catchment includes interstate and overseas customers.

Customers from suburbs within the 2324 postcode (16 suburbs identified) comprised 20.8 per cent of cars surveyed at businesses within Heatherbrae, with most coming from Raymond Terrace. Unlike Heatherbrae, Beresfield did not demonstrate any specific postcode as its primary customer base, which may reflect the types of businesses used for the car park survey in this location (e.g. service station, takeaway). However, the surrounding suburbs within the 2322 postcode (seven suburbs identified) comprised the highest proportion of cars surveyed (8.3 per cent). Both Heatherbrae and Beresfield recorded smaller proportions of customers as being from across NSW and interstate compared to local suburbs. Further information on the suburbs identified within each postcode is provided in the Socio-economic Working Paper (**Appendix M**).

Passing trade was identified as important to numerous businesses surveyed at Heatherbrae and Beresfield, although perceptions about the importance of passing trade varied between individual businesses and was not consistent between similar business types. In general, businesses such as service stations and food outlets estimated that 50 to 75 per cent of their customers were associated with passing trade.

Feedback from the business surveys indicated that many businesses experience increased trade during peak holiday periods, with this generally being associated with motorists travelling along the Pacific Highway. Some businesses also identified that the distance from Sydney and location on the Pacific Highway made Heatherbrae and Beresfield important stopping points for motorists travelling along the Highway. The location of businesses was also identified as important in attracting local workers on their way to work.









### ***Future business growth and development***

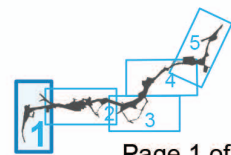
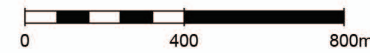
The transitioning of Heatherbrae into a key regional destination for bulky goods is likely to result in changes to the types of businesses in the area, such as an increase in wholesaling and retailing in homewares, furniture and white goods. This is expected to result in a business environment that is less reliant on passing trade.

The Greater Newcastle Metropolitan Plan 2036 (DPE 2018) recognises Beresfield, Black Hill and Tomago as catalyst areas and major employment and trading hubs within Greater Newcastle. Beresfield and Black Hill are proposed to be a freight and logistics hub, with complementary manufacturing and light industrial activity.

Tomago is proposed to be an advanced manufacturing and industrial area. Local planning for the Tomago Industrial Precinct will look to enable the efficient movement of goods by protecting freight routes connecting Tomago to Newcastle Airport and Port of Newcastle. The Tomago Shipbuilding Precinct located next to the Hunter River is identified as a location to promote the development of shipbuilding industries.



- |  |   |
|--|---|
|  Construction footprint        |  Professional services |
| <b>Business</b>  |  Retail                |
|  Services                      |  Service stations      |
|  Cafe / restaurant / take-away |   |
|  Equipment hire                |   |
|  Manufacturing / industrial    |   |



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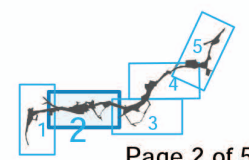


Figure 13-2 Businesses near the project (map 1 of 5)

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- Construction footprint
- Business**
- Accommodation
- Equipment hire
- Manufacturing / industrial



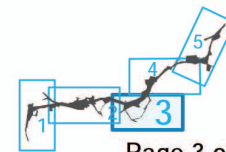
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Figure 13-2 Businesses near the project (map 2 of 5)

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- Construction footprint
- Business**
- Accommodation
- Services
- Manufacturing / industrial



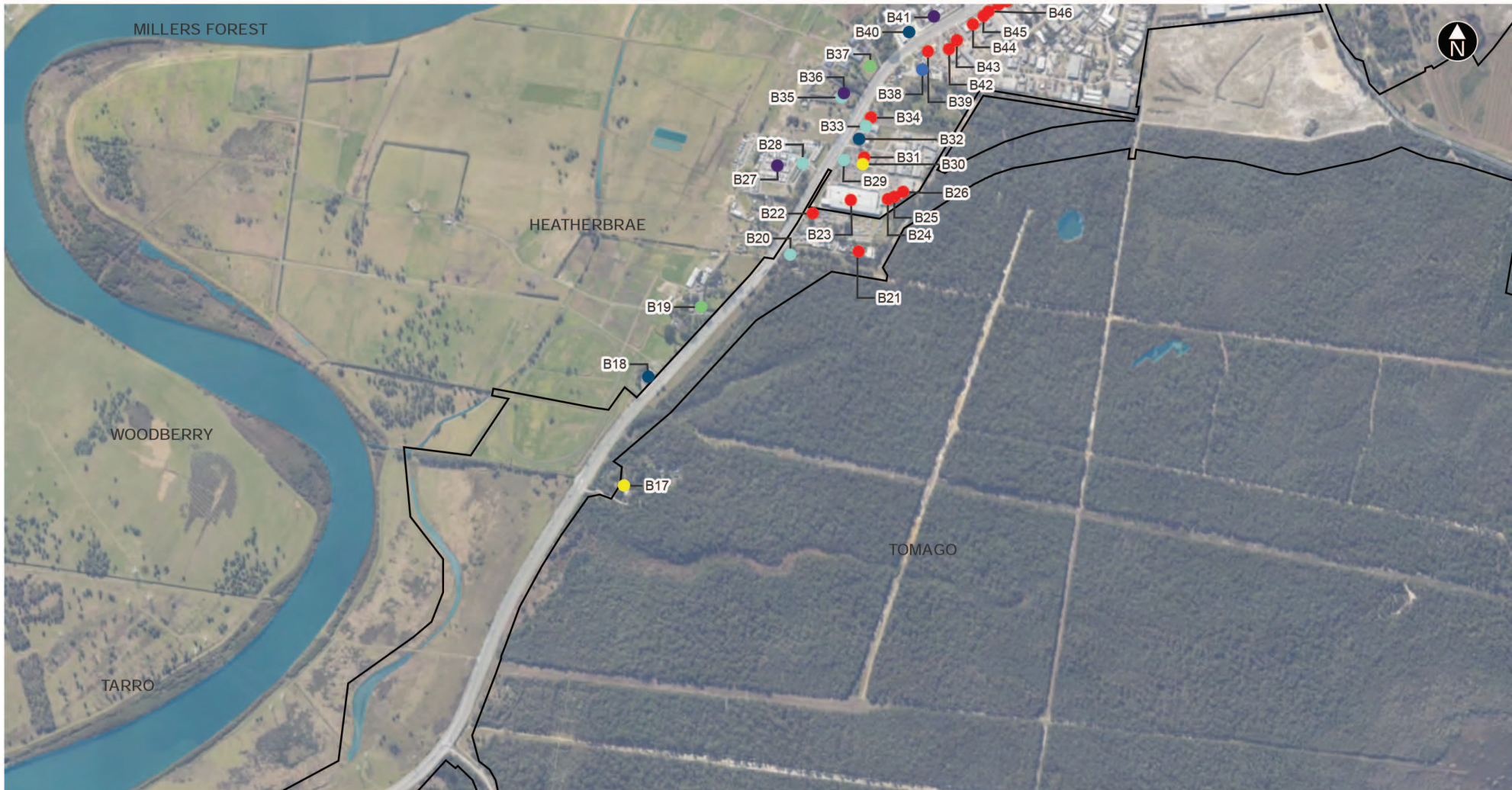
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Figure 13-2 Businesses near the project (map 3 of 5)

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Construction footprint

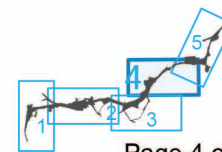
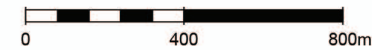
Business

- Accommodation
- Agriculture – horse breeding/ training
- Services
- Cafe / restaurant / take-away

● Manufacturing / industrial

● Retail

● Service stations



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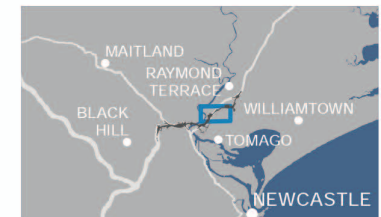
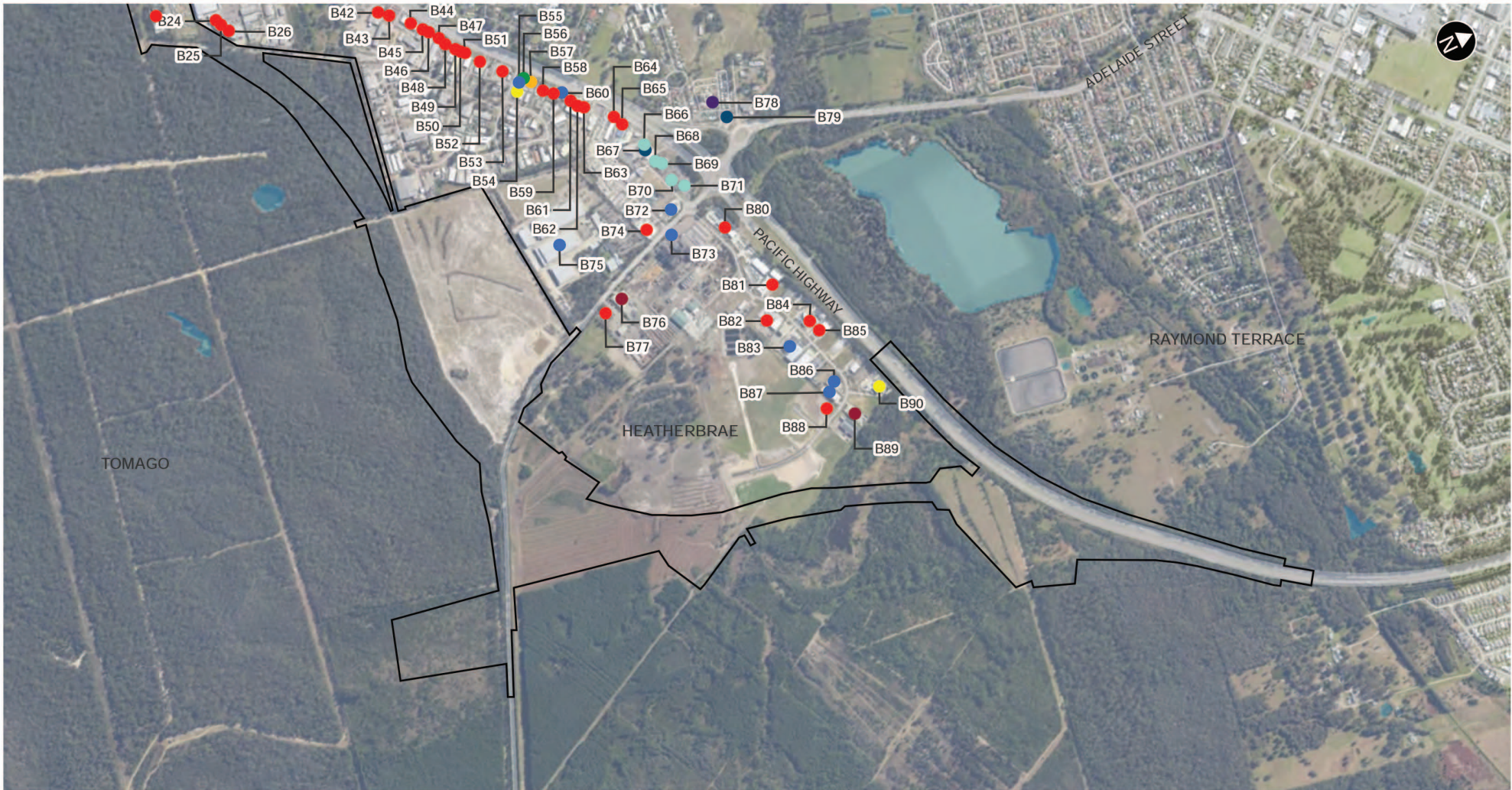


Figure 13-2 Businesses near the project (map 4 of 5)

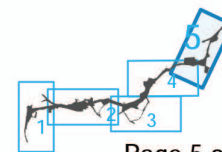
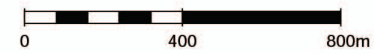
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Construction footprint

Business

- Accommodation
- Services
- Cafe / restaurant / take-away
- Construction
- Equipment hire
- Manufacturing / industrial
- Professional services
- Retail
- Service stations



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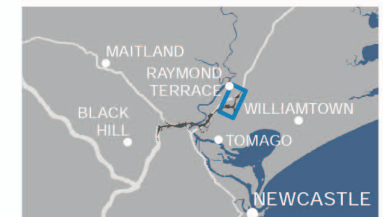


Figure 13-2 Businesses near the project (map 5 of 5)

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## **Commercial and recreational fishing**

### Commercial fishing and aquaculture farmers

Areas of the Hunter River near the project that are available or used for commercial fishing are located to the north of the Hexham Bridge, which are fishing grounds for prawn trawling with a primary season between October and May each year.

The Hunter River estuary forms part of the Eastern Prawn Trawl Fishery, which also includes the estuaries of the Clarence and Hawkesbury Rivers. Access to the fishery is limited to shareholders and/or their nominated fisher, with 22 shareholders operating in the Hunter River Estuary Prawn Trawl. The primary markets for these prawns are Sydney and regional centres (DPI 2017).

Consultation by Transport with the Commercial Fisherman's Co-operative in 2016 and 2020, indicated that trawlers are about 20 metres wide and would need a minimum clearance of 32 metres. Other considerations raised by the Co-operative during consultation included:

- Trawling occurs close to the shores on the south-western side of the Hunter River and concerns that earthworks on the banks or construction of the pylons may inhibit the ability to trawl in this location
- The bridge spans for the project should be no narrower in the main channel than the existing (Pacific Highway) bridge spans
- Meshing (gill netting) is used in the Hunter River outside of the prawn season for species such as mullet, bream and jewfish and that the new bridge should not impact these activities
- Potential for construction to occur over the winter months to avoid impact on trawlers
- The nets used for trawling have a span of about 15 metres. Issues currently exist within the Hunter River in relation to not being able to pass through one span of the existing (Pacific Highway) bridge due to snags that rip nets
- Need to ensure that no metal, rubbish etc from construction activities enters the Hunter River as this may rip nets.

Aquaculture production in the Hunter Region (excluding Newcastle) is primarily focused on oysters and barramundi (with the latter occurring outside of the study area). The Hunter River also contains oyster leases located away from the project near Stockton Bridge, about 13 kilometres downstream of the project, which are held by a small number of permit holders who mainly cultivate Sydney Rock Oysters.

### Recreational fishing

Coastal, estuarine and fresh waters in the Hunter Region, including the Hunter River, are popular locations for recreational fishing. The NSW/ACT Recreational Fishing Survey – 2013/2014 (DPI 2015) found that the majority of recreational fisher days in the Hunter fishing zone were by local or nearby residents from the Hunter Region, Newcastle and Lake Macquarie and about half of these fisher days were boat-based with about 63 per cent within the estuarine waters.

The Hunter River is subject to various fishing closures at certain times of the year. In particular, the section of the Hunter River near the project is closed to hand-hauled prawn nets and push/scissor nets from June to October annually. Access to the Hunter River near the project is provided by boat ramps at Tomago Road, Tomago (downstream of Hexham Bridge) and Riverside Park and King Park Sporting Complex at Raymond Terrace. These are outside of the construction and operational footprints for the project.

## Tourism

### Regional tourism

In 2019, about 4.63 million people visited the City of Newcastle LGA in 2019. At the same time, the Port Stephens Council LGA had about 1.57 million visitors, the Maitland City LGA had about 801,000 visitors and the Cessnock City LGA had about 1.05 million visitors. Domestic day trippers comprised the largest visitor group, representing about 66.4 per cent of visitors in the City of Newcastle LGA, 51.6 per cent in Port Stephens Council LGA, 78.4 per cent in the Maitland City LGA and 57.2 per cent in the Cessnock City LGA. International visitors represented the smallest visitor group, representing less than 2.5 per cent of visitors in each LGA.

Holidaying and visiting family and friends were the top reasons for visiting the City of Newcastle, Port Stephens Council, Maitland City and Cessnock City LGAs. Business related travel was also a key reason for visitors to the City of Newcastle LGA. Staying with family and friends was a population accommodation option for overnight visitors, accounting for about 2.7 million visitor nights in the City of Newcastle LGA, about 673,000 visitor nights in the Port Stephens Council LGA, about 462,000 visitor nights in the Maitland City LGA and about 264,000 visitor nights in the Cessnock City LGA. Hotel accommodation accounted for about 19 per cent of visitor nights in the City of Newcastle LGA, 23 per cent of visitor nights in the Port Stephens Council LGA and about 37 per cent of visitor nights in the Cessnock City LGA. Commercial camping/ caravan parks were also a popular accommodation option for visitors to Port Stephens, accounting for about 376,000 visitor nights.

In 2019, there were 1,972 tourism related businesses within the City of Newcastle LGA, 638 tourism related businesses in the Port Stephens Council LGA, 662 tourism businesses in the Maitland City LGA and 505 tourism-related businesses in the Cessnock City LGA. The majority of tourism related businesses in each LGA comprised 'non-employing' businesses (for example, sole traders) (Tourism Research Australia 2019).

For the year ending in June 2016, there were 26 hotels, motels and serviced apartments with 15 rooms or more in the City of Newcastle LGA, 18 establishments in the Port Stephens Council LGA, eight establishments in the Maitland City LGA and a further 24 establishments in the Cessnock City LGA.

### Local tourism

The study area is a key tourism service centre, with businesses that cater for overnight and day-trip visitors as well as motorists travelling along the Pacific Highway. The Hunter Region Botanic Gardens (HRBG) attracts visitors from the surrounding region and beyond.

A range of tourism related businesses are located at Beresfield and Heatherbrae, that provide services for visitors and motorists, including:

- Motel and caravan park accommodation providers such as Tomago Village Van Park, Pacific Gardens Van Village, Sir Francis Drake Inn, Country Comfort Motto Farm Motel and Bellhaven Caravan Park
- Cafes, restaurants and take-away food outlets at Beresfield and Heatherbrae, including fast-food outlets, restaurants with accommodation providers (for example, Golden Terrace Chinese and Golden Hind restaurants), and cafes such as Heatherbrae Pies.

A number of businesses at Heatherbrae also provide services and facilities for self-drive tourists such as caravan retailers and repairs.

## 13.3.5 Community values

Community values include those values or features held as important to communities for quality of life and well-being. The identification of community values for this assessment has been informed by the review of existing literature from City of Newcastle and Port Stephens Council, outcomes of consultation carried out for the project, and observations.

### ***Local amenity and character***

The amenity and character in the study area is influenced by a range of land uses, including:

- Rural land uses, including land used for grazing and horse training at Beresfield, Tarro, Woodberry and Heatherbrae
- Industrial and utilities uses at Black Hill, Beresfield and Tomago
- Commercial, light industrial and large-scale retail uses at Heatherbrae
- Urban residential uses at Beresfield, Tarro, Heatherbrae and Raymond Terrace
- Environmental features including the Hunter River, Hunter Wetlands National Park at Hexham and Tomago Sandbeds
- Major transport infrastructure, including major roads such as the M1 Pacific Motorway, Pacific Highway and New England Highway, and the Main North Rail Line.

Several areas near the project are undergoing change, with Raymond Terrace identified in the Greater Newcastle Metropolitan Plan 2036 (DPE 2018) as an emerging city centre and location of local housing and job opportunities. Beresfield and Black Hill are also transitioning from mainly rural uses to a major employment and trading hub, with a mix of industrial uses. This future development would offer residents access to new residential and urban uses and local employment opportunities. It will also result in changes to the rural landscape in some parts of the study area.

Existing noise levels vary across the study area, with residential areas mostly influenced by road traffic noise and noise from nearby commercial and industrial areas.

The Indigenous and non-Indigenous heritage and history of the study area also contributes to the character and identity of communities. The protection and promotion of the region's heritage is recognised in the community strategic plans for the City of Newcastle and Port Stephens Council LGAs. Further information is provided in **Chapter 12** (Aboriginal cultural heritage) and **Chapter 17** (non-Aboriginal heritage).

### ***Community cohesion***

Community and social networks in the study area are likely to be associated with social infrastructure such as schools, churches and sporting clubs. The HRBG also fosters a strong level of community cohesion and shared values, offering environmental, education and landscape amenity values that are important to local communities, visitors and volunteers.

### ***Community health and safety***

Maintaining road safety and provision of a safe, reliable and efficient road network is important to communities in the study area.

During business surveys carried out for the project, some business owners/ managers indicated that customers were concerned about accessing businesses in Heatherbrae from the Pacific Highway during peak traffic periods, with customers scheduling visits around low traffic periods. Large traffic volumes, including heavy vehicles, along the Pacific Highway would also likely affect existing amenity for these business owners. Feedback from consultation for the project identified general support for the project in addressing existing concerns with the road network.

Health risks to the community also include noise and air quality impacts. These are discussed further in **Chapter 8** (noise and vibration), **Chapter 18** (air quality) and **Chapter 22** (safety and risk).

## Natural environment

The Hunter River and floodplain supports a range of commercial activities such as fishing, farming and industry and provides access for local and regional communities to informal recreation opportunities such as boating, fishing, kayaking and birdwatching. Downstream of the project, the Hunter River splits into two main channels, separated by the Ramsar-protected Kooragang Wetlands. The Tomago Sandbeds are also an important natural resource providing a drinking water resource for the Lower Hunter, particularly during periods of drought.

The study area provides a variety of land and water-based habitats and foraging areas for a range of species and is home to several threatened species. Protection and conservation of flora and fauna is important to communities in the study area reflected in the Newcastle and Port Stephens Community Strategic Plans and consultation with the community. Further information on biodiversity values within the study area are provided in **Chapter 9** (biodiversity).

### 13.3.6 Social infrastructure

Regional and state level community services and facilities are located within the City of Newcastle and Port Stephens Council LGAs that cater for communities in the study area as well as in the broader Hunter, including:

- Hospitals, such as the John Hunter Hospital, Hunter Valley Private Hospital, Calvary Mater Newcastle, Newcastle Private Hospital, Lingard Private Hospital and James Fletcher Hospital
- Tertiary education facilities, including the University of Newcastle with campuses in Newcastle and at Callaghan and Hunter TAFE which is located in Hamilton
- Regional, state and national sport and recreation facilities, such as Hunter Stadium
- Major entertainment facilities, such as Newcastle Entertainment Centre
- Major retail, commercial uses, cultural and community support facilities.

A range of social infrastructure is located within about one kilometre of the project that have potential to experience changes during construction and operation due to access changes. Social infrastructure within one kilometre of the project are shown on **Figure 13-3**.

The study area also includes a range of community facilities and services that mainly cater for communities in the study area and surrounding region. Community facilities and services within 400 metres of the project that have potential to experience direct or indirect impacts due to the siting of project infrastructure, construction activities or operation include:

- Sport, recreation and leisure facilities, such as bowling clubs and golf courses, including:
  - Hunter Valley Equestrian Centre (S01)
  - Hunter Valley Traditional Archers (S02)
  - Pasadena Crescent Reserve soccer fields (S03)
  - Fiona John Park (S14)
  - Tarro Recreation area (S22)
  - HRBG (S25).
- Education facilities, including schools and an early education centre, including:
  - Our Lady of Lourdes Primary School / Aspect Hunter School (S17/S18)
  - Tarro Public School (S21).
- Cultural facilities, including churches and cemeteries, including:
  - Tarro General Cemetery (S15)
  - Tarro Uniting Church of Australia (S16).

- Other social infrastructure including:
  - Tarro Fire Station (S19)
  - Tarro Community Hall (S20).

Further information on social infrastructure located within 400 metres of the project is provided in the Socio-economic Working Paper (**Appendix M**).

### 13.3.7 Access and connectivity

#### ***Transport infrastructure and facilities***

The M1 Pacific Motorway is part of the key north-south National Land Transport Network (NLTN) corridor linking Sydney to Brisbane and to Newcastle and the Hunter Region. The corridor provides key connections to employment areas in Tomago, Newcastle Airport and the Williamstown RAAF Base. Other key roads servicing the study area include the New England Highway / Maitland Road corridor, the Hunter Expressway, John Renshaw Drive, Weakleys Drive, Old Punt Road and Tomago Road.

The rail network in the study area consists of the Main North Rail Line, which provides access for freight and passenger services. Regional passenger services in the study area are provided on the Hunter Line. The study area is also serviced by long distance passenger services operated by NSW TrainLink.

The bus network in the study area consists of local buses and long-distance coach services. Local bus services near the project provide connections to Newcastle, Raymond Terrace, Newcastle Airport, Nelson Bay and Maitland, and mainly use local roads.

There are limited pedestrian facilities in the study area, particularly along the NLTN and state roads, due to the relatively low demand. There are various footpaths and associated facilities in the key residential catchment areas (e.g. Tarro and Beresfield) and limited footpaths and facilities within industrial and employment areas at Beresfield, Tomago and Heatherbrae. Signalised pedestrian crossings are provided at the following intersections:

- Pacific Highway/Tomago Road: across the eastern leg of the intersection
- Pacific Highway/Hank Street: across all approaches to the intersection.

There are no existing dedicated cycle paths within the study area with cyclists using the shoulders of the existing road network. Inter-regional cycle movement is facilitated by on-road shoulders on the M1 Pacific Motorway, New England Highway/Maitland Road and Pacific Highway and are classified by the Cycleway Finder V3 (Transport for NSW 2020b) as high difficulty routes. Weakleys Drive, John Renshaw Drive and Tomago Road are also designated as high difficulty on-road routes. Anderson Drive through Beresfield and Tarro is designated as a low difficulty on-road route.

Newcastle Airport is located in Williamstown, about 15 kilometres north of Newcastle. The airport is owned by City of Newcastle and Port Stephens Council on land leased from the Department of Defence. The airport runway is shared with the Williamstown RAAF Base.

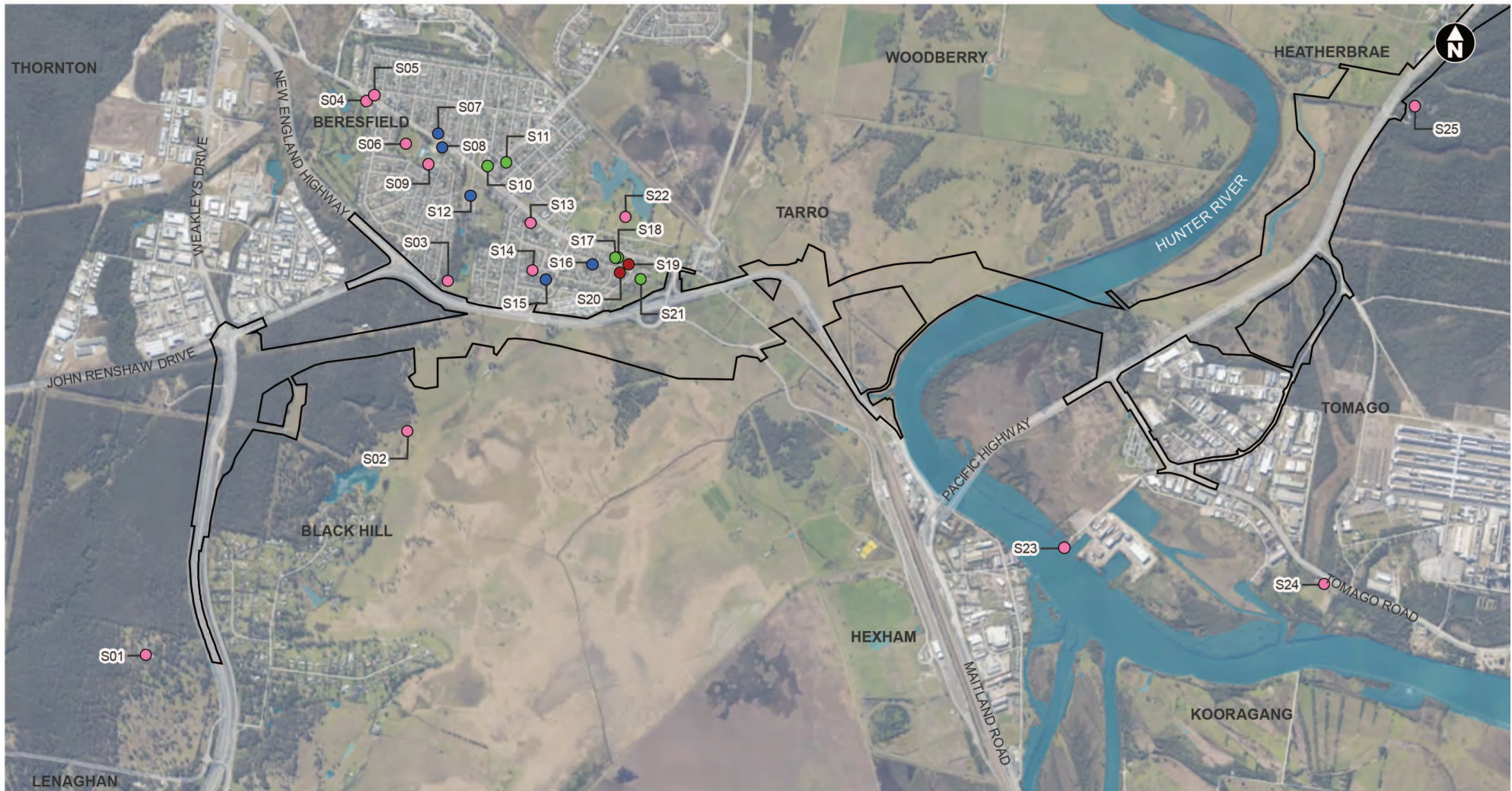
#### ***Journey to work***

Car travel was the predominant mode of travel to work for residents in the study area, with about 79.2 per cent of people using a car for all or part of their journey to work (either as driver or as passenger). This is above the averages for NSW and the City of Newcastle and Port Stephens Council LGAs and is likely to reflect limited public transport access in parts of the study area. Less than one per cent of residents in the study area as a whole used a train for all or part of their journey to work, compared to about 11.2 per cent in NSW. This was closer to two per cent of people in the Beresfield-Hexham area reflecting the location of train stations at Thornton, Beresfield, Tarro and Hexham.

About 1.1 per cent of people in the study area used the bus for all or part of their commute to work. This is well below the proportion of bus commuters in NSW (6.2 per cent) and is likely to reflect limited public transport access and longer commuting distances residents in the study area are required to travel. Compared to NSW, the study area had lower proportions of people who worked from home and higher proportions of people who did not go to work.

Residents in the study area generally travel longer commuting distances. In 2016, the average commute for residents was 19 kilometres, compared to 16.3 kilometres for residents across NSW.





Construction footprint

**Social infrastructure**

- Education facilities
  - Sport, recreation and leisure facilities
  - Cultural facilities
  - Other facilities
- Data source: LPI 2020

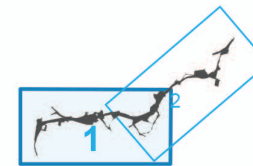
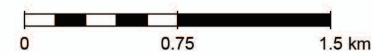


Figure 13-3 Social infrastructure within one kilometre of the project (map 1 of 2)

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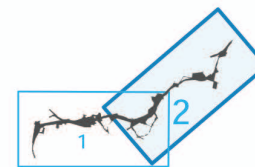
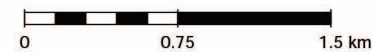
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Construction footprint

Social infrastructure

- Education facilities
  - Sport, recreation and leisure facilities
  - Cultural facilities
  - Other facilities
- Data source: LPI 2020



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Figure 13-3 Social infrastructure within one kilometre of the project (map 2 of 2)

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## 13.4 Assessment of potential impacts

### 13.4.1 Construction impacts

#### ***Population and demography***

Construction of the project is not expected to change population and demography in the study area, including age and gender profiles given effects on population and demography of infrastructure projects would mainly relate to such things as the relocation of residents due to acquisition or the influx of workers for construction. In relation to the project workforce, it is anticipated that workers would generally be sourced from across the Hunter and or from areas in Greater Sydney that are within commuting distance of the project. As such, most construction workers would commute from their homes and changes to population and demography in the study area from the influx of construction workers would be relatively minor.

#### ***Employment and training***

Effects on employment and training would mainly relate to direct and indirect employment and training opportunities offered by the project.

During construction, the project would impact positively on employment, creating an average of about 2700 direct and indirect employment opportunities annually. The size of the construction workforce would fluctuate over the four year construction period, although on average the project would create direct employment for about 1050 workers per year, including construction workers and professional and administrative staff. It is expected that on average, the project would also create 1650 indirect jobs per year with businesses that supply goods and services to support construction activities.

These benefits would be realised by local and regional communities, with construction workers expected to be sourced from across the Hunter and Greater Sydney regions. The level of benefit for residents in the study area and surrounding LGAs would be dependent on the availability of appropriately skilled and qualified workers.

Construction of the project is likely to provide benefits for groups such as young people, unemployed, women and Aboriginal people. In particular, the project's construction would provide training opportunities and apprenticeships, allowing young people to gain skills in the construction industry. The construction phase would provide opportunities to increase the participation of women in the construction industry and trade-related work, consistent with NSW Government initiatives. The implementation of the NSW Government's Aboriginal Participation in Construction policy would also provide employment and training opportunities for Aboriginal people in the Hunter Region. Transport is currently preparing a strategy to assess current Aboriginal business capabilities in the region and identify gaps in training and employment, to assist in meeting the targeted participation requirements for the project.

From 1 January 2021, the Aboriginal Participation in Construction Policy will merge with the Aboriginal Procurement policy to form a new Aboriginal Procurement Policy. The new policy would require agencies to include minimum requirements for 1.5 per cent Aboriginal participation in all contracts valued at \$7.5 million or above (NSW Treasury 2020).

Employment and training opportunities associated with the project would support improved social and economic outcomes for individuals, through skills development, income, and enhanced opportunities for future employment.

## ***Business and industry***

### Impacts on businesses in the study area

During construction, potential impacts on businesses in the study area are expected to be associated with:

- Increased expenditure by construction workers on local goods and services, resulting in positive impacts for some businesses
- Required goods and services for construction, such as earth moving contractors, transport operators and equipment hire, resulting in positive impacts for some businesses
- Changes in access to businesses due to temporary road changes, disruptions and delays near to construction work
- Increased noise and dust from construction activities, impacting on amenity at businesses near the project
- Temporary disruptions to utility supplies due to short-term shutdowns during utility work.

The construction phase may have a positive effect on some local businesses through increased trade in response to day-to-day needs of construction workers and supply of goods and services to construction. Opportunities to maximise the use of local businesses during the construction phase was identified as important by business owners during the business survey. Any opportunities for local businesses would be considered prior and during construction of the project.

Access to businesses for customers, staff and deliveries would be maintained. Where temporary changes are required, these would be determined in consultation with affected businesses to ensure that any potential impacts are appropriately managed. Much of the project would be constructed away from existing roads, with impacts on the existing roads mainly occurring where the project connects with the existing road network. Traffic flow would also be maintained during construction along with existing speed limits, where possible. While short-term delays and disruptions due to roadwork may inconvenience some business customers these are generally expected to be manageable and are not expected to impact on customer levels for businesses in the study area.

The project would directly impact on the access road to the Aurizon Hexham Train Support Facility, requiring permanent realignment of the access road however the new access road would be constructed early in the construction phase to ensure continued access.

Businesses located near the project may experience temporary impacts on amenity due to noise and dust from construction activities, particularly for businesses in Beresfield near construction work. Some businesses in Tomago and Heatherbrae may also experience noise impacts during noisy work (refer to **Chapter 8** (noise and vibration)).

The effect of temporary impacts on amenity due to noise and dust from construction activities would depend on the nature and type of business but could impact on customer interaction in outdoor areas or a decline in general business ambience. Cafes and restaurants with outdoor dining areas are mainly located away from the project and are generally not expected to be impacted by changes to amenity. The exception to this would be the café within the HRBG. Dust from construction activities was identified through the business survey as a concern for businesses such as caravan dealerships at Heatherbrae.

The sensitivity of businesses to changes from the construction of the project is likely to have increased since the survey was conducted in September 2016 given the impact of COVID-19 on businesses in the study area and wider region. The need to maximise local business opportunities from the construction of the project is also expected to have increased in importance.

## Fishing and aquaculture

Construction of the project would not directly impact on areas leased for oyster aquaculture in the Hunter River with these located near Stockton Bridge about 13 kilometres downstream of the project. The implementation of measures to manage surface water impacts within the Hunter River would help to minimise potential for indirect impacts on oyster aquaculture. The construction process for the portion of the viaduct that crosses the Hunter River is discussed in **Chapter 5**.

During the construction phase, access for commercial and recreational vessels using the Hunter River would generally be maintained. Potential impacts on commercial and recreational fishing would mainly be associated with:

- Temporary, short-term closures to access for vessels using the Hunter River during some work over the river
- Access restrictions within the construction footprint for areas outside of the main channel (for example, restrictions on access to the shoreline)
- Navigational restrictions, for example limits on speeds, near construction work for safety
- Restrictions on trawling for prawns along the shoreline within the construction footprint, requiring changes to trawling practices, such as nets being pulled in.

Consideration of prawn trawling activities would be given in detailed construction planning to minimise impacts on commercial fishing operations, although it is likely that construction within the Hunter River would occur during at least one trawling season.

Following construction, all temporary work in the riverbed (for example temporary piles and wharves) would be removed.

## Tourism

Potential impacts on regional and local tourism would mainly be associated with:

- The use of some of the available, under-utilised tourist accommodation for the construction workforce, resulting in economic benefits for accommodation owners
- Traffic changes resulting in potential delays and disruptions to travelling motorists using the Pacific Highway and other major roads in the study area
- Amenity impacts for tourist accommodation near to proposed work.

It is expected that construction workers would generally be sourced from across the Hunter and Greater Sydney regions. There is potential, however, that some construction workers from outside of the surrounding region may choose to stay locally during their working week. This may increase demand for short-term visitor accommodation in the study area. The use of some of the available, under-utilised tourist accommodation for the construction workforce would provide economic benefits for accommodation businesses through increased revenue.

There is potential that some motorists may choose alternate routes to avoid construction activities, although it is likely that many would continue to use the Pacific Highway as the main route serving coastal towns in Central and Northern NSW. Where possible, the timing of major construction activities that have potential to cause increased traffic impacts would be scheduled considering the timing of major holiday periods such as Christmas and Easter to minimise potential impacts on travelling motorists.

The project would impact on the visitor car park at the HRBG used by staff, volunteers or visitors, requiring management of parking during construction. Access to HRBG for visitors, staff, volunteers and deliveries would be maintained during construction. Noise, dust and traffic from construction activities may temporarily reduce amenity for visitors, staff and volunteers at HRBG, potentially detracting from the use and enjoyment of the facilities.

## Community values

### Local amenity and character

Communities that are most likely to be affected by changes to local amenity from construction activities include residential communities at Beresfield and Tarro, and residential uses and commercial uses at Heatherbrae. Adverse changes to local amenity for communities and areas near to construction work, construction compounds and haulage routes would mainly result from:

- Noise, vibration, dust and traffic from construction activities
- Changes in visual amenity due to the removal of established vegetation and presence of construction work and infrastructure
- Light spill from night-time construction work near to residential uses.

Changes to local amenity resulting from increased noise and dust from construction activities may temporarily impact on individuals' use and enjoyment of their homes, businesses and community facilities.

Communities that are most likely to be affected by changes to local amenity from construction activities include:

- Residential communities at Beresfield and Tarro
- Residential uses including visitor accommodation, at Heatherbrae
- Commercial uses at Heatherbrae.

Changes to local amenity resulting from increased noise and dust from construction activities may temporarily impact on individuals' use and enjoyment of their homes, businesses and community facilities. While most construction activities would be carried out during day-time hours, some work may need to be carried out during the evening and at night to minimise potential impacts on regional road networks. A list of activities likely to require evening or night-time work is provided in **Chapter 5**.

Access would be maintained to the Hunter River during construction, helping to minimise potential impacts on commercial and recreational users. While this may impact on some commercial fishing operations in areas near the construction work as described above, navigational restrictions are not expected to impact on the general use of the river.

During construction, direct and indirect impacts on non-Aboriginal heritage items such as the Glenrowan Homestead and Aboriginal sites within the construction footprint, have potential to affect community values relating to heritage and history in the study area. Further discussion on potential impacts on non-Aboriginal and Aboriginal values is provided in **Chapter 12** (Aboriginal cultural heritage) and **Chapter 17** (non-Aboriginal heritage).

### Community cohesion

Potential impacts on community cohesion would mainly be associated with temporary disruptions to the use of some social infrastructure and meeting places. In particular, actual or perceived impacts on the HRBG due to temporary changes to access for motorists and public transport users, and noise and dust from construction activities, may detract from the enjoyment of the gardens for some volunteers. This may temporarily impact on volunteering levels and disrupt social networks and relationships associated with the HRBG. These impacts are likely to be temporary and are not expected to impact on the participation of volunteers following construction activities in the vicinity of the gardens.

Construction activities on roads in the study area may result in temporary delays or disruptions and may discourage some people from making some trips. Perceptions about road conditions during construction may also influence people's decisions around local travel. These changes may impact on some people's access to meeting places and participation in local activities, although any potential impacts on community cohesion are likely to be minor.

## Community health and safety

Noise, light spill and dust from construction activities have potential to impact on the health and wellbeing of some residents closest to construction work. This impact is most likely to occur where night-time work results in sleep disturbance over extended periods of time or where construction activities create extended periods of high noise or dust levels.

Night work and lighting during construction would be managed in accordance with relevant statutory requirements and guidelines to avoid unacceptable lighting impacts and minimise the potential for adverse impacts on the health and well-being of residents near to construction works. Construction lighting procedures and management measures would be documented in the Construction Environmental Management Plan and may include consideration of such things as lighting levels, projection angles, direction and length of frequency of exposure. Further discussion about potential impacts of construction lighting is in **Chapter 15** (urban design, landscape and visual amenity). Further discussion about the potential for construction noise to cause sleep disturbance is also provided in **Chapter 8** (noise and vibration).

An increase in construction traffic and heavy vehicles on roads within the study area and changes to local traffic and access during construction may impact on community perceptions relating to road safety. Further discussion about potential impacts of construction on access and connectivity within the study area is provided below.

## Natural environment

Construction of the project would require the removal of established vegetation within the construction footprint including at Black Hill, Tomago and Heatherbrae, and riparian habitat adjacent to the Hunter River. The clearing of established vegetation for the project is likely to be a concern for some community members, impacting on values relating to ecology, landscape, scenic amenity and the Hunter River. Following construction, areas impacted by construction work that are not required for permanent infrastructure would be rehabilitated.

## Social infrastructure

During construction, impacts on social infrastructure in the study area may result from:

- Increased noise, dust and construction traffic, impacting on amenity for users and workers
- Changes in local access and traffic disruptions and delays due to construction activities.

Adverse changes to local amenity and disruptions due to road access changes are most likely to affect social infrastructure located closest to construction activities, although changes to road access may also cause disruption for users of social infrastructure located further from the project, for example sport and recreation facilities and churches at Beresfield and Heatherbrae.

Access changes and increased construction traffic on roads that connect to or are crossed by the project, or that are used for construction access have potential to cause temporary delays and disruptions for users of social infrastructure at Beresfield, Tarro, Heatherbrae and Raymond Terrace. These include facilities such as schools, sport and recreation grounds, and cultural facilities. While these impacts may inconvenience some users, this is not expected to impact on the overall use of these facilities.

Potential impacts on specific social infrastructure within 400 metres of the project construction work are discussed in detail in **Table 13-2**. The location of social infrastructure is shown in **Figure 13-3**.

Table 13-2 Summary of impacts on social infrastructure within 400 metres of the project

Facility (ID / name)		Summary of impacts during construction
S01	Hunter Valley Equestrian Centre	Construction noise and dust has potential to impact on the amenity for users of the facility, but any impacts are expected to be minor given the main facilities (for example, arenas, stables, accommodation, etc) are located at least 300m from the construction footprint and further from the main construction work for the Black Hill interchange. Potential amenity impacts on the equestrian centre are expected to be manageable and the significance of impacts is expected to be negligible with the implementation of management measures.
S02	Hunter Valley Traditional Archers	Temporary impacts on amenity may occur for users of the archery club due to construction noise and dust, potentially impacting on the use and enjoyment of the club for members and visitors. Club events are mainly held on Sundays, which are outside of standard construction hours and any potential impacts would mainly be associated with out of hours work. Potential amenity impacts on the Archers club are expected to be manageable and the significance of impacts is expected to be negligible with the implementation of management measures.  The project would close the access currently used by the club from the M1 Pacific Motorway. Future access to the club site facilities would require agreement between the club and the private property owner but would be available via the new access being provided by the project to the property. Potential impacts on the Archers club are expected to be manageable and the significance of impacts expected to be low.
S03	Pasadena Crescent Reserve Soccer Fields	The construction footprint would impact on the landscape buffer between the soccer fields and New England Highway. This would not impact on the use of the soccer fields however temporary impacts on amenity may occur for users of the soccer fields due to construction noise and dust. This may impact on the use of the fields for some events, particularly if they coincide with noise and dust intensive construction activities. Increased dust from construction activities also has potential to influence community perceptions relating to health and wellbeing for some users of the soccer fields, particularly as this facility is used by children.  Overall, the significance of impacts on the soccer fields are expected to be low with the implementation of standard management measures and consultation and communication with managers and users of the facility.
S14	Fiona John Park	The park is located about 190m from the construction work for the New England Highway and impacts on amenity if any, are expected to be minor. The significance of potential impacts on the park are considered negligible.
S15	Tarro General Cemetery	The cemetery is now closed but provides passive recreation opportunities. The cemetery is located about 130m from the construction work for the New England Highway and impacts on amenity if any, are expected to be minor. The significance of potential impacts on the cemetery are considered negligible.
S16	Tarro Uniting Church of Australia	During construction, potential impacts would mainly be associated with temporary disruptions for some users due to local road changes at the New England Highway and Anderson Drive. The significance of potential impacts on the church are considered negligible.
S17/ S18	Our Lady of Lourdes Primary School / Aspect Hunter School	During construction, students, teachers and visitors to the school may experience temporary reductions in amenity from construction activities. These impacts are not expected to impact on classroom areas and any impacts on outdoor teaching and recreation areas are likely to be minor.  An increase in construction traffic and heavy vehicles using Anderson Drive near the school may result in temporary traffic delays and disruptions for students and teachers and present possible safety risks for students, potentially impacting on community perceptions about student safety. These impacts are most likely to occur during school drop-off and pick-up times. Overall, the significance of potential impacts is expected to be low.



Facility (ID / name)		Summary of impacts during construction
S19	Tarro Fire Station	During construction, potential impacts would mainly be associated with local road changes at the New England Highway and Anderson Drive. Traffic management measures would be implemented during construction, which would assist in managing any potential impacts on the Tarro Fire Station. The significance of potential impacts on the fire station are expected to be moderate-low.
S20	Tarro Community Hall	During construction, potential impacts would mainly be associated with temporary disruptions for some users due to local road changes at the New England Highway and Anderson Drive. There is potential for noise and dust to impact on the amenity of the hall when it is in use, although impacts if any, are expected to be minor. The significance of potential impacts on the hall are considered negligible.
S21	Tarro Public School	<p>During construction, students, teachers and visitors to the school may experience temporary reductions in in amenity due to noise and dust from construction activities. These impacts are likely to have the greatest effect on outdoor teaching and recreation areas and may disrupt the use of these areas during construction activities that generate high noise or dust levels. Potential impacts may also be experienced within some classrooms, with noise levels from some construction activities expected to be clearly audible.</p> <p>Increased dust from construction activities also has potential to influence community perceptions relating to health and wellbeing, particularly for children using outdoor recreation and play areas. The significance of potential impacts on the school during construction are expected to be moderate.</p>
S22	Tarro Recreation Area	<p>The closest sporting fields are located about 330m from the construction work for Tarro interchange. As such, impacts on amenity for users of the facility, if any, are expected to be minor.</p> <p>Access to the recreation area is provided from Anderson Drive, which is proposed to be used for construction access. An increase in construction traffic and heavy vehicles using Anderson Drive may present possible safety risks for users of the recreation area, particularly children. This may impact on community perceptions about children's safety. The significance of potential impacts on the recreation area are considered negligible.</p>
S25	HRBG	<p>During construction, the visitor car park at the entrance to the HRBG would be within the construction footprint for the project, possibly impacting on the availability of this car parking for use by staff, volunteers or visitors. Alternative on-site car parking for the construction phase would be identified in consultation with the HRBG's management. Access for visitors, staff, volunteers and deliveries would be maintained during construction, although access changes would be required during construction of the new access road and bridge (B09) on the main alignment. Traffic management measures would be implemented for the entry / exit to the gardens to maintain road safety for users. Construction of the bridge over the access road would require short-term closure of the HRBG access road to allow lifting of girders however these works would be managed in consultation with HRBG.</p> <p>Noise, dust and traffic from construction activities may temporarily reduce amenity for visitors, staff and volunteers at the gardens, potentially detracting from their use and enjoyment of HRBG and diminishing perceptions of peacefulness and tranquillity in some areas. In particular, some construction activities are likely to generate noise considered to be intrusive, potentially disrupting interactions between visitors, staff and volunteers in some areas. Overall, the significance of construction impacts on the gardens are expected to be moderate, with the implementation of management measures.</p>

## ***Access and connectivity***

During construction, potential impacts on local access and connectivity would generally result from:

- Increased construction traffic on roads within the study area that provide construction access, including heavy vehicles and construction worker vehicles, impacting on road users
- Temporary changes to road conditions near to construction work (for example, where the project connects to or crosses existing roads), including reductions in speed limits, temporary traffic lane closures, and temporary diversions and access changes
- Potential changes to bus services, including changes to road conditions and the temporary relocation of some bus stops near to construction work for safety, impacting public transport users
- Changes to pedestrian and cycle access near to construction work, resulting in temporary disruptions or safety risks for users
- Construction activities over the Main North Rail Line, although track possessions would be carried out during per-defined periods of track work, helping to minimise impacts on passenger and freight rail services
- Work within the Hunter River, resulting in navigational restrictions on access for commercial and recreational vessels
- Changes to property access for some properties at Black Hill, Tarro, Tomago and Heatherbrae.

Much of the project would be constructed away from existing major roads and transport networks, helping to minimise potential impacts for road users. The function and capacity of the road network near to construction work would be generally maintained during the construction phase and access would be maintained for motorists, including oversize overmass vehicles.

During construction, potential impacts on emergency services would mainly be associated with temporary road changes where the project ties into the existing road network at Black Hill, Beresfield, Tarro, Tomago and Raymond Terrace or where the project crosses the existing road network (for example, the viaduct crossing of the New England Highway). Traffic management measures would be implemented during construction, which would assist in managing any potential delays or disruptions. This is discussed in **Section 13.5**.

## **13.4.2 Operational impacts**

### ***Population and demography***

Property acquisition for the project would require removal of at least two dwellings and possibly one dwelling within the site of the proposed power station at Tomago. While the relocation of residents associated with the removal of dwellings for the project may result in minor localised changes to population, these changes would represent a very small proportion of the study area's population and would not change the population and demography of the study area. Property acquisition is discussed in **Chapter 14** (land use and property).

### ***Employment and training***

During operation, potential impacts on employment and training would generally result from:

- Improved access to key employment areas such as Beresfield, Black Hill, Tomago and the Port of Newcastle, resulting in enhanced access to employment for residents and workers in the wider Hunter Region
- Improved travel times and travel reliability, resulting in positive impacts on workers and residents within the study area who use a private vehicle for their commute to work
- Acquisition of commercial properties, resulting in potential loss of local employment.

Improved access and connectivity to the M1 Pacific Motorway and Pacific Highway provided by the project would also support future employment and population growth at Raymond Terrace and growth and development of employment precincts at Tomago and Thornton, Beresfield and Black Hill. This would improve access to new employment opportunities for residents and workers in the study area and wider region, supporting improved social and economic outcomes for individuals.

Improvements in travel times and travel reliability provided by the project would impact positively on workers and residents, helping to reduce commuting times and increasing access to employment within convenient commuting times.

The project would directly impact on three properties at Heatherbrae owned by Transport that currently accommodate existing businesses. Some loss of local employment may occur if these businesses choose to cease operations, possibly resulting in loss of income for affected employees and business owners. Potential impacts on employment due to the relocation of businesses to alternate sites are likely to be dependent on the businesses' new location and individual circumstances of employees, for example the ability of individual employees to travel to the new business location.

### **Business and industry**

#### **Directly affected businesses**

The project would directly impact on three properties at Heatherbrae owned by Transport that currently accommodate existing businesses. In addition, partial acquisition would also be required for five businesses at Tarro, Tomago and Heatherbrae.

Potential impacts on individual businesses directly affected by the project are discussed in **Table 13-3**.

Table 13-3 Impacts on directly affected businesses

<b>Business name and number</b>	<b>Summary of impact</b>
Total acquisition	
Sandy's Famous Seafoods, Heatherbrae (B20)	The project would directly impact this business, requiring relocation of the business to an alternate premise prior to construction. It is likely that suitable alternate sites are available locally, although temporary disruptions to business operations are likely as the business re-establishes. Transport currently own and lease this property to the business owner.
Royal Wolf Shipping Containers, Heatherbrae (B21)	Total acquisition would require this business to relocate to an alternate premise prior to construction. It is likely that the business would be able to relocate to an alternate site locally, particularly as the nature of the business is likely to be less dependent on locational requirements.
7th Street Caravans, Heatherbrae (B22)	The project would directly impact this business, requiring relocation of the business to an alternate premise prior to construction. It is likely that suitable alternate sites are available locally, although temporary disruptions to business operations are likely as the business re-establishes. Transport currently own and lease this property to the business owner.
Partial acquisition	
Palm Valley Village, Tarro (B12)	The project would require the partial acquisition of a small area of unused land that forms part of the property occupied by this business. The affected area is outside the fence line and is used for water treatment and drainage. Acquisition of this land would not impact on the ongoing use or functioning of this business for residential accommodation. The project would remove third-party advertising signage located on the affected land.

Business name and number	Summary of impact
Hexham Train Support Facility, Hexham (B14)	The access road for this facility at Hexham would be impacted by the Tarro interchange. Access would be maintained to this facility by a new access road under the main alignment, which would be constructed early in the construction phase to ensure that continued access is provided to the facility during construction of the Tarro interchange and main alignment. As such, ongoing impacts on the use or functioning of this business are not expected.
Tomago Village Van Park, Tomago (B15)	The upgrade of the intersection of the Pacific Highway and Tomago Road would require the partial strip acquisition of land owned by this business. The affected area is generally outside of the area used for the caravan park and would not impact on the ongoing use or functioning of this business.
HRBG, Heatherbrae (B18)	The project would require the partial acquisition of a strip of vegetated land located along the existing Pacific Highway fronting the gardens and an area of car parking. This would require amendments to car parking. Entry to the HRBG would be provided via a new access road and signalised intersection with the Pacific Highway. These changes are not expected to impact on the ongoing operation of the HRBG.  Consultation would be carried out with HRBG to ensure that any impacts to the ongoing operation of the business are minimised.
Evergreen Stud Farm, Heatherbrae (B20)	The project would require the partial acquisition of land used for a training track and associated railings and fencing, requiring modifications to the training track and adjustments to the fencing and railings. Any modifications or adjustments required for the project would be carried out in consultation with the property owner to ensure that any impacts on the ongoing functioning of this business are minimised.

### Impacts on businesses in the study area

During operation, potential impacts on businesses in the study area would mainly result from improved access to the motorway network for businesses in Beresfield, Tomago and Heatherbrae. Within the City of Newcastle LGA, Port Stephens Council LGA and the wider Hunter, the project would have beneficial impacts on business and industry through improved access and connectivity.

### Businesses in Beresfield and Heatherbrae

During operation, potential impacts on businesses in Beresfield and Heatherbrae would mainly result from diverting traffic from the existing New England Highway and Pacific Highway along the new M1 Pacific Motorway, bypassing the towns. Interchanges along the Motorway would allow motorists travelling in both directions to easily exit the project to access existing businesses and services and re-enter the project, although the project would reduce through traffic using John Renshaw Drive at Beresfield and the Pacific Highway through Heatherbrae.

Most businesses in Beresfield comprise 'destination uses', which are likely to attract customers from a wide catchment and who deliberately plan to use a particular business. These businesses are likely to be less affected by the bypass of Beresfield and are likely to benefit from improved access and travel conditions provided by the project. The business environment in Heatherbrae is more mixed and includes a large proportion of retail and service related uses that have a high reliance on passing motorists. These businesses, as well as the service station and associated eateries in Beresfield, would potentially be impacted by the reduction in traffic using the Pacific Highway through Beresfield and Heatherbrae. Feedback from business owners in the business survey included concerns about the potential loss of passing trade and loss of customers due to changes in access as a result of the project. Businesses surveyed that felt most at risk from a reduction in traffic included service stations, fast food outlets and some retail and accommodation businesses. Consideration will be given to signage at all interchanges along the project in accordance with Transport signage policy to inform the travelling public about services in Heatherbrae and Beresfield.

While Beresfield and Heatherbrae will continue to service motorists using the M1 Pacific Motorway, the function of these centres is expected to change. Beresfield and Black Hill are proposed to be a freight and logistics hub, with complementary manufacturing and light industrial activity while Heatherbrae is expected to transition into a key destination for bulky goods within the Hunter consistent with the Raymond Terrace and Heatherbrae Strategy 2015-2031 (Port Stephens Council 2015).

Increased commercial development in Heatherbrae and the residential growth proposed for surrounding areas has the potential to offset loss of trade experienced by local business owners due to the project. Increased commercial activity, particularly for wholesaling and retailing, is likely to also result in businesses becoming less reliant on passing trade and allow Heatherbrae to become a destination in itself.

A reduction in through traffic at Heatherbrae and Beresfield, particularly heavy vehicles, would help to enhance business amenity and improve local access. Reduced through traffic and improved road safety provided by the project was identified as a benefit for customer access by some business owners in the survey, particularly for elderly customers. Other potential benefits as a result of the project identified by local business owners included an increased local catchment of customers.

### Fishing and aquaculture

The project would be designed to allow the passage of commercial fishing vessels along the Hunter River, although the placement of pylons would limit the ability to trawl along the shoreline near the viaduct. The project would require changes to trawling practices near to the bridge, with trawling nets required to be pulled in to pass under the bridge.

The project is located away from existing boat ramps at Tomago and Raymond Terrace and would not impact on access for recreational fishers.

Operation of the project is not expected to impact on areas leased for oyster aquaculture in the Hunter River.

### Tourism

During operation, potential impacts on tourism would mainly result from improved travel time and reliability along the M1 Pacific Motorway and Pacific Highway, John Renshaw Drive and the New England Highway, resulting in better connections for tourists travelling between Sydney and Brisbane. This would have positive impacts on access to tourism destinations in the Hunter, and City of Newcastle and Port Stephens Council LGAs.

During operation, access for visitors to the HRBG would be available from the new signalised intersection at the Pacific Highway. Interchange arrangements either side of the site would allow tourists travelling along the main alignment to exit at either Tomago or Raymond Terrace and travel along the Pacific Highway to access the HRBG. While the changed access arrangements may affect the number of visitors who decide to visit the HRBG, it is likely that many visitors deliberately plan to visit and impacts of these access changes on this tourist destination are not expected to be major.

Access for visitors using public transport would be maintained via the bus stops fronting the HRBG. The signalised intersections would allow safer access for pedestrians, particularly those accessing the site from the bus stops.

## Community values

### Local amenity and character

During operation, potential impacts on local amenity and character include:

- Changes in traffic noise for communities along the alignment
- Lighting from the project resulting in changes to the night-time amenity for residential properties closest to major interchanges
- Changes in visual amenity from the introduction of new infrastructure.

Changes in road traffic noise from the project are expected to be barely perceptible (less than 2dB(A)) at most sensitive receivers along the project. However, traffic noise impacts may be experienced at some sensitive receivers due to traffic from the project moving closer to residential uses or other sensitive uses or increasing the exposure to more traffic lanes, at Black Hill, Beresfield, Tarro, Heatherbrae and Raymond Terrace. Operational impacts on residential uses and other sensitive uses in the study area and proposed management measures are discussed further in **Chapter 8** (noise and vibration). The reduction in traffic using the Pacific Highway would help to reduce traffic noise in parts of Heatherbrae, particularly at night-time, and improve safety, making it easier and more attractive for people to walk, cycle and drive.

The project would include lighting at interchanges, ramps and roads in the vicinity of interchanges, resulting in potential changes to the night-time environment at some locations. Overall, impacts from lighting are expected to be low as much of the project is located within or near existing infrastructure, although operational lighting may represent a notable change where the project is located in rural areas at Black Hill, Tarro and across the Hunter River and its floodplain. Lighting for the project would be designed in accordance with relevant Australian Standards. Potential light spill from the project would mainly be confined to the operation footprint (refer to **Chapter 15** (urban design, landscape and visual amenity)).

### Community cohesion

The project would support improved travel and accessibility to work, business and leisure activities in the study area and wider Hunter. This is likely to facilitate community interaction and enhanced access to economic and social opportunities, with some people making trips that they may have avoided due to unacceptable travel times. Travel time savings provided by the project would also help to increase time available to individual and families for leisure pursuits, impacting positively on social relationships and local networks.

### Community health and safety

As indicated in **Section 13.3**, maintaining road safety is important to communities in the study area, with feedback from business owners identifying concerns from some customers about accessing businesses from the Pacific Highway during peak traffic periods. The project would support enhanced road safety and driving conditions by providing a motorway standard of road. Reduced traffic volumes on John Renshaw Drive and the New England Highway at Beresfield and the Pacific Highway at Heatherbrae would also support enhanced safety for road users, including motorists, pedestrians and cyclists.

### Natural environment

Where possible, the project has been designed to avoid or minimise potential impacts on environmental values within the study area, although potential biodiversity impacts would be associated with removal of vegetation, loss of habitat for fauna species, and localised disturbance and loss of riparian habitat near the crossings of the Hunter River. This is likely to be a concern for some community members and impact on community values relating to the natural environment. Management measures to mitigate biodiversity impacts during operation of the project are discussed in **Chapter 9** (biodiversity).

## Social infrastructure

### Directly affected social infrastructure

During operation, potential direct impacts on social infrastructure would mainly result from:

- Reduced traffic on the Pacific Highway, resulting in safer and easier access to the HRBG for visitors, volunteers and staff
- Partial acquisition of land accommodating the HRBG, resulting in impacts on native vegetation
- Changed access to the HRBG, which may affect the number of customers who decide to visit the gardens because they are passing.

Direct access to the HRBG is currently provided via dedicated right turn and left turn lanes on the Pacific Highway. The project realigns the Pacific Highway to the west, near the HRBG, requiring a new access road. This would be provided via a signalised intersection from the Pacific Highway, with the access road passing under the bridge (B09) on the main alignment.

The project is not expected to impact on the operation of the HRBG. Change in access arrangements (i.e. via the new Raymond Terrace interchange or Tomago interchange) may affect the number of customers who decide to visit the HRBG because they are passing, although it is likely that many visitors to the HRBG include people who deliberately plan to visit.

During operation, traffic noise from vehicles using the project has potential to reduce amenity for some visitors, staff and volunteers of the HRBG. This is most likely to impact on users of outdoor areas, including outdoor dining for the café, and would potentially detract from the use and enjoyment of facilities for some people and diminish perceptions of peacefulness and tranquillity in some locations within the site.

Access for public transport users would be maintained via the northbound and southbound bus stops on the Pacific Highway, near the HRBG. Pathways connecting the relocated bus stops would be provided to maintain safe and easy access for visitors, staff and volunteers.

The project may result in minor increases in flooding levels at the Hunter River wetlands, however this is not expected to have any material impact on the community wetland health.

### Impacts on social infrastructure in the study area

During operation, potential impacts on social infrastructure in the study area would mainly result from:

- Improved access and connectivity to regional level social infrastructure in the study area, City of Newcastle and Port Stephens Council LGAs, and wider Hunter Region resulting in positive impacts for local and regional communities
- Access changes associated with the bypass of Beresfield and Heatherbrae, resulting in some people traveling different routes to access facilities in the study area.

Any potential impacts associated with access changes would generally be balanced by quicker and more reliable travel times and is not expected to adversely impact on the overall use and demand for facilities.

A summary of potential operational impacts on social infrastructure within 400 metres of the project is provided in **Table 13-4**. The location of social infrastructure is shown in **Figure 13-3**.

Table 13-4 Summary of impacts on social infrastructure within 400 metres of the project

Facility (ID / name)		Summary of impacts during operation
S01	Hunter Valley Equestrian Centre	Operation of the project is not expected to impact on the ongoing operation of the equestrian centre. Any changes in traffic noise levels from the current situation would generally not be perceptible and are not expected to result in amenity changes for users of the centre.
S02	Hunter Valley Traditional Archers	The project would close the access currently used by the club from the M1 Pacific Motorway. Future access to the club site facilities would require agreement between the club and the private property owner but would be available via the new access being provided by the project to the property.
S03	Pasadena Crescent Reserve Soccer Fields	Operation of the project is not expected to impact on the ongoing operation of the soccer fields.
S14	Fiona John Park	Operation of the project is not expected to impact on the ongoing use of the park.
S15	Tarro General Cemetery	Operation of the project is not expected to impact on the ongoing use of this facility for passive recreation.
S16	Tarro Uniting Church of Australia	Operation of the project is not expected to impact on the ongoing use of the church. Any changes in traffic noise levels from the current situation would generally not be perceptible and are not expected to result in impacts for church users.
S17/ S18	Our Lady of Lourdes Primary School / Aspect Hunter School	During operation, changes in road traffic noise at the school are not expected to be perceptible by people using the school grounds. Overall traffic noise levels from the operation of the project would result in some classrooms being eligible for consideration of at-property treatments, although this would be confirmed through further investigation carried out by Transport as detailed design progresses (refer to management measures in <b>Chapter 8</b> (noise and vibration)).
S19	Tarro Fire Station	Operation of the project is not expected to impact on the ongoing use of the fire station.
S20	Tarro Community Hall	Operation of the project is not expected to impact on the ongoing use of the community hall. Any changes in traffic noise levels from the current situation would generally not be perceptible and are not expected to result in amenity changes for users of the hall.
S21	Tarro Public School	During operation, changes in road traffic noise at the school are generally not expected to be perceptible by people using the school grounds. Overall traffic noise levels from the operation of the project would result in some classrooms being eligible for consideration of at-property treatment, although this would be confirmed through further investigation carried out by Transport as detailed design progresses (refer to the management measures in <b>Chapter 8</b> (noise and vibration)).
S22	Tarro Recreation Area	Operation of the project is not expected to impact on the ongoing use of this recreation area.
S25	HRBG	Refer to discussion in section above.



## **Access and connectivity**

During operation, the project would have the following impacts and benefits on access and connectivity:

- Enhanced travel times and travel reliability for motorists, bus services and emergency services, resulting in positive impacts for local and regional communities, business and industry, including substantially reduced travel times on the Black Hill to Raymond Terrace, New England Highway to Pacific Highway and Pacific Highway to the New England Highway routes for all modelled future scenarios (refer to **Chapter 7** (traffic and transport))
- Access by higher productivity vehicles (for example, truck and trailer combinations) along the M1 Pacific Motorway and Pacific Highway between Sydney and Brisbane, resulting in the facilitation of substantial interstate freight movements between NSW and Queensland
- Reduced through traffic in Beresfield and Heatherbrae, supporting safer and easier access for road users to homes, businesses and facilities in these locations and surrounding areas. In particular, a reduction in through traffic in Heatherbrae would allow safer and easier access to properties in Heatherbrae that have a frontage to the Pacific Highway
- Improved connectivity for cyclists through the provision of new and upgraded cycle facilities, including signalised crossings at the northern approach of the Tomago Road / Pacific Highway intersection and the southern approach of the M1 Pacific Motorway / John Renshaw Drive intersection and wider road shoulders. This would provide alternative transport options for residents and workers and potentially encouraging increased use of cycling for commuting and other trips.

Once operational, the project would enhance travel times and travel reliability for motorists using the M1 Pacific Motorway and Pacific Highway between Black Hill and Raymond Terrace, as well as for motorists using John Renshaw Drive and the New England Highway. This would result in improved connections and links to employment and growth areas in the study area as well as to destinations across NSW and interstate.

Interchanges from the M1 Pacific Motorway to the existing road network at Black Hill, Tarro, Tomago and Raymond Terrace would allow access and connectivity to these locations to be maintained. Motorists would have the choice to use the project via one of the connections or continue to use the existing road network.

The project has been designed to maintain continued use of the Hunter River by maritime traffic, including commercial and recreational fishers.

Operation of the project would also not affect any existing bus routes. Northbound and southbound bus stops would be maintained on the Pacific Highway, near the HRBG. Pathways would be provided to maintain access with the relocated bus stops.

Operation of the project would not impact on the function of the Main North Rail Line or Hexham Train Support Facility. Existing access arrangements would be retained to railway stations in the study area at Thornton, Beresfield, Tarro and Hexham and Australian Rail Track Corporation (ARTC) assets.

Further information on impacts and benefits for access and connectivity from the operation of the project is provided in **Chapter 7** (traffic and transport) and the Traffic and Transport Working Paper (**Appendix G**).

### 13.4.3 Evaluation of significance

Socio-economic impacts of the project were evaluated based on the sensitivity of receivers and magnitude of the potential impacts. Further detail is provided in the Socio-economic Working Paper (**Appendix M**).

During construction, it is likely that most negative impacts would be appropriately managed with the implementation of management measures relating to noise, vibration, air quality and traffic. The aspects likely to have socio-economic impacts during construction would generally relate to:

- Business and industry, including changed business access due to changes in road conditions near to construction work and changes to commercial fishing operations within the construction footprint
- Social infrastructure near to construction activities, including Tarro Public School, Tarro Fire Station and HRBG
- Community values relating to local amenity, environmental values and community perceptions of road safety
- Access and connectivity, including temporary changes to road conditions, changes to pedestrian and cycle access, and increased construction traffic on roads in the study area.

Potential negative impacts associated with operation have been managed through the implementation of design features, for example design of connections to the local road network. Impacts likely to have residual socio-economic impacts would generally relate to:

- Business and industry, including acquisition of commercial land, bypass of Heatherbrae and impacts on commercial fishing operations
- Changed access arrangements for HRBG and the Hunter Valley Traditional Archers
- Impacts on community values relating to local amenity and environmental values.

## 13.5 Environmental management measures

The environmental management measures that will be implemented to minimise the socio-economic impacts of the project, along with the responsibility and timing for those measures, are presented in **Table 13-5**.

Table 13-5 Environmental management measures (socio-economic)

Impact	Reference	Management measure	Responsibility	Timing
Community consultation	SE01	<p>A Community Communication Strategy (CCS) will be prepared for the project to facilitate communication with the community and stakeholders including relevant Government agencies, Councils, adjoining affected landowners and businesses, residents, motorists and other relevant stakeholders that may be affected by the project. The strategy will:</p> <ul style="list-style-type: none"> <li>Identify people or organisations to be consulted during the delivery of the project</li> <li>Set out procedures and mechanisms for the regular distribution of information about the project</li> <li>Outline mechanisms to keep relevant stakeholders updated on site construction activities, schedules and milestones</li> <li>Outline avenues for the community to provide feedback (including a 24-hour, toll free project information and complaints line) or to register complaints and through which Transport will respond to community feedback</li> <li>Outline a process to resolve complaints and issues raised.</li> </ul>	Transport/ Contractor	Prior to construction
Business impacts	SE02	Signage will be provided in accordance with Transport signage policy to inform the travelling public about services in Beresfield and Heatherbrae.	Transport	Construction/ prior to operation
Other relevant management measures				
Landscape character and visual impacts including during construction	UD02	Disturbed areas outside the operational footprint and within the construction footprint will be revegetated following completion of construction activities.	Contractor	Construction
Property access	TT02	Existing accesses to properties and businesses will be maintained during construction. Where this is not feasible or reasonable, temporary alternative access arrangements will be provided following consultation with the affected property and business owners.	Transport / Contractor	Detailed design/ prior to construction/ construction
	TT03	Access will be maintained to rail infrastructure facilities along Aurizon access road. Transport will liaise with Aurizon and ARTC during detail design and construction.	Transport / Contractor	Detailed design/ prior to construction/ construction

Impact	Reference	Management measure	Responsibility	Timing
Emergency vehicle access	TT05	Where possible, access for emergency vehicles will be maintained at all times during construction. Any site-specific requirements will be determined in consultation with the relevant emergency services agency.	Contractor	Construction
Maritime impacts	TT06	A navigational channel would be provided during construction within the Hunter River	Contractor	Construction
General construction noise and vibration	NV01	<p>A Construction Noise and Vibration Management Plan (CNVMP) would be prepared for the project to mitigate and manage noise and vibration impacts. The CNVMP would include:</p> <ul style="list-style-type: none"> <li>All potential significant noise and vibration generating activities associated with the activity</li> <li>Measures to be implemented during construction to minimise noise and vibration impacts, such as restrictions on working hours, respite periods, staging, placement and operation of ancillary facilities, temporary noise barriers, haul road maintenance, and controlling the location and use of vibration generating equipment</li> <li>A monitoring program to assess performance against relevant noise and vibration criteria</li> <li>Process for the implementation of respite periods to provide residents with respite from ongoing impact</li> <li>Arrangements for consultation with affected receivers, including notification and complaint handling procedures</li> <li>Contingency measures to be implemented in the event of noncompliance with noise and vibration criteria.</li> </ul>	Contractor	Prior to construction/ construction
	NV02	Where reasonable and feasible, implementation of recommended operational noise mitigation would be carried out within 12 months of construction activities commencing.	Transport / Contractor	Prior to construction/ construction
Operational road traffic noise impacts	NV07	<p>Operational noise and vibration mitigation measures would be identified in an Operational Noise and Vibration Review (ONVR).</p> <p>Requirements for mitigation measures, including quieter noise pavements, noise barriers, and at-property treatments, would be reviewed as part of the ONVR and as the detailed design progresses. Detailed information on floorplans and facade construction for school classrooms, places of worship and childcare centres determined to exceed the applicable Noise Criteria Guideline (NCG) (Roads and Maritime Services 2015c) internal noise criteria will be obtained during design development.</p> <p>The implementation of treatments would be carried out in accordance with the Noise Mitigation Guideline (NMG) (Roads and Maritime Services 2015d).</p>	Transport / Contractor	Detailed design/ construction/ prior to operation