Australian Government

BUILDING OUR FUTURE

NSW GOVERNMENT

M1 Pacific Motorway extension to Raymond Terrace

Socio-economic Working Paper

Transport for NSW | July 2021

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Executive summary

Background

Transport for New South Wales (Transport) proposes to construct the M1 Pacific Motorway extension to Raymond Terrace (the project). Approval is sought under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* and Part 9, Division 1 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Performance outcomes

This assessment has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) (SSI 7319) relating to the socio-economic values of key SEAR 12 Socio-economic, land use and property. In relation to socio-economic values, the desired performance outcomes are that the project:

- Has been sited to minimise potential adverse social and economic impacts and to capitalise on opportunities potentially available to affected communities
- Minimises impacts on properties, dwellings, businesses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure
- Effectively engages with stakeholders during project design and delivery.

Further information to address SEAR 12 is also provided in the Land Use and Property Working Paper (Appendix N of the EIS).

Overview of socio-economic impacts

During construction, the project would have positive impacts for local employment and businesses and industry. Specifically, the project would create an average of about 2,700 jobs annually, including direct employment for about 1050 workers and about 1650 indirect jobs with businesses that supply goods and services to support construction. Other impacts on communities, business and industry during the construction phase would mainly be associated with:

- Changed amenity for communities and businesses near proposed construction activities due to construction noise, dust and traffic, potentially impacting on the use and enjoyment of homes, businesses and facilities for some people
- Potential impacts on local access and connectivity for motorists, public transport users, pedestrians, cyclists and freight operators, due to increased construction traffic on roads in the study area, temporary changes to road conditions and pedestrian and cycle access near to construction work, and possible disruptions to public transport bus services
- Potential access changes to local businesses operations and social infrastructure near the project, due to changes in road conditions
- Restrictions on trawling along the shoreline of the Hunter River within the construction footprint, impacting on commercial prawn trawling activities. Access for commercial and recreational vessels using the Hunter River would generally be maintained during construction, although temporary, short-term closures would be required for some work
- Impacts on community values relating to the environment from the clearing of vegetation and work within the Hunter River, local amenity, and safety due to potential road safety risks.

Once operational, the project would support enhanced road safety and driving conditions by providing a road of motorway standard. The project would reduce travel times and improve journey reliability for motorists and enhance access and connectivity to the M1 Pacific Motorway and Pacific Highway. The project would also support improved:

- Access and connectivity to social infrastructure such as schools and recreation areas, in the study area, City of Newcastle and Port Stephens Council Local Government Areas, and wider Hunter region
- Connectivity for cyclist with new and upgraded facilities, potentially encouraging increased use of cycling for commuting and other trips
- Local amenity within Heatherbrae due to reduced traffic volumes using the Pacific Highway, and subsequent reduced traffic noise for some residential and community uses in Heatherbrae, particularly at night-time, and enhanced road safety, making it easier and more attractive for people to walk, cycle and drive
- Access for oversize overmass (OSOM) vehicles across the Hunter River, which would facilitate the opportunity for more efficient freight vehicles along the corridor.

Operation of the project may result in negative impacts for communities closest to the project, due to:

- A reduction in traffic through Heatherbrae and possible decreases in passing trade for some businesses, with businesses surveyed that felt most at risk from a reduction in traffic included service stations, fast food outlets and some retail and accommodation businesses
- Impact on land along the frontage of the Hunter Region Botanic Gardens (HRBG). Entry to the HRBG would be maintained via a new access road
- Impacts on community values associated with the removal of vegetation and localised disturbance and loss of riparian habitat near the crossings of the Hunter River
- Location of the project and interchanges near residential uses, businesses or community facilities in some areas of Tarro, Woodberry, Tomago, Heatherbrae and Raymond Terrace, potentially impacting the local character and amenity of these areas for some people due to increased traffic noise and changes in visual amenity.

Management measures

Impacts on communities and businesses would mainly be managed through the implementation of measures relevant to other environmental matters such as noise and vibration, air quality, traffic and transport, and visual amenity. Further, a Community Communication Strategy will also be prepared for the project to facilitate communication with the local community, business, and other stakeholders. Access will be maintained to local businesses during construction and operation Consideration will also be given to signage at all interchanges along the project to inform the travelling public in accordance with Transport signage policy.

Conclusion

During operation, potential negative impacts would mainly be associated with the bypass of Heatherbrae and parts of Beresfield and positive impacts would mainly relate to access benefits for communities, business and industry from enhanced travel times and travel reliability for motorists. During construction, the project would have positive impacts for local employment and businesses and industry. Negative socio-economic impacts would mainly relate to temporary changes to local amenity, access and connectivity, trawling operations in some areas of the Hunter River, and community values.

Overall, the project achieves the desired performance outcomes in minimising potential adverse social and economic impacts while capitalising on opportunities potentially available to affected communities.

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1. Introduction

1.1 Background

Transport for New South Wales (Transport) proposes to construct the M1 Pacific Motorway extension to Raymond Terrace (the project). Approval is sought under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Part 9, Division 1 of the *Environment Protection and Biodiversity Conservation Act 1999*.

The project would connect the existing M1 Pacific Motorway at Black Hill and the Pacific Highway at Raymond Terrace within the City of Newcastle and Port Stephens Council local government areas (LGAs). The project would provide regional benefits and substantial productivity benefits on a national scale. The project location is shown in **Figure 1-1** within its regional context.

1.2 Project description

The project would include the following key features:

- A 15 kilometre motorway comprised of a four lane divided road (two lanes in each direction)
- Motorway access from the existing road network via four new interchanges at:
  - Black Hill: connection to the M1 Pacific Motorway
  - Tarro: connection and upgrade (six lanes) to the New England Highway between John Renshaw Drive and the existing Tarro interchange at Anderson Drive
  - Tomago: connection to the Pacific Highway and Old Punt Road
  - Raymond Terrace: connection to the Pacific Highway.
- A 2.6 kilometre viaduct over the Hunter River flood plain including of new bridge crossings over the Hunter River, the Main North Rail Line and the New England Highway
- Bridge structures over local waterways at Tarro and Raymond Terrace, and an overpass for Masonite Road in Heatherbrae
- Connections and modifications to the adjoining local road network
- Traffic management facilities and features
- Roadside furniture including safety barriers, signage, fauna fencing and crossings and street lighting
- Adjustment of waterways, including at Purgatory Creek at Tarro and a tributary of Viney Creek
- Environmental management measures including surface water quality control measures
- Adjustment, protection and/or relocation of existing utilities
- Walking and cycling considerations, allowing for existing and proposed cycleway route access
- Permanent and temporary property adjustments and property access refinements
- Construction activities, including establishment and use of temporary ancillary facilities, temporary access tracks, haul roads, batching plants, temporary wharves, soil treatment and environmental controls.

A detailed project description is provided in Chapter 5 of the environmental impact statement (EIS). The locality of the project is shown in **Figure 1-1**, while an overview of the project is shown in **Figure 1-2**.

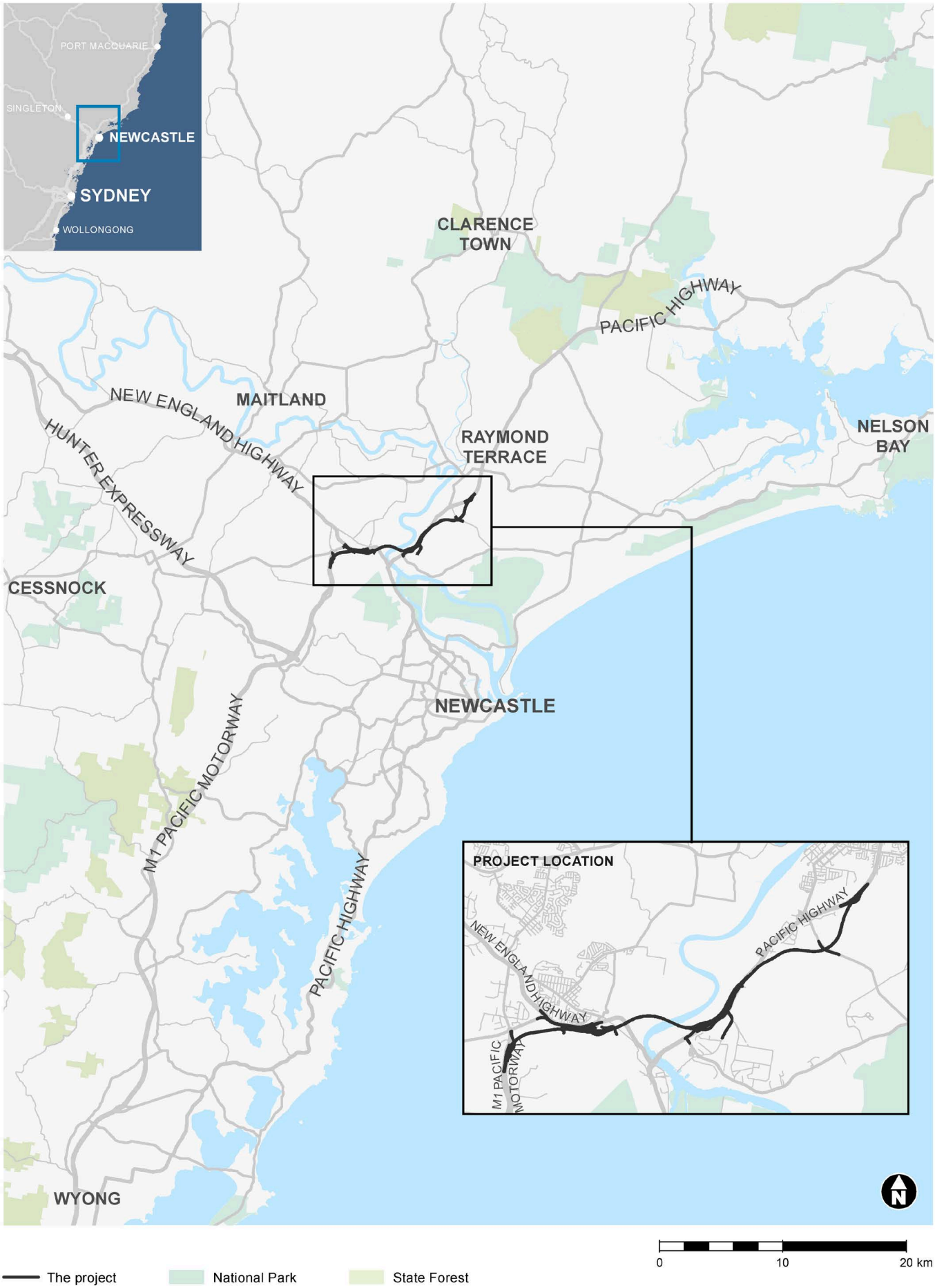

Figure 1-1 Regional context of the project

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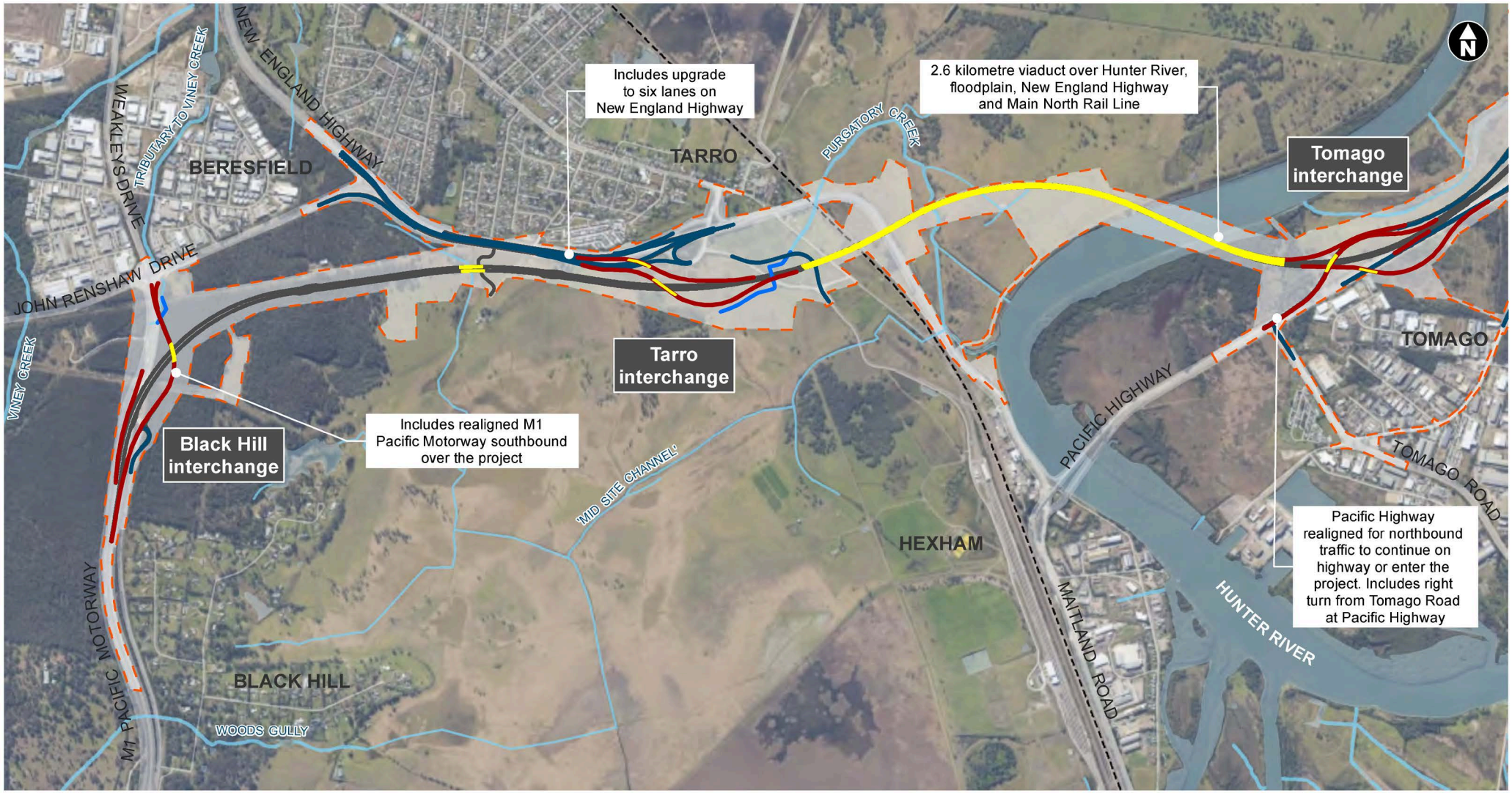

Figure 1-2 Project key features (map 1 of 2)

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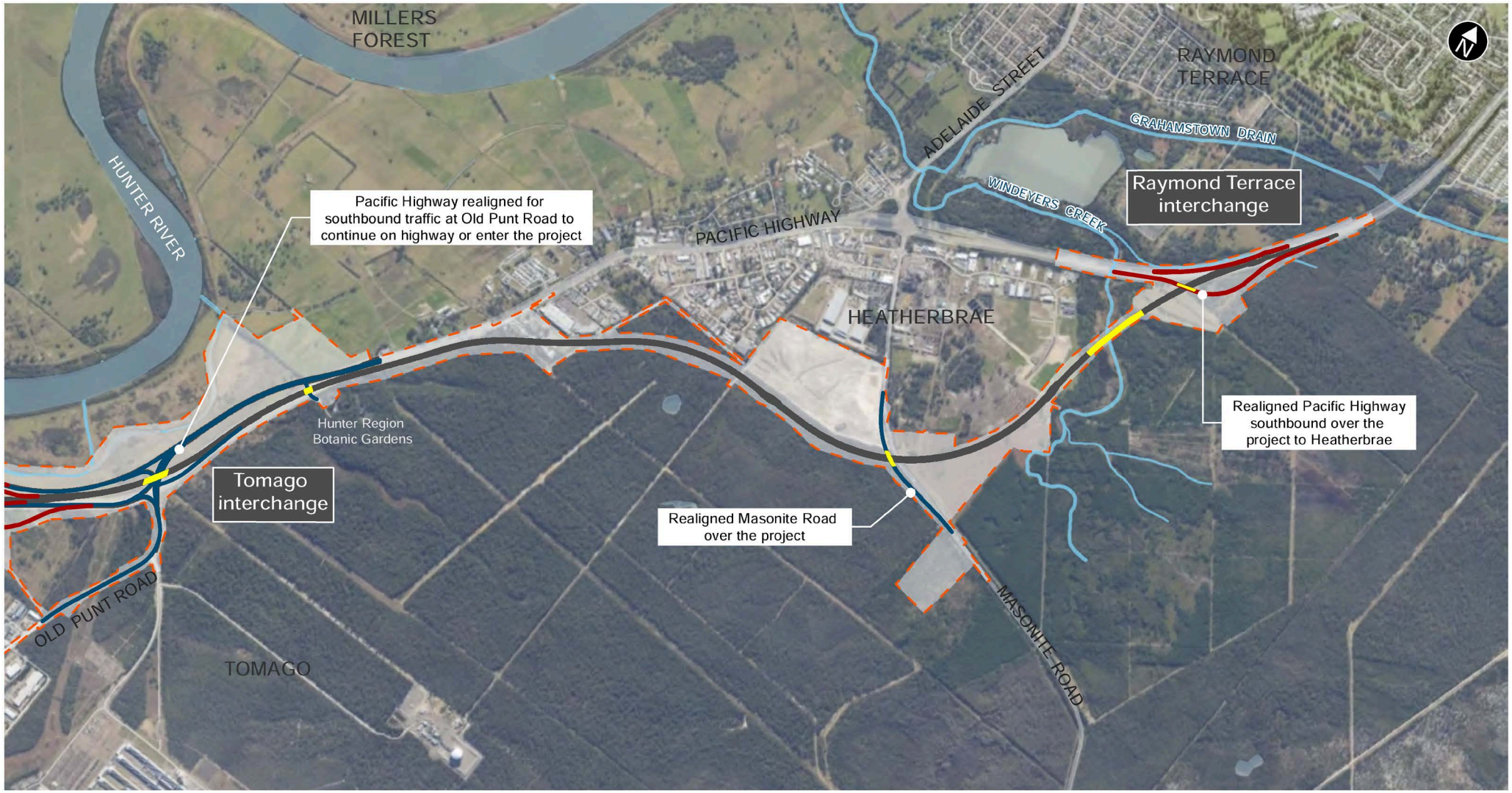

Figure 1-2 Project key features (map 2 of 2)

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1.3 Performance outcomes

The desired performance outcomes for the project relating to key Secretary's Environmental Assessment Requirement (SEAR) 12 Socio-economic, land use and property are:

- The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities (refer to **Section 6.1.2** and **Section 6.1.3**)
- 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 (refer to **Section 6.1** and **Section 6.2**)
- Effective engagement is undertaken with stakeholders during project design and delivery (refer to **Section 3.5** and **Chapter 5**).

This assessment addresses those outcomes relating to socio-economic values. Further information to address outcomes relating to land use and property is provided in the Land Use and Property Working Paper (Appendix N of the EIS).

1.4 Secretary's Environmental Assessment Requirements

This assessment forms part of the EIS for the project. The EIS has been prepared under Division 5.2 of the EP&A Act. This assessment has been prepared to address the SEARs (SSI 7319) relating to the socio-economic matters and will assist the NSW Minister for Planning and Public Spaces to make a determination on whether or not to approve the project. It provides an assessment of potential impacts of the project on socio-economic values and outlines proposed management measures.

In 2019, revised SEARs were issued for the project that included socio-economic, land use and planning as a key issue. **Table 1-1** outlines the SEARs relevant to the assessment of key issues as well as the SEARs relevant to this assessment along with a reference to where these are addressed.

Table 1-1 SEARs relevant to socio-economic assessment

Secretary's requirement	Where addressed in this report
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 assessment guidelines are discussed in **Chapter 2** and **Section 3.3** • The assessment methodology is discussed in **Chapter 3** • Assessment of construction and operational impacts is discussed in **Chapter 6** • Cumulative impacts are assessed in **Chapter 7**.
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.	• Business impacts are discussed in **Section 6.1.3** and **Section 6.2.3** • Impacts on commercial fishers (including oyster and aquaculture farmers) are discussed in **Section 6.1.3** and **Section 6.2.3** • Impact on recreational fishers are discussed in **Section 6.1.4** and **Section 6.2.4** • Amenity impacts are discussed in **Section 6.1.4** and **Section 6.2.4**. Refer to the Land Use and Property Working Paper (Appendix N of the EIS) for other potential impacts associated with potentially affected properties, Crown land, Council assets and services, land users, water users, property acquisition, access and relevant statutory rights.

Secretary's requirement	Where addressed in this report
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: a) traffic management (including property, cyclists and pedestrian access) b) landscaping/ urban design matters c) hydrology and flooding d) staging and timing of construction activities including out of hours work and utility relocations e) noise and vibration mitigation and management f) soil erosion and water quality management g) interaction with existing land uses.	A draft Community Consultation Framework is provided in Appendix E of the EIS, which will inform the development of a Community Communication Strategy for the project (also refer to **Table 8-1**). Additional details on community consultation are provided in Chapter 6 of the EIS.

1.5 Report structure

The report is structured as follows:

- Chapter 1 – Introduces the project with a summary of the project background, project description and SEARS
- Chapter 2 – Provides an overview of the policy and planning setting
- Chapter 3 – Summarises the assessment methodology
- Chapter 4 – Details the existing environment
- Chapter 5 – Summarises issues raised during consultation
- Chapter 6 – Provides an assessment of potential impacts
- Chapter 7 – Details the potential cumulative impacts
- Chapter 8 – Details the proposed management measures for the project
- Chapter 9 – Concludes the report
- References
- Terms and acronyms.

2. Policy and planning setting

This chapter provides an overview of relevant socio-economic policies and strategies relevant to the study area. A detailed discussion of NSW strategic planning and policy documents relevant to the project is provided in Chapter 3 of the EIS. No Commonwealth policies and strategies have been identified as relevant to this assessment.

2.1 State policies and strategies

2.1.1 Hunter Regional Plan 2036

The Hunter Regional Plan 2036 (the Regional Plan) (DPE, 2016) is a 20-year vision for the future of the Hunter, developed in consultation with Councils, stakeholders and the wider community. It provides an overarching framework to guide the NSW Government's land use planning priorities and decisions over the next 20 years, including more detailed land use plans, development proposals and infrastructure funding decisions.

The vision for the Hunter Region is for it to be the "*…leading regional economy in Australia with a vibrant new metropolitan city at its heart*". The vision recognises Greater Newcastle as the centrepiece of the region, while beyond Greater Newcastle there are vibrant centres, towns and villages, connected with faster inter-regional transport and digital technology, making it easier for residents and businesses to interact and do business.

The Regional Plan identifies that by 2036, the Hunter Region will support up to 862,250 people and an additional 61,500 jobs. Raymond Terrace is identified as a strategic centre, which will be the focus of population and employment growth over the next 20 years, with Tomago and Heatherbrae also identified as significant employment land clusters. The convergence of the national road network around Thornton, Beresfield and Black Hill is also identified as a significant employment precinct. Priorities identified for Raymond Terrace relate to supporting its role as the main service centre in the LGA and investigating increasing social, transport and economic connections to surrounding communities and centres across the Greater Newcastle area.

Infrastructure investment is considered critical for economic development across the Hunter, supporting freight, health and education services, and agribusiness and tourism. Direction 4, which is to enhance interregional linkages to support economic growth, identifies the need for improvements to transport corridors to maintain efficiencies in the network, particularly for freight, and to allow for future growth.

This project is identified in the Regional Plan. The project would support enhanced access and connectivity within the Hunter and to adjoining regions. Specifically, the project would improve access and connectivity to key employment precincts and strategic centres, allowing the safe, efficient and reliable movement of people and freight and supporting future employment and population growth within these locations. The project would also provide a route that reduces the overall freight transport time and cost for heavy vehicles along the major north-south and east-west connections.

2.1.2 Hunter Regional Transport Plan

The Hunter Regional Transport Plan 2014 (NSW Government, 2014) and Hunter Regional Transport Plan Annual Update 2014-15 (NSW Government, 2016) identify the need to ensure the efficient movement of freight within the Hunter region.

Key transport challenges identified in the Hunter Regional Transport Plan which are relevant to the project include:

- Accessibility to regional facilities, such as education, health, jobs and Newcastle Airport
- Road congestion and safety
- Freight capacity constraints on the road and rail networks
- Impact of freight transport on towns
- Improving connections between smaller towns to regional centres.

The project would address these challenges by improving access key destinations within the Lower Hunter region such as the Newcastle Airport and key employment areas and strategic centres. The project would also improve access for high productivity freight vehicles within the road network and improve road safety at this location.

The Hunter Regional Transport Plan identifies the project as a medium to long-term initiative which would provide an important link for freight. In addition, the Hunter Regional Transport Plan identifies a commitment to maintaining a high-quality road corridor between Sydney and Brisbane to support anticipated growth. The project is one of the last major upgrades required to complete a high-quality route between Sydney and Brisbane.

The Hunter Regional Transport Plan notes that the M1 Pacific Motorway and the Pacific Highway can experience congestion associated with daily peak periods and holiday periods and identifies a commitment to plan for the project to ensure efficient freight movement. The project would provide a route which reduces the overall freight transport time and cost for heavy vehicles along the major north-south and east-west connections.

2.1.3 Greater Newcastle Metropolitan Plan 2036

The Greater Newcastle Metropolitan Plan 2036 (Metropolitan Plan) (DPE, 2018) sets out strategies and actions that will drive sustainable growth across the Greater Newcastle area. The plan aligns with the vision and goals of the Hunter Regional Plan 2036 and guides local planning across the Greater Newcastle LGAs of Cessnock City, Lake Macquarie City, Maitland Council, City of Newcastle and Port Stephens Council.

The vision for Greater Newcastle is to be "*Australia's newest and emerging economic and lifestyle city, connected with northern NSW and acknowledged globally as:*

- *Dynamic and entrepreneurial, with a globally competitive economy and the excitement of the inner city and green suburban communities*
- *Offering great lifestyles minutes from beaches or bushland, the airport or universities, and from the port to the lake*
- *A national leader in the new economy, with smarter cities and carbon neutral initiatives, and with collaborative governance that makes it a model to others in creating and adapting to change.*"

The Metropolitan Plan recognises Raymond Terrace as an emerging city centre and location for local housing and jobs opportunities, and Beresfield – Black Hill and Tomago as major employment and trading hubs. The Metropolitan Plan recognises that opportunities exist to better connect trade movements across NSW and nationally via major road networks, including the Pacific Highway, and the national rail network. Large sites around these trading hubs are dedicated for freight and logistics, capturing the opportunity from improved connectivity. Improving connections to jobs, services and recreation is identified as a key outcome for the Metropolitan Plan.

Tomago and Beresfield – Black Hill are identified as two of the 11 'catalyst areas' within Greater Newcastle. The catalyst areas will underpin new job opportunities for Greater Newcastle. Beresfield – Black Hill is projected to provide an additional 800 jobs by 2036 for a total of 6050 jobs, while Tomago is

projected to provide an additional 700 jobs, with a total of 8500 jobs. This Metropolitan Plan recognises that good access to transport services is critical for new employment and housing opportunities to be realised within these catalyst areas.

The project would support the vision and outcomes for Greater Newcastle by providing improved access and connectivity to key employment precincts and strategic centres, allowing the safe, efficient and reliable movement of people and freight.

2.1.4 Aboriginal Participation in Construction Policy

The Aboriginal Participation in Construction Policy aims to create opportunities for Aboriginal owned businesses and encourage employment and training through the supply chain of NSW Government contracts. The policy applies to all NSW Government departments, statutory authorities, trusts and other government entities and is mandatory for three categories of construction projects:

- Category 1 – projects nominated by an agency that are primarily directed to one or more Aboriginal communities
- Category 2 – all other construction projects where the estimated value is over $10 million
- Category 3 – all other construction projects where the estimated value is over $1 million.

The policy requires that a minimum of 1.5 per cent of project spend must be dedicated to Aboriginal participation, including Aboriginal employment; engagement of Aboriginal owned businesses to provide goods and services to a project; education and training; and engagement and consultation with Aboriginal organisations or businesses (NSW Procurement, 2018).

The project would fall into Category 2. Transport would seek to identify and promote Aboriginal participation in the construction phase of the project through requirements in the conditions of approval and the future contracts.

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).

2.2 Local government strategies

2.2.1 Port Stephens Council

Port Stephens Community Strategic Plan 2018-2028

Port Stephens Community Strategic Plan 2018-2028 – Our Place. Our Plan (Port Stephens Council, 2018) (Community Strategic Plan) sets out the community's long-term vision, community aspirations and priorities over the next 10 years. The plan has four focus areas including our community, our place, our environment and our council. Priorities that are relevant to the project relate mainly to the 'our place' focus area and include:

- Infrastructure and facilities: Our community's infrastructure and facilities are safe, convenient, reliable and environmentally sustainable
- Thriving and safe place to live: Our community supports a healthy, happy and safe place.

The project would improve traffic flow and road safety along the project, which would assist in ensuring that the main road infrastructure corridor in the Port Stephens Council LGA is reliable, safe and convenient for the community. The project would also improve access and connectivity to regional

infrastructure in the Port Stephens Council LGA, contributing to the development of healthy, happy and safe places within the LGA.

Port Stephens Economic Development and Tourism Strategy 2018-2020

The Port Stephens Economic Development and Tourism Strategy 2018-2020 (Port Stephens Council, 2018) is a two-year strategy focused on business growth in the Port Stephens region, the creation of people friendly space, the promotion of public events and increasing tourism in the region. The project would support business growth in the region during construction and would assist in increasing the capacity and competitiveness of business in the area that rely on the road system for transportation. The improvement of access and connectivity associated with the project would also benefit tourists, residents, and patrons to public events, visiting the Port Stephens Council LGA.

Raymond Terrace and Heatherbrae Strategy 2015-2031

The Raymond Terrace and Heatherbrae Strategy 2015-2031 (the Raymond Terrace and Heatherbrae Strategy) (Port Stephens Council, 2015) provides a series of goals and actions for Raymond Terrace. Port Stephens Council's vision for Raymond Terrace is for it to be a 'strong regional centre and a great place to live, work and play'. Goal 1 is relevant to the project:

- Goal 1: A competitive economy with regional services, including transport, health, justice, government, commercial, retail, industrial and entertainment, which looks at:
  - Growing a more regionally competitive centre by providing lands to strengthen the retail offering of Raymond Terrace and facilitating Heatherbrae as a destination for bulky goods
  - Enhancing transport and mode connectivity, including road, public transport, footpath and cycleway connections within Raymond Terrace and Heatherbrae
  - Planning for regional soft infrastructure services to meet the needs of a growing community
  - Raising the profile of Raymond Terrace through a commercial strategy / prospectus.

The Raymond Terrace and Heatherbrae Strategy identifies that the project "*places Heatherbrae in a position to evolve from a destination that caters to passing traffic to become a destination in itself, catering for the needs of the growing residential population"*. In addition, the strategy acknowledges the need to prepare Heatherbrae for the project, including "*effective connections to improve connectivity and safety, while providing opportunities for Heatherbrae to evolve from a highway service centre"*. The project supports the transition of Heatherbrae to a destination centre that caters for a growing residential population. The bypass of Heatherbrae would reduce traffic using the Pacific Highway and relieve congestion within the local road network, improving connections for motorists, public transport, pedestrians and cyclists. Access to Heatherbrae would be maintained via connections between the M1 Pacific Motorway and the local road network at Tomago and Heatherbrae.

2.2.2 City of Newcastle

Newcastle 2030 Community Strategic Plan

The Newcastle 2030 Community Strategic Plan 2018 (City of Newcastle, 2018) is a shared community vision to inform council's policies and actions over the next 10 years. The plan is focused on protecting the environment, providing accessible transport and creating an inclusive community. Seven strategic directions have been identified that are associated with the delivery of Council's services, programs and facilities. These seven strategic directions also align with Sustainable Development Goals developed by the United Nations as Newcastle is a United Nations City.

The project would support the strategic direction relating to '*an integrated and accessible transport system in the Newcastle region*' by supporting the implementation of the regional transport strategy in

the Newcastle area, which includes the upgrade of the Pacific Highway and M1 Pacific Motorway. The project would also provide accessible infrastructure improvements for public transport and connections to the existing cycle and pedestrian networks. The project would also improve safety and reliability of the transport network.

3. Assessment methodology

3.1 Overview

This assessment involves identifying, assessing and evaluating changes to or impacts on, communities, business and industry that are likely to occur as a result of a proposed development, in order to mitigate or manage impacts and maximise benefits.

This assessment has been developed in accordance with the Environmental Impact Assessment Practice Note – Socio-economic Assessment, January 2020 (Transport for NSW, 2020) and to address the socio-economic matters outlined in the SEARs as outlined in **Table 1-1**. The Environmental Impact Assessment Practice Note – Socio-economic assessment, January 2020 updates the previous version of the socio-economic practice note released in 2013.

3.2 Study area

The socio-economic assessment study area is shown in **Figure 3-1**. It has been based on those communities that may experience direct 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. As such, this assessment also considers at a broader level, 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.

3.3 Desktop assessment

The following summarises the main steps used to assess the socio-economic impacts of the project's construction and operation.

The first step in the assessment process involved scoping the likely range of potential land use, property and socio-economic impacts and identifying communities likely to be affected by the project. This was informed by:

- The SEARs for the project
- Environmental Impact Assessment Practice Note – Socio-economic Assessment (Transport for NSW, 2020)
- Social and economic assessments carried out for other road and transport infrastructure projects in NSW and elsewhere
- Literature relating to the assessment of socio-economic impacts, particularly impacts of road bypass projects
- Outcomes of consultation carried out for the project.

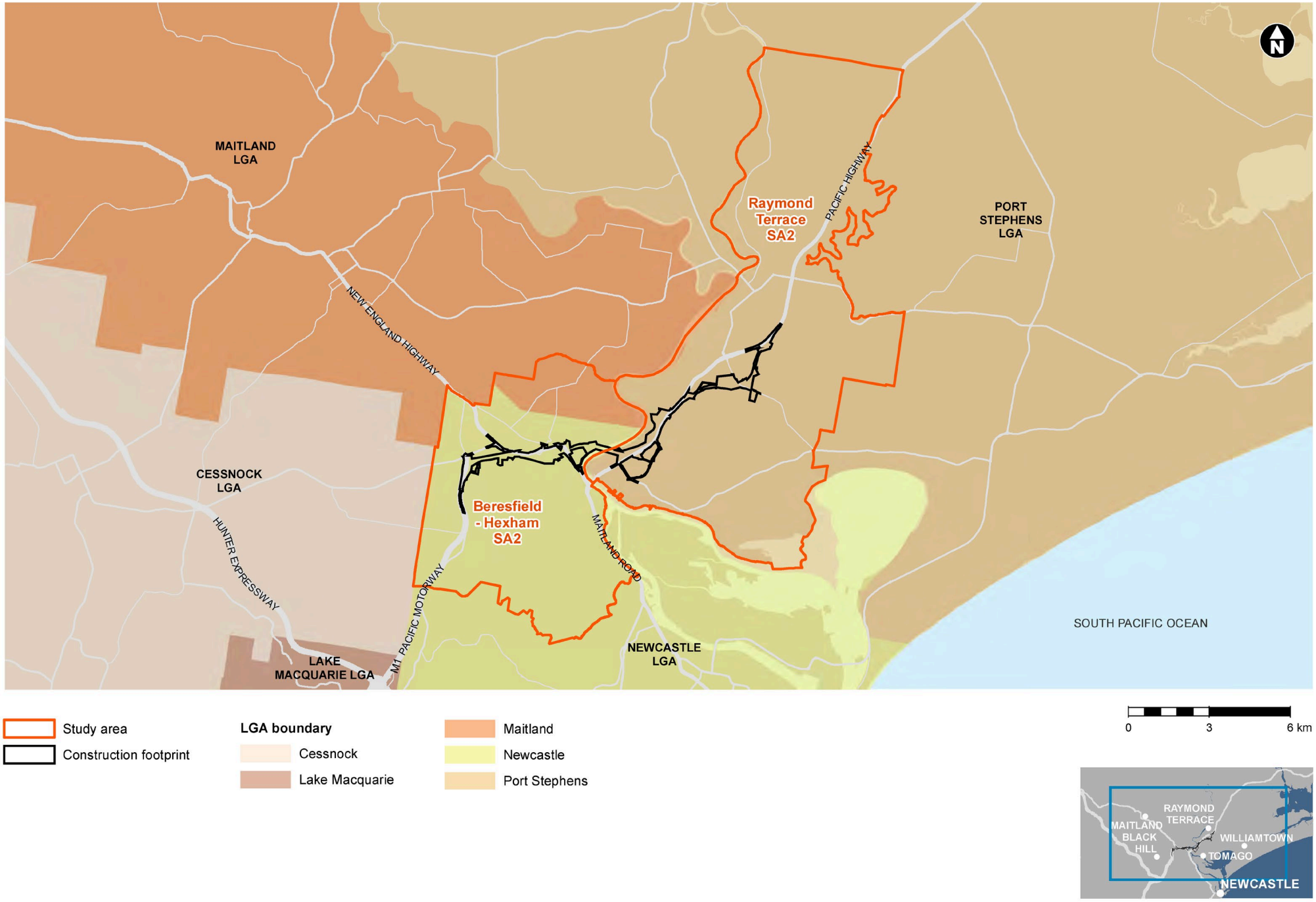

Figure 3-1 Socio-economic assessment study area

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The second step of the assessment involved describing existing socio-economic characteristics, values and conditions in the study area. This involved consideration of both qualitative and quantitative analysis, including:

- Existing NSW Government and local government policies and strategies relevant to the study area
- Population and demographic data for communities in the study corridor, such as population size and growth, diversity, socio-economic disadvantage and housing
- Business and industry, including information and data on employment, income, local business, commercial fishing, and tourism
- Existing social infrastructure in the study area and near the project, such as education facilities, recreation uses, transport facilities, health and emergency services
- Community values relating to factors such as amenity, access, environmental values, and community health and safety.

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.

The third step for the assessment involved identifying and evaluating impacts on and changes to socio-economic conditions and values in the study area from the construction and operation of the project. This included an assessment of direct and indirect construction and operational benefits and impacts, as well as consideration of cumulative impacts due to the project's interaction with other projects in the study area.

The final step for the assessment involved identifying measures to avoid, minimise or mitigate socio-economic impacts arising from the construction and operation of the project.

3.3.1 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 by Transport as part of the Environmental Impact Assessment Practice Note – Socio-economic Assessment (Transport for NSW, 2020). The significance of identified impacts was determined with consideration of:

- Sensitivity of receptors (that is, environmental characteristics, communities, businesses, business clusters, social infrastructure, residences)
- Magnitude of the proposed work.

Further detail about the evaluation matrix and criteria is provided in **Section 6.3**.

3.4 Site investigations

3.4.1 Local business surveys

Two surveys were conducted to gather information on local businesses in the study area in September 2016. These included:

- Survey of local business owners / managers (refer to **Appendix B**)
- Car park (number plate) survey.

It was proposed to conduct updated surveys in 2020 to understand whether conditions had changed since the detailed surveys held in September 2016 and to gather additional information to understand potential impacts of the project on business. However, in response to the coronavirus pandemic (COVID-19), a range of government, business and travel restrictions were introduced impacting on the

movements of residents, tourists and businesses within NSW and interstate. It is expected that changes to the business environment and shopper behaviour were experienced in the study area due to these restrictions and it was assumed that any survey completed during this period would not provide an accurate representative of usual business conditions. Consequently, this assessment is informed by information obtained from the detailed business and car park surveys conducted in 2016.

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 September 2016. Many of the businesses previously surveyed continue to operate within the study area, while businesses that have ceased operations have been replaced by similar businesses (for example, a hardware store closed, and a different hardware store opened in the same building). This assessment also considers potential impacts on businesses that have been established since the surveys were conducted in 2016. The desktop review of businesses indicates that many of the newly established businesses are similar in nature to existing businesses (for example, caravan sales, service stations, food outlets). As such, it is considered that the feedback collected through the 2016 surveys of business owners and customer catchments remains relevant to this assessment.

Survey of local business owners and managers

The purpose of the business survey was to gather information on local businesses within the study area. This included information on the type and nature of businesses, business operations, and business owners' perceptions of potential benefits and impacts for local businesses during construction and operation of the project.

Written 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. These businesses are also most likely to experience changes due to the bypass of these locations. Surveys were hand delivered to local businesses on Thursday 15 September 2016. These were either completed face-to-face with business owners/managers or left for the business owners or managers to complete remotely. A total of 42 surveys were distributed with 26 surveys completed. An example of the survey is provided in **Appendix B**. The outcomes of the business surveys are discussed in **Section 4.4** and included in **Appendix C**.

Car park (number plate) survey

The purpose of the car park (number plate) survey was to gather information on the origin of business customers within Heatherbrae and Beresfield. The survey involved recording vehicle number plates at four locations, including:

- Former Mitre 10 site and surrounding uses at Masonite Road, Heatherbrae
- Heatherbrae Pies/ Hungry Jacks/ KFC/ BP Connect (accessed via Masonite Road), Heatherbrae
- 7-Eleven/ McDonalds/ Subway/ Petstock at Pacific Highway, Heatherbrae
- Hungry Jacks/ Roadhaven Café/ BP at Kinta Drive (accessed via John Renshaw Drive), Beresfield.

The surveys were conducted over two days, including:

- Thursday, 15 September 2016, between 7:30 am and 3:30 pm
- Saturday, 17 September 2016, between 8:30 am and 12:30 pm.

Number plates were recorded at each location about every two hours. A total of 792 unique number plates were collected in Heatherbrae, with 217 unique number plates collected at Beresfield. Suburb information for the recorded number plates was provided by Transport. Information was provided at a suburb level only to ensure anonymity. The outcomes of the number plate survey are discussed in **Section 4.4**.

3.4.2 Data sources

This assessment principally draws on information from the ABS Census of Population and Housing 2016, supplemented with information and data from:

- Government agencies such as the ABS and 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
- A survey of local businesses in the study area and car parking surveys at key locations within Heatherbrae and Beresfield
- Observations made during a site visit to the study area in 2016
- Community and stakeholder consultation carried out for the project, including information on existing community values and key issues raised about the project.

3.5 Community and stakeholder consultation

Community and stakeholder consultation, including with affected property owners, local communities, businesses, and government agencies, has been conducted by Transport since investigations started in 2004 and has formed an integral part of the project development.

Transport has carried out ongoing community and stakeholder consultation through 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 2020
- Consultation with directly affected land owners.

Chapter 6 of the EIS provides a detailed description of community and stakeholder consultation carried out for the project, along with the key issues raised.

This assessment was informed by the outcomes of this consultation, including the identification of existing features and values important to communities in the study area, and potential positive and negative impacts of the project. In addition to communication and engagement strategies carried out for the project as a whole, targeted consultation was carried out for this assessment with businesses in the study area, through a survey of local businesses. The methodology for the survey is described in **Section 3.4.1**.

A summary of the key issues raised during consultation relevant to the socio-economic assessment is provided in **Chapter 5**. Further details on community and consultation carried out for the project is in Chapter 6 of the EIS.

4. Existing environment

4.1 Regional context

The project extends from the City of Newcastle LGA, west of the Hunter River, to the Port Stephens Council LGA, northeast of the Hunter River. The City of Newcastle and Port Stephens Council LGAs are located within the Hunter Region of NSW.

4.1.1 City of Newcastle LGA

The City of Newcastle LGA is bounded by the City of Lake Macquarie LGA to the south, Cessnock LGA to the west, and the Maitland and Port Stephens Council LGAs to the north. 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 (ABS, 2020b; DPIE, 2019).

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 (profile.id, 2020). Key commercial centres in the study area include Black Hill, Tarro and Beresfield.

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. While the industrial sector continues to be an important part of the City of Newcastle economy, the service sector is a substantial and growing segment of the economy. The Port of Newcastle is Australia's largest coal export port by volume and is a growing multi-purpose cargo hub (Remplan, 2020).

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 (profile.id, 2020).

The City of Newcastle LGA is serviced by a number of major roads including the M1 Pacific Motorway, the Pacific Highway, and the New England Highway. The M1 Pacific Motorway is a key north-south corridor linking Sydney to the Central Coast, Newcastle and the Hunter. The New England Highway provides access from the City of Newcastle LGA to the Hunter and north to Queensland.

4.1.2 Port Stephens Council LGA

Port Stephens Council LGA is bounded by City of Newcastle LGA to the south, Maitland LGA to the west, and the Dungog and Great Lakes LGAs to the north. 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 (ABS, 2020b; DPIE, 2019).

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 Williamtown RAAF base are key features and economic drivers for Port Stephens Council LGA and wider Hunter (Remplan, 2020). 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 (Hill PDA, 2012).

The Pacific Highway is the key north-south transport corridor within the Port Stephens Council LGA.

4.2 Community profile

This section describes the key population, demographic and housing characteristics of the study area. Data is provided for the study area along with data for the City of Newcastle and Port Stephens Council LGAs and NSW as a comparison. The information presented is mainly based on data from the ABS 2016 Census of Population and Housing, supplemented with data and information from the ABS and DPIE. Further demographic information is also provided in **Appendix A**.

4.2.1 Population size, growth and mobility

The study area had an estimated resident population of 22,484 people at June 2019. Raymond Terrace SA2 had a larger resident population with 13,994 people, compared to 8,490 people in Beresfield-Hexham SA2 (refer to **Table 4-1**).

The population of the study area generally remained the same over the past decade, decreasing by about 110 people between 2009 and 2019. As shown in **Table 4-1**, the population of the study area increased slightly between 2009 and 2014, before reporting negative population growth of -0.2 per cent annually between 2014 and 2019. Over the same period, the population of the 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.

Table 4-1 Estimated resident population, 2009-2019

Locality	As at 30 June			Average annual change	
	2009	2014	2019	2009-2019	2014-2019
Study area	22,594	22,754	22,484	0.0%	-0.2%
City of Newcastle LGA	151,895	158,683	165,571	0.9%	0.9%
Port Stephens Council LGA	65,521	69,537	73,481	1.2%	1.1%
NSW	7,053,755	7,508,353	8,089,817	1.4%	1.5%

Source: Based on ABS 2020b

Information on population projections for the study area is available at an LGA level and is summarised in **Table 4-2**. 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 LGA are 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).

Table 4-2 Population projections, 2041

Locality	As at 30 June			Change in population (2016-2041)	
	2016	2036	2041	Number	Average annual change
City of Newcastle LGA	160,707	192,809	199,680	38,973	0.9%
Port Stephens Council LGA	71,115	79,164	82,068	10,953	0.6%
NSW	7,732,858	10,077,965	10,572,696	2,839,838	1.3%

Source: Based on NSW DPIE, 2019

Communities in the study area generally had lower levels of population mobility, refer to **Table 4-3**, with higher proportions of people who lived at the same address both one year and five years prior to the 2016 Census compared to the NSW and the City of Newcastle and Port Stephens Council LGAs. Residents of Beresfield-Hexham reported particularly low levels of mobility, likely reflecting the older population and more rural nature of this SA2.

Table 4-3 Population mobility, 2016

Study area	Same address one year prior to 2016 Census	Same address five years prior to 2016 Census
Study area	78.4%	58.2%
City of Newcastle LGA	76.1%	52.3%
Port Stephens Council LGA	76.8%	52.6%
NSW	77.4%	53.8%

Source: Based on ABS 2016 Census of Population and Housing, G41 and G42

4.2.2 Age profile

The study area had a slightly older population compared to NSW at the 2016 Census, with a higher median age and higher proportions of older people. At the same time, the study area had proportions of children aged 14 years or younger above the NSW average. The older age profile was mainly driven by an older population in Beresfield-Hexham, with Raymond Terrace reporting a median age the same as NSW and higher proportion of children and lower proportions of older people (ABS, 2016).

4.2.3 Cultural diversity

Overall, communities in the study area generally had lower levels of culturally diversity compared to NSW(refer to **Table 4-4**).

At the 2016 Census, 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.

At the 2016 Census, the main non-English languages spoken at home included:

- Mandarin (0.6 per cent)
- Tagalog (0.2 per cent)
- Italian (0.2 per cent)
- Tamil (0.2 per cent)
- Cantonese (0.2 per cent).

The study area had a high level of English proficiency with less than one per cent of the population indicating that they did not speak English well or at all, compared to 4.5 per cent in NSW.

Table 4-4 Cultural diversity, 2016

Study area	Indigenous people	Overseas born people	Non-English speaking people	Does not speak English well or at all
Study area	7.6%	7.8%	3.8%	0.8%
City of Newcastle LGA	3.5%	13.9%	10.1%	1.6%
Port Stephens Council LGA	4.8%	11.0%	3.6%	0.4%
NSW	2.9%	27.7%	25.2%	4.5%

Source: Based on ABS 2016 Census of Population and Housing, G07, G09 and G13

4.2.4 Households and families

There were 8,214 households in the study area at the 2016 Census. Family households were the predominant household type, representing nearly 70 per cent of households in the study area. This was below the proportion of family households in NSW and Port Stephens Council LGA, but above the proportion of this household type in the City of Newcastle LGA (refer to **Table 4-5**).

The study area had a higher proportion of lone person households and a lower proportion of group households compared to NSW. The higher proportion of older people is consistent with the City of Newcastle and Port Stephens Council LGAs and is likely to reflect the study area's older population and regional location.

Table 4-5 Households, 2016

Study area	Family households	Lone person households	Group households	Total households
Study area	69.7%	27.5%	2.8%	8,214
City of Newcastle LGA	64.0%	29.2%	6.9%	59,974
Port Stephens Council LGA	72.5%	25.0%	2.5%	25,452
NSW	72.0%	23.8%	4.2%	2,604,314

Source: Based on ABS 2016 Census of Population and Housing, G31

There were about 5,886 families in the study area at the 2016 Census, of which about 38.3 per cent comprised families with children aged under 15 years, similar to the proportion of these families in NSW as a whole (refer to **Table 4-6**). 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.

Table 4-6 Family composition, 2016

Study area	Couple family with no children	Families with children under 15 years	Families with no children under 15 years	Total families
Study area	35.7%	38.3%	24.4%	5886
City of Newcastle LGA	38.4%	37.4%	22.1%	39,068
Port Stephens Council LGA	44.2%	34.3%	20.5%	18,893
NSW	36.6%	38.2%	23.5%	1,940,226

Source: Based on ABS 2016 Census of Population and Housing, G25

4.2.5 Housing

The study area had 8870 dwellings in 2016, of which about 92.6 per cent were occupied on Census night (refer to **Table 4-7**). Separate house was the predominant dwelling type, accounting for about 78.1 per cent of dwellings in the study area. This was above the proportion of separate houses in NSW and the City of Newcastle and Port Stephens Council LGAs and is likely to reflect the more rural nature of the study area.

Table 4-7 Dwellings, 2016

Study area	Separate house	Semi-detached dwelling, flat or apartment	Other dwelling	Total dwellings
Study area	78.1%	11.5%	2.7%	8870
City of Newcastle LGA	64.1%	25.4%	0.3%	66,471
Port Stephens Council LGA	65.3%	14.3%	1.9%	31,090
NSW	59.9%	29.0%	0.8%	2,889,057

Source: Based on ABS 2016 Census of Population and Housing, G32

In 2016, the study area had levels of owner occupied houses 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 (refer to **Table 4-8**).

Compared to NSW, the study area had relatively high proportions of houses being rented with 34.3 per cent of occupied private houses in the study area being rented, compared to 31.8 per cent in NSW. Within the study area, Raymond Terrace had a particularly high proportion of rental houses, with this group comprising 38 per cent of occupied private houses in the SA2. Houses rented from a real estate agent comprised the largest proportion of rental houses, although the study area had a relatively high proportion of houses being rented from a state housing authority, with this more than double the NSW average.

Households in the study area had relatively low housing costs, with median weekly rent and monthly mortgage costs below NSW and the City of Newcastle and Port Stephens Council LGAs. Compared to NSW, households in the study area generally displayed lower levels of housing stress related to mortgage costs with lower proportions of households paying 30 per cent or more of household income on mortgage payments at the 2016 Census. At the same time, 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.

Table 4-8 Housing tenure and costs, 2016

Study area	Owner occupied*	Rented	Rented (State housing authority)	Median housing costs**		Housing costs 30% or greater of household income	
				Mortgage costs ($/ month)	Rental costs ($/ week)	Mortgage payments	Rent payments
Study area	61.5%	34.3%	9.5%	1417	275	5.4%-6.3%	12.2%-16.0%
City of Newcastle LGA	61.2%	35.5%	5.8%	1768	340	5.4%	14.2%
Port Stephens Council LGA	69.8%	26.2%	2.8%	1733	305	6.4%	10.8%
NSW	64.5%	31.8%	4.0%	1986	380	7.4%	12.9%

Note: * includes owned outright and owned with a mortgage. ** Median rental and mortgage costs and rent and mortgage payments for the study area refers to the average of SA2s in the study area. Source: Based on ABS 2016 Census of Population and Housing, G02 and G33, ABS 2016 QuickStats

4.2.6 Disadvantage and need for assistance

The ABS produce socio-economic indexes for areas (SEIFA) that indicate relative levels of socio-economic advantage and disadvantage. The index of relative socio-economic disadvantage is derived from variables such as income, educational attainment, unemployment and vehicle ownership. Low decile values generally represent areas of disadvantage while high decile values generally represent areas of least disadvantage. The index of economic resources summarises variables related to income and wealth.

Figure 4-1 shows relative socio-economic disadvantage within the study area, while **Figure 4-2** shows access to economic resources. Some areas near the project demonstrated higher levels of relative disadvantage in general at the 2016 Census, with communities generally recording scores in the lower deciles. In relation to economic resources, communities near Tomago and Heatherbrae generally recorded scores in the lower deciles indicating a relative lack of economic resources in general (for example, many low income households or households paying low rent), while communities in Beresfield, Tarro and Woodberry generally displayed moderate levels of economic resources (ABS, 2016a).

Need for assistance refers to people who need help or assistance in at least one of the three core activity areas of self-care, mobility or communication due to disability, a long-term health condition or old age. These groups may be more vulnerable to the effects of major projects, such as changes in local amenity, local access, property acquisition, as well as loss of social and community networks.

Overall, the study area had relatively high levels of people needing assistance compared to NSW and the City of Newcastle and Port Stephens Council LGAs. At the 2016 Census, 7.8 per cent of people in the study area indicated they have a need for assistance in at least one of the three core activities. This is compared to 5.4 per cent in NSW as a whole (ABS, 2016).

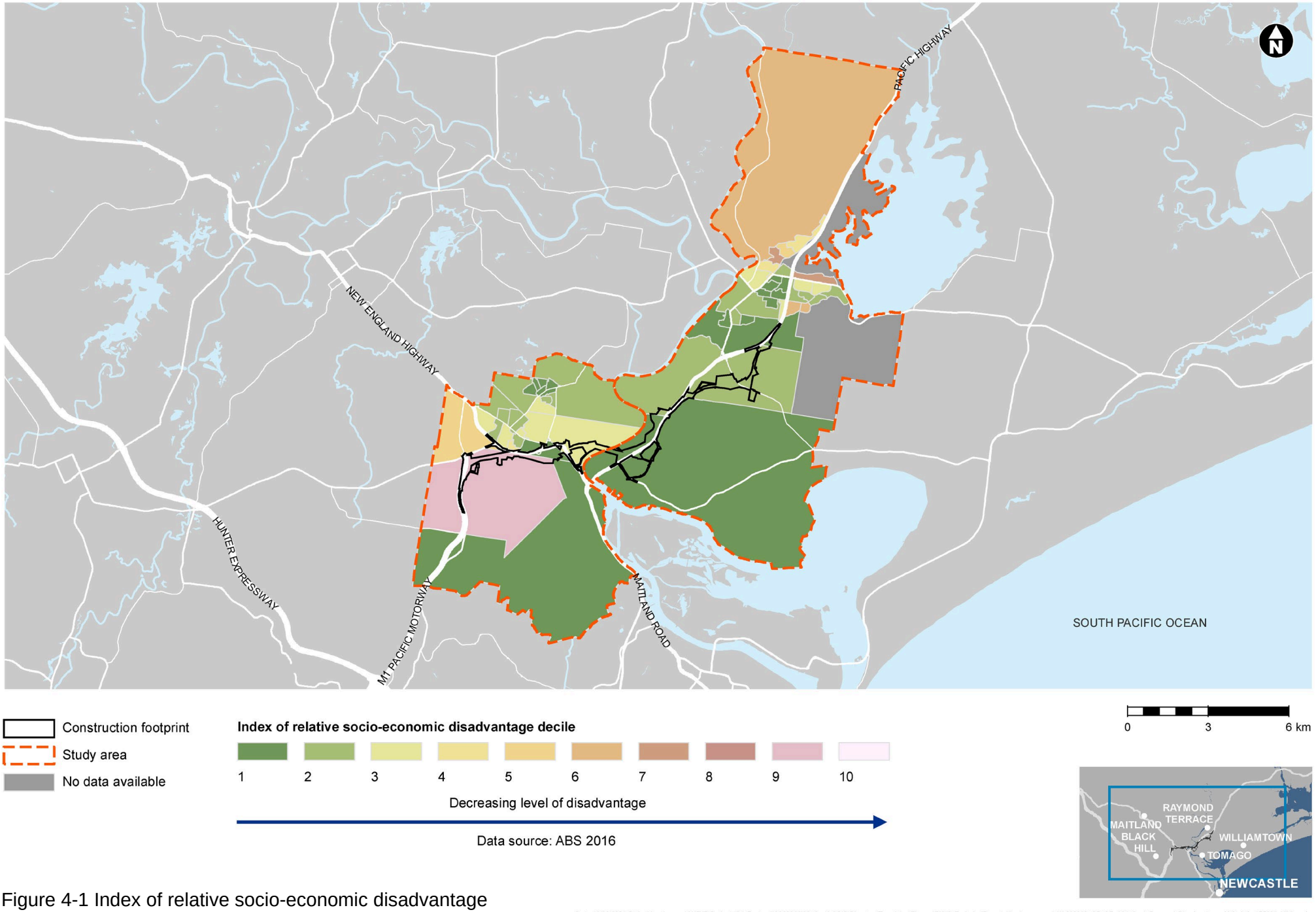

Figure 4-1 Index of relative socio-economic disadvantage

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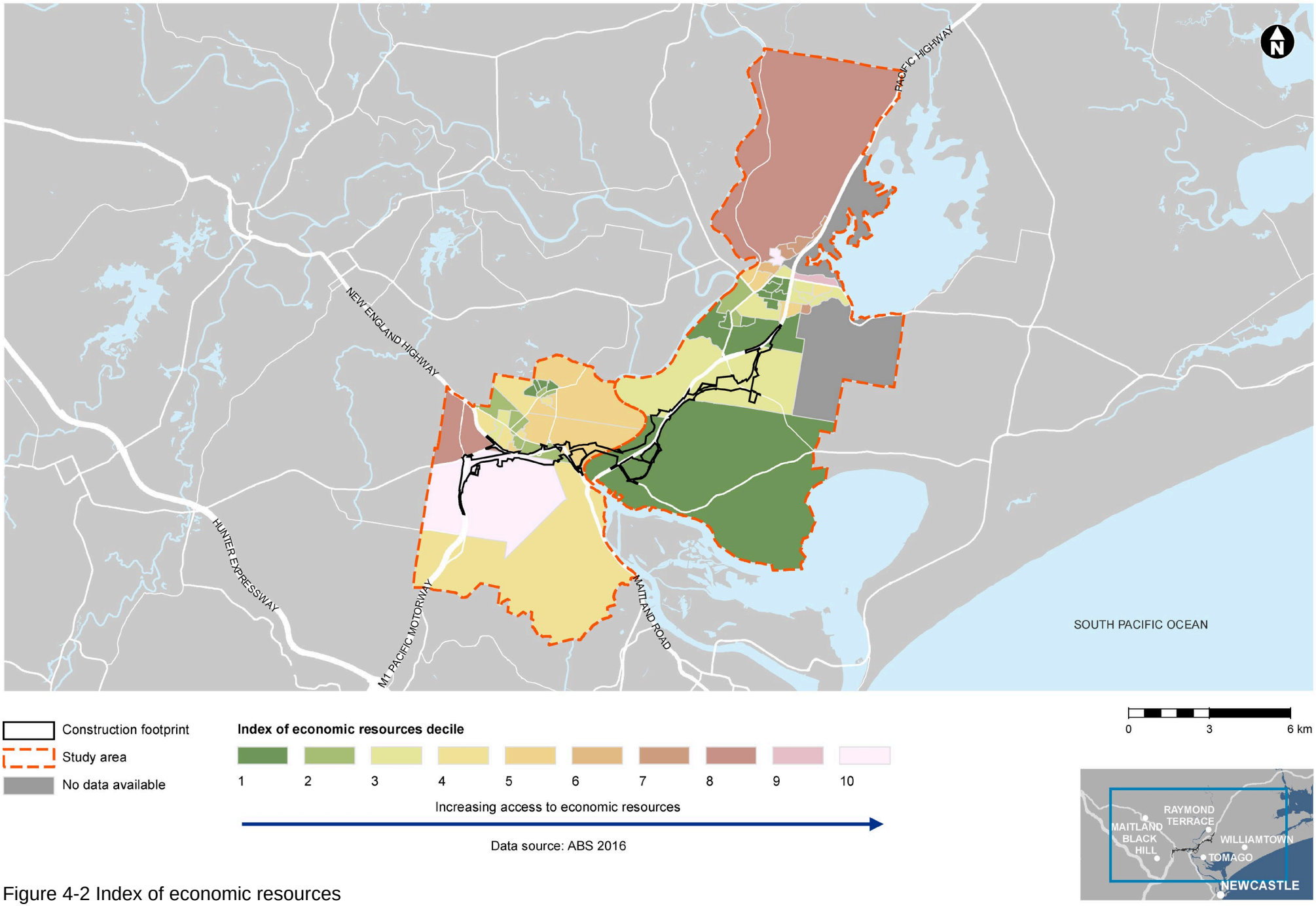

Figure 4-2 Index of economic resources

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4.3 Economic profile

4.3.1 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. At the 2016 Census, the study area also had higher proportions of lower income households, that is households within an income of less than $650 per week and lower proportions of higher income households with an income of more than $2,500 per week (refer to **Table 4-9**).

Table 4-9 Income, 2016

Locality	Median total household income ($/ week)	Median personal income ($/week)	Lower income households (less than $650 per week)	Higher income households (more than $2500 per week)
Study area*	1063	533	13.3%	12.6%
City of Newcastle LGA	1368	660	8.7%	26.8%
Port Stephens Council LGA	1180	571	10.2%	17.9%
NSW	1486	664	9.5%	27.7%

Notes: *Average of median incomes for SA2s in the study area. Source: Based on 2016 Census of Population and Housing, G02 and G28

There were about 9,444 people in the study area aged 15 years or over who were either employed or looking for work at the 2016 Census, representing a labour force participation rate of 53.1 per cent. This is below the proportion of people who were participating in the labour force in NSW as a whole (59.2 per cent) (refer to **Table 4-10**). The study area had a relatively high rate of unemployment, with 10.5 per cent of the study area's labour force unemployed at the 2016 Census.

Table 4-10 Labour force, 2016

Locality	Total labour force	Labour force	Unemployment
Study area	9,444	53.1%	10.5%
City of Newcastle LGA	78,864	61.0%	7.4%
Port Stephens Council LGA	29,752	52.2%	7.2%
NSW	3,605,881	59.2%	6.3%

Source: Based on 2016 Census of Population and Housing, G43

Key industries of employment for residents in the study area at the 2016 Census included:

- Health care and social assistance (employing 13.2 per cent of people aged 15 years or over)
- 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.

4.3.2 Vehicle ownership

Households in the study area generally had a high level of access to private vehicles. At the 2016 Census, the study area had lower proportions of households without access to a motor vehicle and higher proportions of households with one motor vehicle compared to NSW (refer to **Table 4-11**). The proportion of households with two or more motor vehicles in the study area was slightly below the NSW average.

Table 4-11 Motor vehicle ownership, 2016

Locality	No motor vehicles	One vehicle	Two or more vehicles
Study area	6.4%	39.0%	49.5%
City of Newcastle LGA	9.3%	37.6%	49.7%
Port Stephens Council LGA	4.1%	35.1%	56.4%
NSW	9.2%	36.3%	50.8%

Source: Based on 2016 Census of Population and Housing, G30

4.3.3 Worker population profile

ABS working population data provides information based on where a person goes to work. At the time of the 2016 Census, 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 the employment areas such as Tomago industrial area and Heatherbrae and Raymond Terrace commercial areas (Based on ABS, 2016b).

Manufacturing was the main industry of employment for people working in the study area, employing 23 per cent of workers, with primary metal and metal product manufacturing and food product manufacturing the main sub-industries. Other key industries of employment for people working in the study area included:

- Construction (employing 12.2 per cent of workers), particularly in construction services and building construction
- Retail trade (7.8 per cent of workers), with ‘other store-based retailing’ and food retailing the main sub-industries
- Transport, postal and warehousing (5.8 per cent of workers), the majority of which are employed in road transport
- Public administration and safety (5.2 per cent of workers), with public administration (for example, local or state government administration) and public order, safety and regulatory services (for example, police and emergency services) being the main sub-industries.

The proportion of workers employed in manufacturing, construction and transport, postal and warehousing industries were all above the NSW averages (Based on ABS, 2016b).

In 2016, about 84.5 per cent of people working in the study area used a car as either driver or passenger for 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. The method of travel to work is likely to reflect the limited public transport and active transport options in parts of the study area and longer commuting distances for workers. Compared to NSW, workers in the study area travel longer commuting distances. At the 2016 Census, 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. Within the wider region, workers in the Port Stephens Council LGA had an average commute of 20.4 kilometres, while workers in City of Newcastle LGA had an average commute of 16.3 kilometres, similar to NSW as a whole (ABS, 2018).

4.4 Local business and industry

4.4.1 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 businesses 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 proportions of these business in the study area were all above the average for NSW (refer to **Table 4-12**).

Table 4-12 Businesses by industry, 2019

Industry	Study area	City of Newcastle LGA	Port Stephens Council LGA	NSW
Construction	20.8%	14.3%	22.5%	16.1%
Rental, hiring and real estate services	12.2%	11.2%	10.5%	10.9%
Manufacturing	8.9%	3.1%	4.8%	3.4%
Transport, postal and warehousing	8.7%	6.0%	7.2%	8.1%
Financial and insurance services	7.9%	10.5%	8.2%	9.0%
Retail trade	7.0%	6.4%	5.8%	5.6%
Professional, scientific and technical services	6.2%	14.3%	9.7%	13.4%
Other services	6.0%	4.4%	5.4%	4.1%
Administrative and support services	5.1%	4.3%	4.5%	4.2%
Wholesale trade	4.7%	2.9%	2.6%	3.6%
Accommodation and food services	3.6%	5.0%	4.6%	3.9%
Agriculture, forestry and fishing	3.2%	1.0%	5.7%	6.6%
Health care and social assistance	3.2%	11.5%	4.5%	6.0%
Education and training	1.2%	1.5%	1.3%	1.5%
Arts and recreation services	0.8%	1.5%	1.3%	1.3%
Mining	0.5%	0.2%	0.3%	0.2%
Electricity, gas water and waste services	0.3%	0.3%	0.2%	0.3%
Information media and telecommunications	0.2%	0.9%	0.5%	1.2%
Public administration and safety	0.2%	0.3%	0.4%	0.4%
Currently unknown	0.0%	0.3%	0.1%	0.3%
Total number of businesses	1521	13,969	4,872	805,986

Source: Based on ABS Regional Statistics, ASGS 2016, 2011-2019

4.4.2 Businesses near the project

A desktop review of aerial photography, internet searches and previous investigations carried out in 2016 for the project has identified a range of businesses at Beresfield, Hexham, Tomago and Heatherbrae that have 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. They 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, such as 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 in **Figure 4-3** and listed in **Appendix C**. 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.

Properties used for agricultural uses are also located near the project and mainly include land used for grazing and intensive animal keeping (for example, horse training). This assessment considers potential impacts on known rural businesses. Potential impacts of the project on land used for agricultural and rural purposes is provided in the Land Use and Property Working Paper (Appendix N of the EIS).

Overall, Beresfield, Tomago and Heatherbrae have differing business environments. Beresfield comprises mainly supports light industrial, freight and logistics and manufacturing businesses, with retail uses near the project mainly limited to businesses selling new and used trucks and a service station and associated eateries that service local residents, workers and motorists using the M1 Pacific Motorway. Tomago mainly comprises major industrial and manufacturing uses within the Tomago Industrial Precinct, including Tomago Aluminium. 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 that cater for the needs of customers from surrounding areas and motorists travelling along the Pacific Highway, 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 due to the specific goods and services being offered, and customers who access a business because they see it while they are driving past ('passing trade').

Figure 4-3 Businesses near the project (map 1 of 5)

Figure 4-3 Businesses near the project (map 2 of 5)

Figure 4-3 Businesses near the project (map 3 of 5)

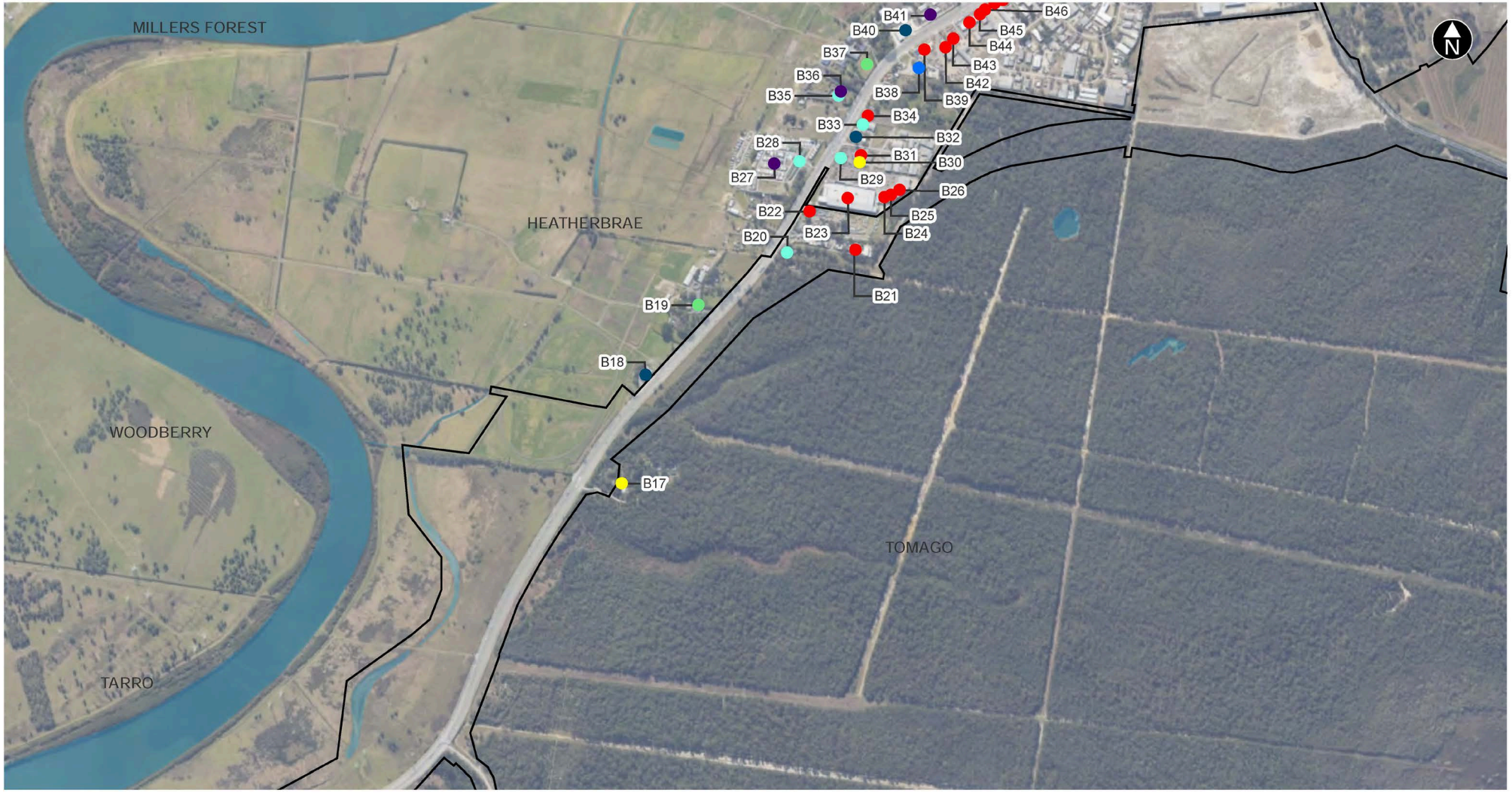
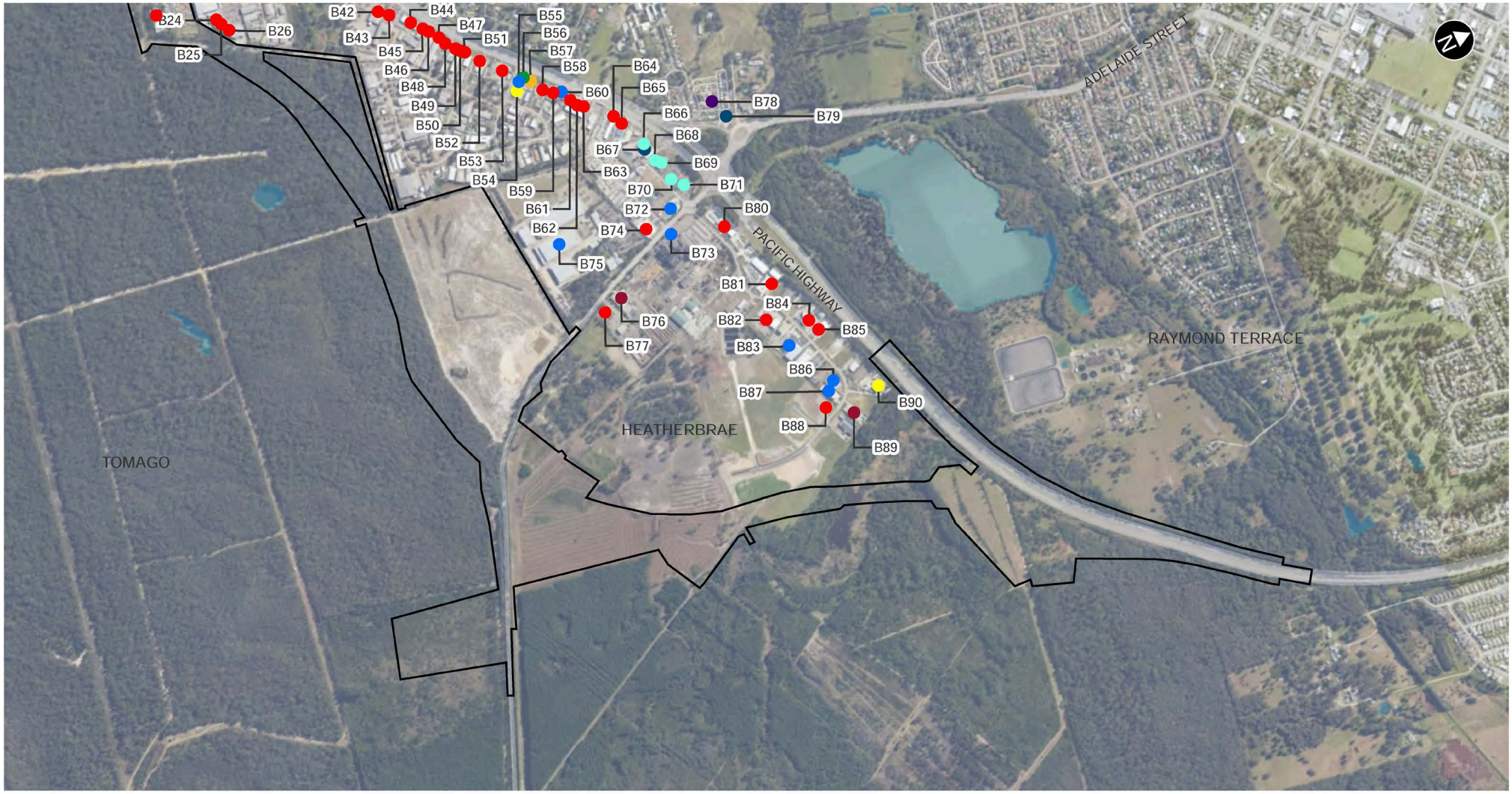


Figure 4-3 Businesses near the project (map 4 of 5)

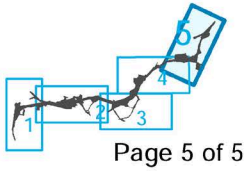


Construction footprint

Business

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

0 400 800m



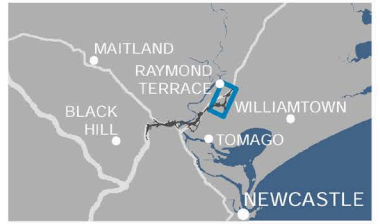


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Figure 4-3 Businesses near the project (map 5 of 5)

Findings of business and car park surveys

Heatherbrae and Beresfield have established business environments, with most businesses surveyed indicating they had operated within Heatherbrae and Beresfield for more than ten years, with seven businesses indicating that 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 to 50 people. Two businesses indicated they employed more than 50 people.

Most businesses surveyed indicated that they service 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.

Table 4-13 lists the main postcodes of origin for customers of businesses in Heatherbrae and Beresfield. The origin of customers from the Heatherbrae and Beresfield surveys are also shown in **Figure 4-4** and **Figure 4-5** respectively.

As shown in **Table 4-13**, businesses within Heatherbrae attract a large proportion of customers from suburbs and towns near the project as well as from across the Hunter. Customers from suburbs within the 2324 postcode comprised 20.8 per cent of cars surveyed at to businesses within Heatherbrae (165 cars), with most coming from Raymond Terrace (96 cars). Customers from suburbs within the 2318 postcode comprised the second largest group, comprised 6.7 per cent of cars surveyed at businesses with Heatherbrae, with 43 cars from the suburb of Medowie. Smaller proportions of customers were also recorded as being from across NSW and interstate.

Unlike Heatherbrae, businesses in Beresfield did not demonstrate any specific postcode as their primary customer base, which may reflect the types of businesses used for the car park survey in this location (for example, service station, takeaway). However, the surrounding suburbs within the 2322 postcode comprised the highest proportion of cars surveyed (8.3 per cent or 18 cars). Customers from suburbs within the 2324 postcode comprised the second largest group (6.0 per cent or 13 cars). This includes the suburb of Raymond Terrace which recorded the highest number of cars in the car park survey at Beresfield (eight cars). As with Heatherbrae, smaller proportions of customers were recorded as being from across NSW and interstate.

Table 4-13 Top 10 postcodes of origin identified in car park (number plate) survey

Postcode	Suburbs identified in the survey	Proportion of cars counted
Heatherbrae businesses		
2324	Millers Forest, Raymond Terrace, Tea Gardens, Karuah, Heatherbrae, Nelsons Plains, Swan Bay, Seaham, North Arm Cove, Hawks Nest, Osterley, East Seaham, Brandy Hill, Limeburners Creek, Eagleton, Bundabah	20.8%
2318	Williamtown, Medowie, Fullerton Cove, Salt Ash, Campvale, Ferodale	6.7%
2322	Beresfield, Tarro, Chisholm, Woodberry, Tomago, Thornton, Black Hill	5.3%
2319	Lemon Tree Passage, Tanilba Bay, Mallabula	2.9%
2321	Cliftleigh, Clarence Town, Morpeth, Gillieston Heights, Hinton, Lochinvar, Clarencetown, Duns Creek, Heddon Greta	2.9%
2323	Metford, Tenambit, East Maitland, Ashtonfield, Maitland East	2.7%
2428	Smiths Lake, Tuncurry, Darawank, Forster, Green Point	2.4%
2320	Rutherford, Glen Oak (Maitland), Lorn, Telarah, Bolwarra, Aberglasslyn, Wallalong, South Maitland, Glen Oak, Largs	2.3%

Postcode	Suburbs identified in the survey	Proportion of cars counted
2444	Port Macquarie, Riverside, North Shore	2.1%
2285	Edgeworth, Cardiff South, Cardiff, Glendale, Cameron Park, Cardiff Heights	1.9%
Beresfield businesses		
2322	Beresfield, Thornton, Woodberry, Black Hill, Hexham, Tarro, Tomago	8.3%
2324	Raymond Terrace, Karuah, Tea Gardens, Swan Bay, Heatherbrae	6.0%
2321	Heddon Greta, Raworth, Morpeth, Clarence Town, Gillieston Heights, Lochinvar	3.2%
2325	Bellbird, Cessnock, Quorrobolong, Paxton	3.2%
2320	Rutherford, Aberglasslyn, Maitland, Wallalong	2.8%
2323	Metford, Mulbring, Ashtonfield, Tenambit	2.8%
2259	Wyee, Summerland Point, Lake Munmorah, Wyong	1.8%
2285	Cameron Park, Edgeworth	1.8%
2327	Kurri Kurri	1.8%

Source: Car park (number plate) survey conducted by Jacobs. Suburb information supplied by Transport

In general, the level of reliance of a business on passing trade is influenced by the type or nature of the business. For example, passing trade is likely to be of higher importance for businesses such as service stations and some fast-food outlets, compared to speciality retail businesses, such as vehicle sales or plumbing supplies.

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. For example, in Heatherbrae, one caravan retailer indicated that passing trade comprised less than 10 per cent of their business, while another indicated that this was between 50 to 75 per cent. This was also similar for retailers of household goods. Most accommodation businesses estimated that 10 per cent to 30 per cent of their customers where associated with passing trade, although one business indicated that this was much higher at more than 75 per cent. In general, businesses such as service stations and food outlets estimated that between 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, particularly Christmas, Easter and long weekends, with this generally associated with motorists travelling along the Pacific Highway. This was particularly relevant for businesses such as service stations and food outlets. Some businesses also identified that the distance from Sydney (that is a two hour drive) and location on the Pacific Highway made Heatherbrae and Beresfield important stopping points for motorists travelling along the Highway to or from Sydney, with one business in Heatherbrae noting it was specifically built as a service centre for the Pacific Highway. The location of businesses was also identified as important in attracting local workers on their way to and from work, for example those travelling to work from Maitland to Newcastle.

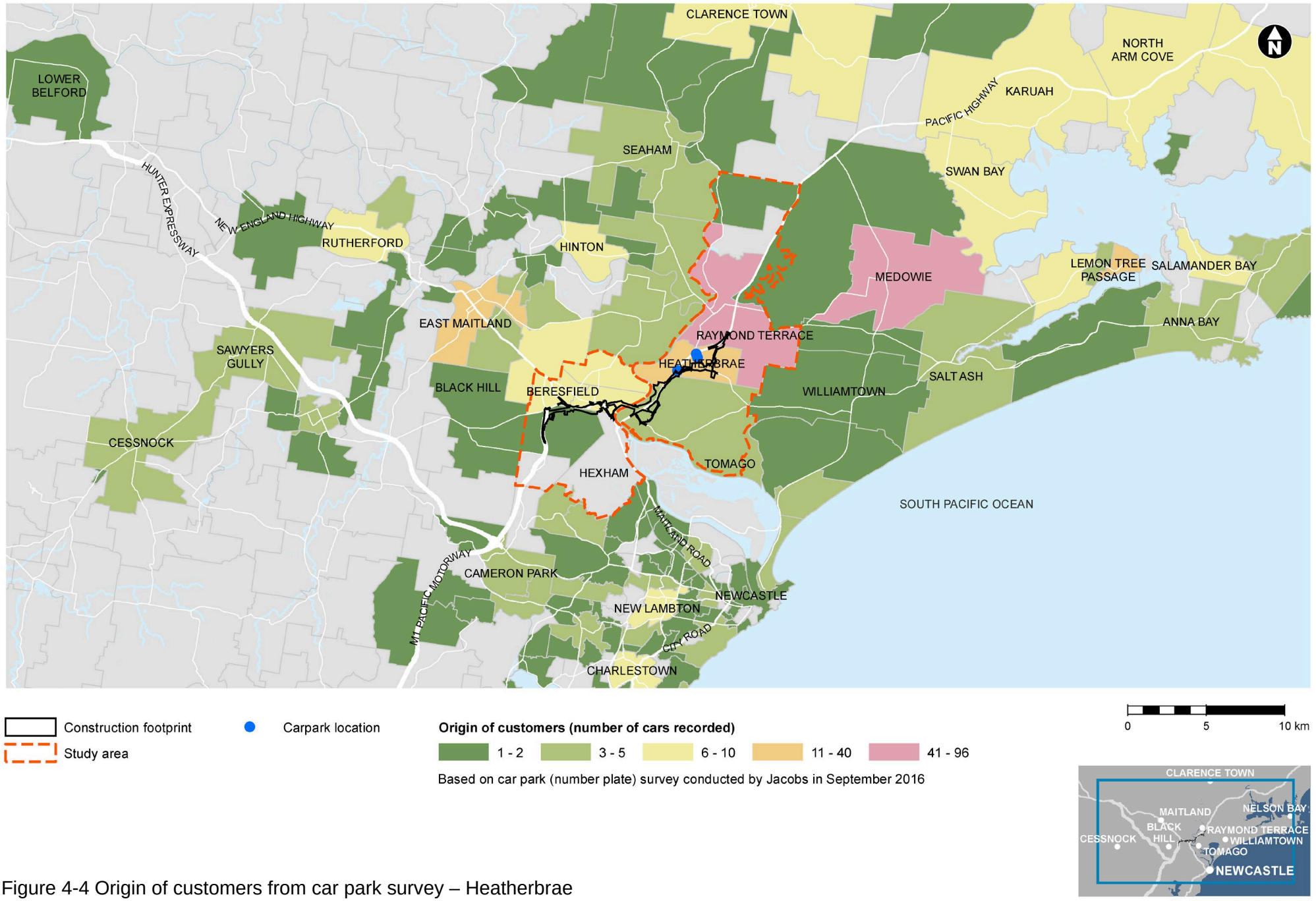

Figure 4-4 Origin of customers from car park survey – Heatherbrae

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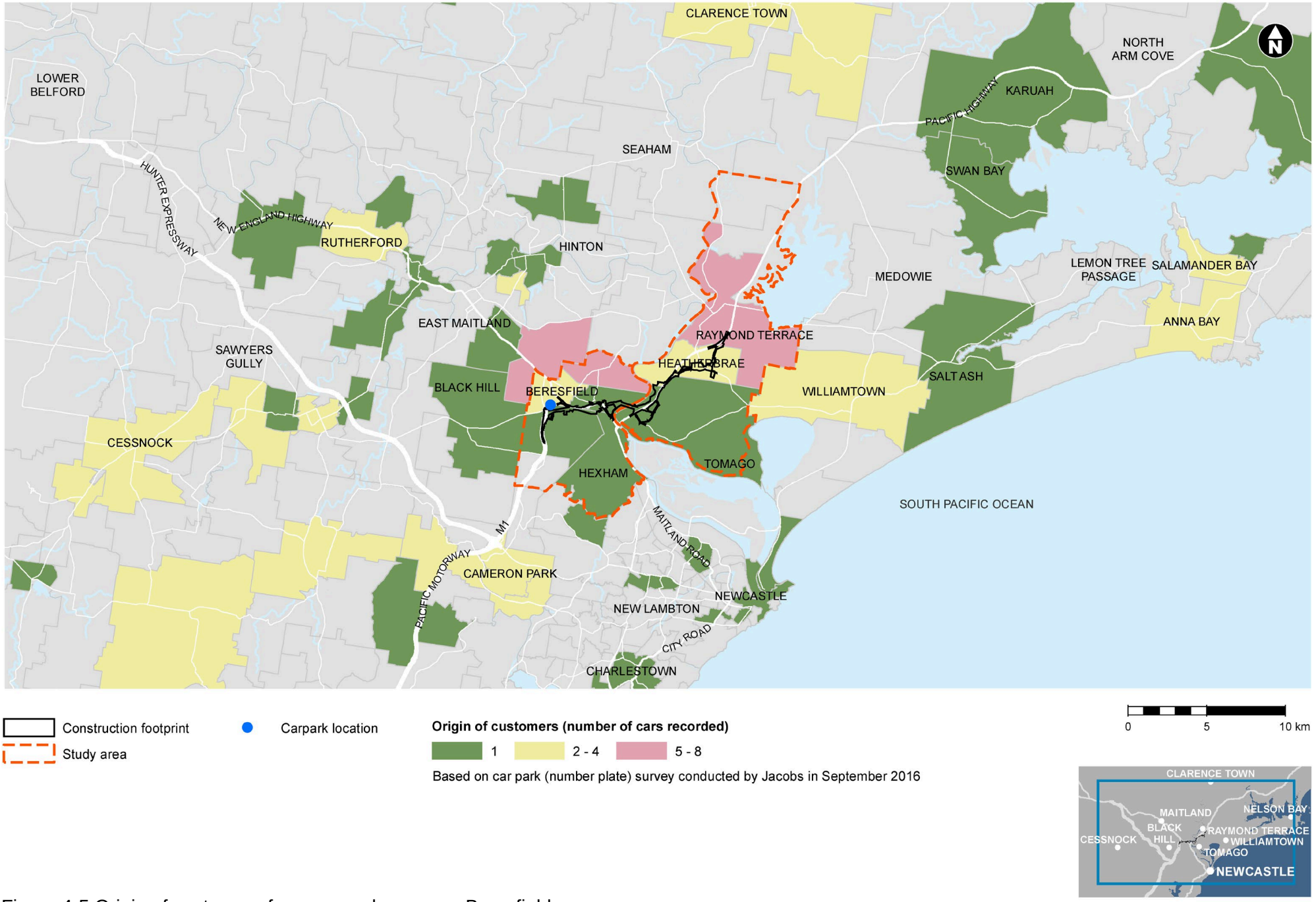

Figure 4-5 Origin of customers from car park survey – Beresfield

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4.4.3 Future business growth and development

As indicated in **Section 2.2.1**, facilitating Heatherbrae as a destination for bulky goods is identified as a key direction in the Raymond Terrace and Heatherbrae Strategy. Specifically, the Strategy identifies that the project '*places Heatherbrae in a position to evolve from a destination that caters to passing traffic to become a destination in itself, catering for the needs of the growing residential population*'. The existing business environment in Heatherbrae is expected to change over time as it transitions into a key regional destination for bulky goods catering for the needs of the growing population. This transition is likely to result in changes to the types of businesses, such as an increase in wholesaling and retailing in homewares, furniture and white goods and result in businesses becoming 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. Three precincts are identified within this location, including:

- Beresfield Precinct, which will support freight and logistics, manufacturing and other light industrial uses
- Emerging Black Hill Precinct, located west of the M1 Pacific Motorway, which is proposed to be the subject of a master plan that considers freight and logistic uses, the adjoining mine site and road access to John Renshaw Drive
- Thornton Precinct, which is proposed to support expanded business and light industrial uses.

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 that maximise opportunities to secure defence contracts.

4.4.4 Commercial and recreational fishing

Commercial fishing and aquaculture

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 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. The Hunter River Estuary Prawn Trawl fishery includes all waters of Hunter River and its tributaries from a line drawn south-westerly from the boat ramp adjacent to Punt Road, Stockton, to the eastern extremity of the State Dockyard (Dyke Point), upstream to its junction with the Williams River at Raymond Terrace (refer to **Figure 4-6**). Access to the fishery is limited to shareholders and/or their nominated fisher, with 22 shareholders operating in the Hunter River Estuary Prawn Trawl. Otter trawl nets which are a funnel of net towed along close to the seabed, are used to take prawns from the estuarine waters. The majority of prawn catches are landed during the 'dark' of the moon (between the last and first quarter), on either run out or 'slack' tides. The primary market for prawns harvested from the fishery are Sydney and regional centres where prawns are sold for domestic consumption or processed for bait. (Fisheries NSW, 2017; https://www.dpi.nsw.gov.au/fishing/commercial/fisheries/ept-fishery).

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 in the navigation channel for the project be no narrower than the existing Pacific Highway bridges at Hexham
- 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, with trawlers not operating in the Hunter River for prawns between the end of May and beginning of November
- 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 at Hexham due to snags that rip nets
- Need to ensure that no metal, rubbish etc from construction activities enters the Hunter River as this could create snag hazards that may rip nets.

Other areas near the project used for commercial fishing include Tilligerry Creek, about 15 kilometres east of the project, and Fullerton Cove, about six kilometres south-east of the project, near Williamtown.

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 contains oyster leases located near Stockton Bridge about 13 kilometres downstream of the project. The Sydney Rock Oyster is the main oyster species approved for cultivation on oyster aquaculture leases in the Hunter River, which are farmed by a small number of permit holders. The greatest area historically leased for the cultivation of oysters in the Hunter River was 35 hectares, of which 0.9 hectares are mapped as priority oyster aquaculture areas. At its peak, the Hunter River produced nearly 43 tonnes of oysters for human consumption, with the historic maximum 10 year moving average at about 26 tonnes (Department of Primary Industries, 2016).

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 (West et al, 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. About half of the fisher days were boat-based with about 63 per cent within the estuarine waters. Common recreational species in the Hunter and Newcastle areas include bream, prawns, sand whiting, dusky flathead, trumpeter whiting and sand flathead (West et al, 2015).

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.

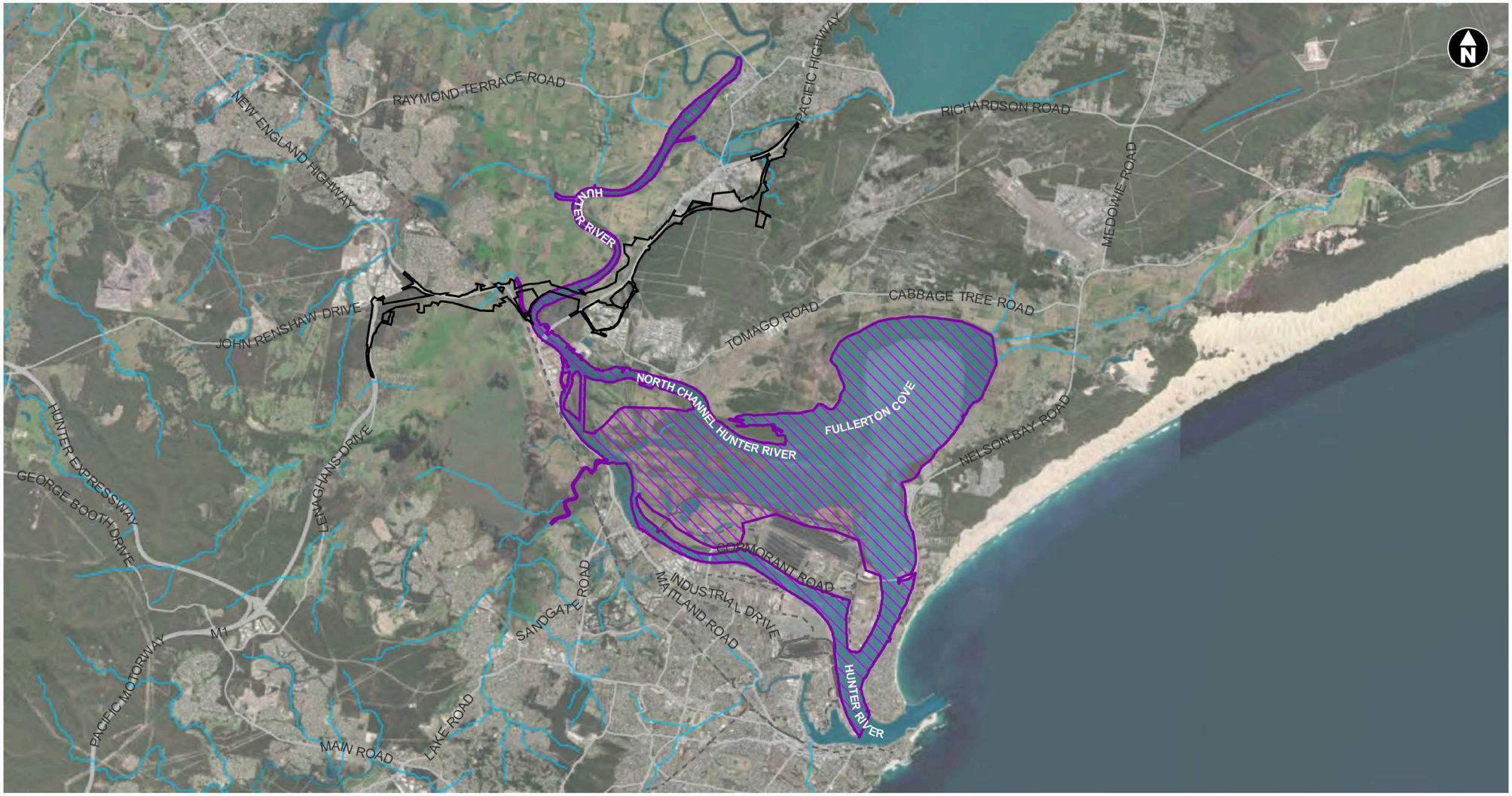

Figure 4-6 Hunter River Estuary Prawn Trawl fishery

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4.4.5 Tourism

Regional tourism data

Data on tourism for the study area is available for the City of Newcastle, Port Stephens Council, Maitland City and Cessnock City LGAs. As shown in **Table 4-14**, 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 1972 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).

Table 4-14 Key tourism indicators, 2019

Tourism indicator	City of Newcastle LGA	Port Stephens Council LGA	Maitland City LGA	Cessnock City LGA
Visitors (‘000)				
International	105	40	5	12
Domestic overnight	1450	721	168	440
Domestic (day trippers)	3073	811	628	602
Total visitors	4627	1572	801	1053
Visitor nights (‘000)				
International	1962	161	171	84
Domestic overnight	3542	2277	437	973
Total nights	5504	2438	609	1057
Reasons for visit (‘000)				
Holiday	1547	988	301	599
Visiting friends or relatives	1615	443	287	337
Business	862	70	np	76

Tourism indicator	City of Newcastle LGA	Port Stephens Council LGA	Maitland City LGA	Cessnock City LGA
Other	604	np	126	np
Accommodation (nights '000)				
Hotel or similar	1023	562	np	391
Home of friend or relative	2702	673	462	264
Commercial camping/caravan park	113	365	np	np
Backpacker	np	np	np	np
Other	1600	829	np	380
Tourism businesses				
Non-employing	797	240	265	215
1 to 4 employees	601	209	204	173
5 to 19 employees	454	160	157	88
20 or more employees	142	35	43	35
Total	1972	638	662	505

Notes: np – the estimate is unreliable and cannot be published. Source: 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, 8 establishments in the Maitland City LGA and a further 24 establishments in the Cessnock City LGA. At the same time, the average room occupancy rate in the City of Newcastle LGA was 68.7 per cent, which was similar to the average occupancy rate in NSW and above the occupancy rate for the Hunter. The average room occupancy rates in the Maitland City LGA and the Cessnock City LGA were similar to that of the Hunter, at 58.2 per cent and 55.6 per cent respectively compared with the Hunter average of 56.3 per cent. Port Stephens Council LGA generally had lower levels of occupancy, with the average room occupancy rate for the year ending June 2016 about 50 per cent, below the occupancy rates for NSW and the Hunter (Destination NSW, 2016a; Destination NSW, 2016b; Destination NSW, 2016c; Destination NSW, 2016d). Additionally, the City of Newcastle LGA, Port Stephens Council LGA, Maitland City LGA, Cessnock LGA and the wider Hunter have numerous hotels and motels with less than 15 rooms. Plentiful holiday house accommodation is also available in this area for rent.

Local tourism

The study area is a key tourism service centre, with various accommodation providers, cafes, restaurants and take-away businesses located at Beresfield, Tarro, Tomago and Heatherbrae. These cater for overnight and day-trip visitors as well as motorists travelling along the Pacific Highway. Feedback from the business surveys indicated that many businesses within the study area experience increased trade during peak holiday periods, particularly Christmas, Easter and long weekends, with this generally associated with motorists travelling along the Pacific Highway.

The Hunter Region Botanic Gardens (HRBG) attracts visitors from the surrounding region and beyond. Further information on the HRBG is provided in **Section 4.6**.

A range of tourism related businesses are located at Beresfield and Heatherbrae that provide services for visitors and motorists. They include:

- 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 within 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.

4.5 Community values

Community values include those values or features held as important to communities for quality of life and well-being. They include physical elements such as parks, landscapes, natural environment and connections, and intangible qualities such as amenity, sense of place and community cohesion.

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 of key features.

4.5.1 Local amenity and character

Community values relating to local amenity and character refers to natural and physical qualities and characteristics that contribute to an individual's appreciation of their surroundings. They relate to such things as built form and landscape, environmental conditions and heritage and cultural features.

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

- Rural land uses, including rural residential uses and land used for grazing and horse training at Beresfield, Tarro, Woodberry and Heatherbrae
- Industrial and utilities uses at Black Hill, Beresfield and Tomago, that provide communities in the study area with access to local employment
- Commercial, light industrial and large scale retail uses at Heatherbrae, that service communities from the study area and surrounding region and motorists using the Pacific Highway
- Urban residential uses at Beresfield, Tarro, 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 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 Metropolitan Plan 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.

Local amenity and character in areas such as Heatherbrae are currently influenced by the presence of the Pacific Highway. Land uses along the Pacific Highway through Heatherbrae include a mix of businesses such as retail and service uses that focus on passing trade, and large-scale retail uses, with much of the built form comprising industrial sheds and buildings with large outdoor display areas.

Feedback from community consultation previously carried out by Port Stephens Council for the Raymond Terrace Town Centre and Heatherbrae Strategy (Arup, 2013) identified the need to improve the visible approaches along the highway from Hexham through to Raymond Terrace to 'take away the semi-industrial look of the area'. Existing traffic volumes using the Pacific Highway through Heatherbrae creates a perceived barrier for some people to local movements within Heatherbrae and between surrounding areas such as Raymond Terrace, including for motorists, pedestrians and cyclists. Pedestrian and cycle amenity along the Pacific Highway through Heatherbrae is also compromised by limited footpaths and pedestrian and cycle facilities.

Existing amenity in some locations in the study area is currently impacted by road and rail traffic noise from major arterial roads and transport activities. This includes residential and commercial uses in Heatherbrae that are affected by road traffic noise from the Pacific Highway. Noise from commercial and industrial areas also affects existing amenity. Some locations within the study area are removed from major roads and commercial and industrial activities and are likely to experience higher levels of amenity, for example rural and residential areas at Woodberry.

The heritage and history of the study area also contributes to the character and identity of communities. This includes places associated with Aboriginal heritage and culture such as Hexham Swamp and the Hunter River floodplain, as well as early European settlement such as Glenrowan Homestead and Tarro historic site. 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. The need to ensure Aboriginal heritage is considered in the project was also identified during consultation for the project.

4.5.2 Community cohesion

Community cohesion refers to the connections and relationships between individuals, groups and neighbourhoods. It is encouraged by the existence of local community facilities, a sense of local identity and opportunities for community participation.

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. Consultation for the project indicated that the Botanic Gardens has a strong sense of community associated with the volunteers, with this group benefiting from working for the environment, shared experiences and wellbeing outcomes.

The HRBG also offers environmental, education and landscape amenity values that are important to local communities, visitors and volunteers.

4.5.3 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 and managers indicated that customers were concerned about accessing businesses in Heatherbrae from the Pacific Highway during peak traffic periods. Business owners and managers also indicated that some customers schedule 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. The existing noise environment within the study area is described in **Section 4.5.1**, while existing local air quality is described in Air Quality Working Paper (Appendix R of the EIS).

4.5.4 Natural environment

The Hunter River and floodplain is an important element of the landscape character and amenity within the study area. The Hunter River 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. Consultation for the project also identified the importance of the natural environment to the community. This is also reflected in the Port Stephens and Newcastle Community Strategic Plans with protection of the environment identified as key focus areas for both Councils.

4.6 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. These include:

- 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.

The study area also includes a range of community facilities and services that mainly cater for communities in the study area and surrounding region, including schools, childcare facilities, sport and recreation facilities, and cultural facilities such as churches and cemeteries.

Table 4-15 lists community facilities and services located within about 400 metres of the project. The proximity of these facilities to the project means that there is greater potential for these to experience direct or indirect impacts due to the siting of project infrastructure, construction activities or operation.

Table 4-15 Social infrastructure within 400 metres of the project

Facility (ID / name)		Location	Description	Approximate distance from the construction footprint
Sport, recreation and leisure				
S01	Hunter Valley Equestrian Centre	Black Hill Road, Black Hill	The Hunter Valley Equestrian Centre provides agistment, training services, and dressage coaching. It includes a full-size indoor arena, outdoor arena, jumping area and riding tracks. The centre also offers overnight visitor accommodation for riders.	Property abuts the construction footprint Main facilities are about 300 metres from the construction footprint

Facility (ID / name)		Location	Description	Approximate distance from the construction footprint
S02	Hunter Valley Traditional Archers	Black Hill	The archery club is located on private property at Black Hill. Club facilities include on-site storage shed, canteen and amenities. Access to the site is currently provided via a dirt track accessed from the M1 Motorway. The club has operated on the site under an agreement with the landowner since 1995. In 2016, the club had about 100 members. The archery club holds meets fortnightly on Sunday, which attract about 50 people. The club also holds major events on the June long-weekend, which attracts over 150 participants and visitors and the October long-weekend, which attracts over 100 participants and visitors. The larger events usually involve camping on-site.	300 metres
S03	Pasadena Crescent Reserve Soccer Fields	Pasadena Crescent, Beresfield	Provides formal soccer fields for local communities, with amenities such as canteen, dressing rooms and floodlights. The reserve is home to the Beresfield United Senior Soccer Club. The site has been identified in the draft Strategic Sports Plan to be retained for its current use in the short term, with preference in the longer-term for redevelopment as recreation parkland (City of Newcastle, 2020).	Within construction footprint
S14	Fiona John Park	Beverley Close, Tarro	Informal recreation area for surrounding communities.	190 metres
S22	Tarro Recreation Area	Anderson Drive, Tarro	Provides formal and informal sport and recreation facilities, including playground, bike paths, dog off-leash area, sporting fields for cricket, soccer and touch football, netball courts and associated amenities. The park is home to the Beresfield Football Club, Tarro Cricket Club and the Beresfield Touch Association.	140 metres
S25	HRBG	Pacific Highway, Heatherbrae	The HRBG was established in 1985 and covers an area of about 140 hectares. The gardens are managed by a non-profit company of volunteers. The gardens are open between 9.00am and 4.00pm seven days per week and include an outdoor café, gift shop and reference library. The gardens also cater for school excursions, children's discovery days, weddings and other events and functions (Hunter Regions Botanic Gardens, undated).	Within construction footprint
Education				
S21	Tarro Public School	Eastern Avenue, Tarro	Semi-rural public-school offering classes for local students in Kindergarten to Year 6. In 2019, there were 164 students enrolled in the school with 16 staff members (**https://www.myschool.edu.au/school/42032**).	Property abuts the construction footprint

Facility (ID / name)		Location	Description	Approximate distance from the construction footprint
S17/ S18	Our Lady of Lourdes Primary School / Aspect Hunter School	Anderson Drive, Tarro	Private school offering primary education (Kindergarten to Year 6) for students from Tarro, Woodberry, Beresfield and Thornton. The school had 221 students with 32 staff members in 2019. (**https://www.myschool.edu.au/school/43301**). Our Lady of Lourdes Primary School is also a satellite campus for the Aspect Hunter School, which provides education for students on the autism spectrum. About eight students from the Aspect Hunter School attend classes this campus.	220 metres
Cultural facilities				
S16	Tarro Uniting Church of Australia	Northern Avenue, Tarro	The church holds services at 8.30am (from September to April) and 9am (from May to August).	330 metres
S15	Tarro General Cemetery	Quarter Sessions Road, Tarro	The cemetery is located at Quarter Sessions Road at Tarro. The cemetery is now closed, but includes burials dating back from the mid nineteenth century. The cemetery includes seating, allowing passive recreation opportunities.	130 metres
Other facilities				
S20	Tarro Community Hall	Northern Avenue, Tarro	The community hall is managed by the City of Newcastle and is available for booking by the public.	190 metres
S19	Tarro Fire Station	Eastern Avenue, Tarro	The fire station is managed by retained (on-call) firefighters. Firefighters are not rostered on duty at the station but are employed to respond to emergency incidents when notified.	215 metres

A range of social infrastructure is also located within about one kilometre of the project that has potential to experience changes during construction and operation due to access changes. These include:

- Sport and recreation facilities such as:
  - Beresfield Bowling Club at Anderson Drive at Tarro, which offers competition and social bowling and includes a gym, restaurant, bar and function facilities (S09)
  - Beresfield Golf Course at Anderson Drive at Tarro, which is an 11-hole golf course. The course is home of the Viney Creek Golf Club (S04)
  - Tomago Bowling and Sporting Club at Tomago Road at Tomago, which offers competition and social bowling and is a focus for a range of community activities (S24).
- Education facilities, including:
  - Beresfield Public School at Anderson Drive, which offers primary education (kindergarten to Year 6) for local students and students with disabilities from the wider area (S10)
  - Hunter River High School at Elkin Avenue, Heatherbrae, which provides education for Year 7 to Year 12 for students from Tomago, Heatherbrae, Williamtown, Tanilba Bay, Swan Bay, Seaham, East Seaham, Balickera and Glen Oak (S29)

  - Community Kids Early Education Centre at Archibald Place, Heatherbrae, which provides day care and pre-school services for children aged six weeks to five years between 7.30am and 6.00pm weekdays (S37).

- Cultural facilities, including:
  - Newcastle Memorial Park at Anderson Drive, Beresfield, which comprises a cemetery and two chapels (S12)
  - New Life Church Raymond Terrace at Heather Street, Heatherbrae, which holds regular services on Sunday mornings (S38).

Social infrastructure within one kilometre of the project are shown on **Figure 4-7**. A full list of social infrastructure within one kilometre is provided in **Appendix E**.

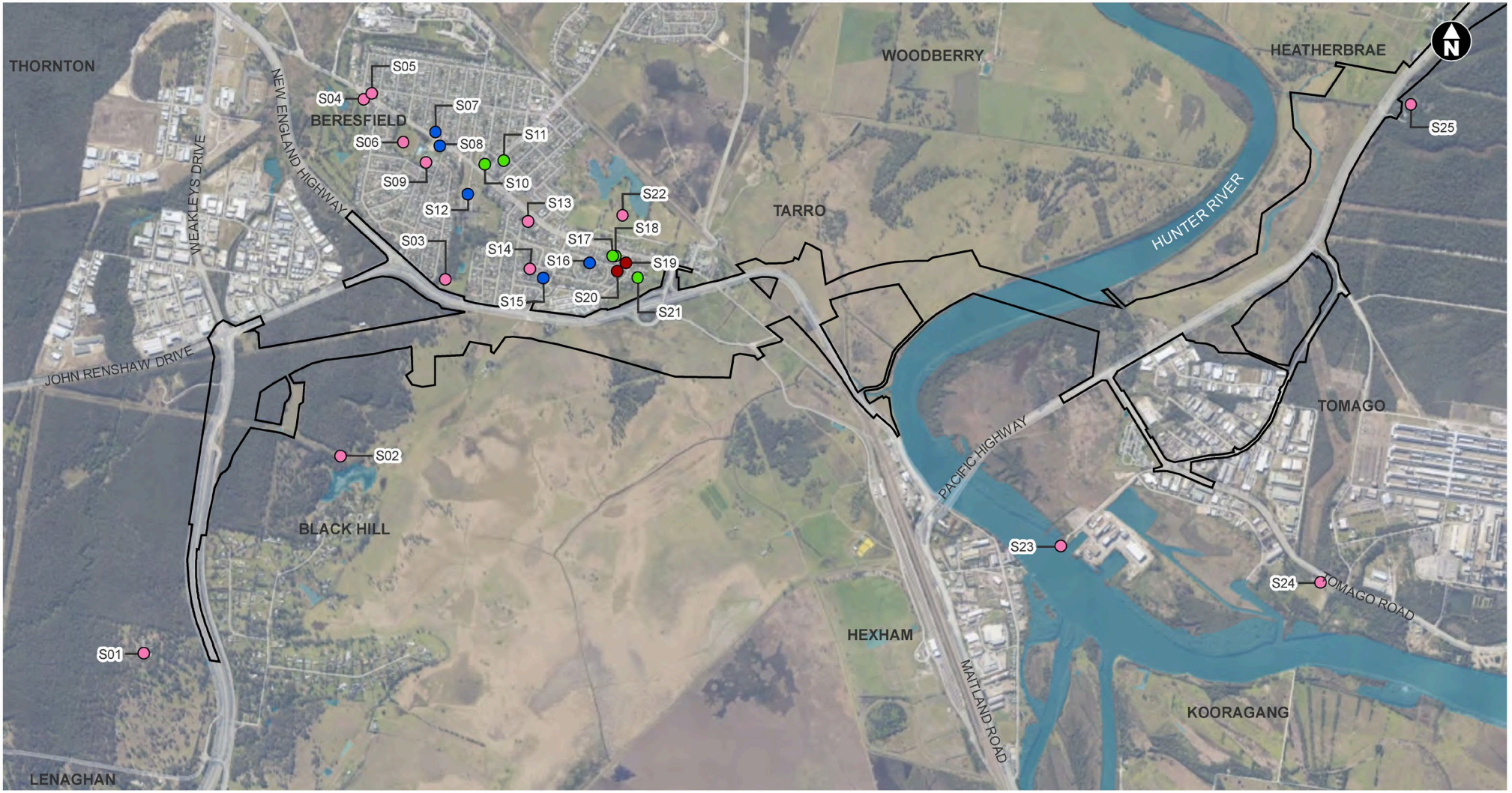

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Figure 4-7 Social infrastructure within one kilometre of the project (map 1 of 2)

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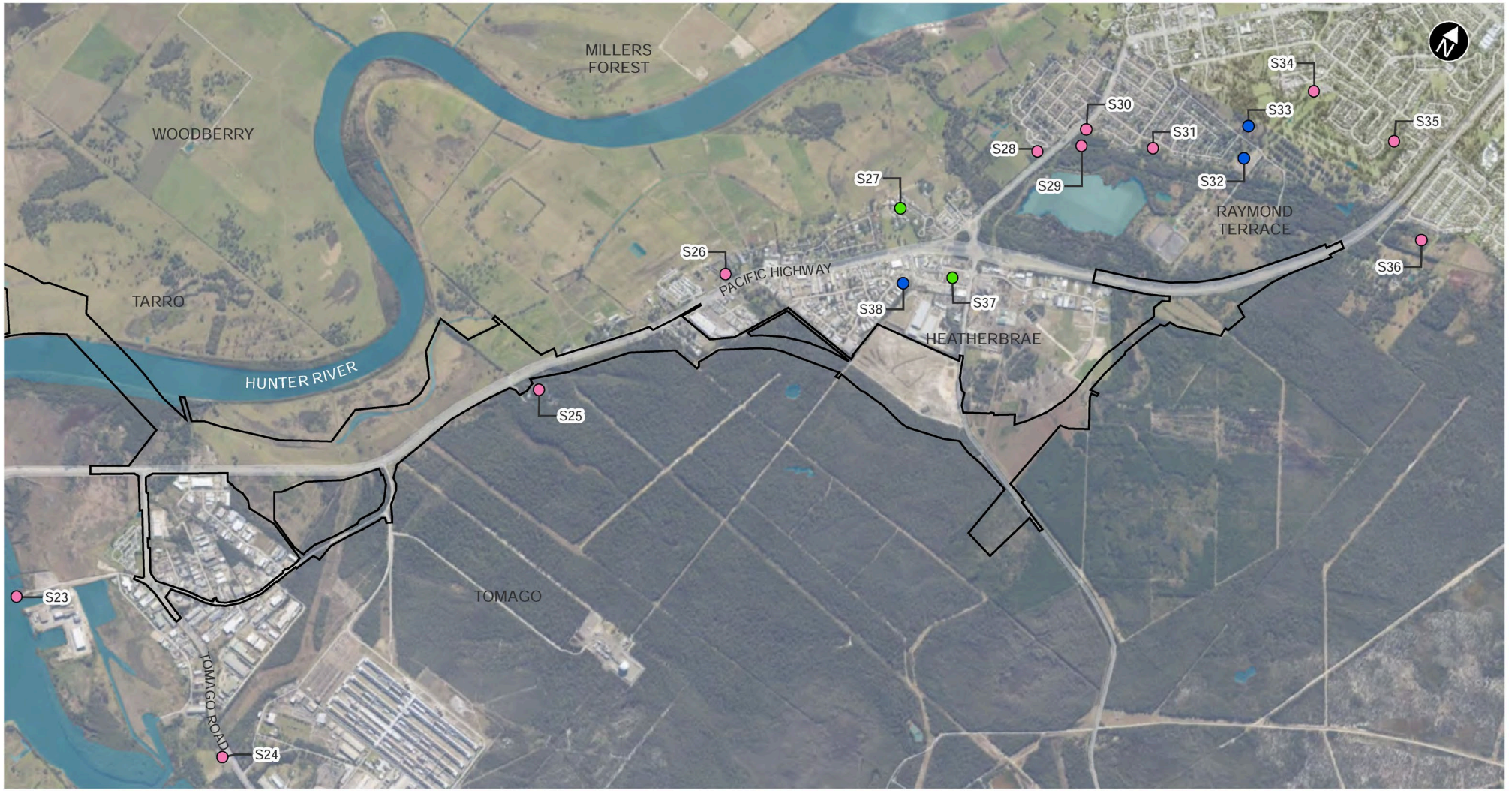

Figure 4-7 Social infrastructure within one kilometre of the project (map 2 of 2)

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4.7 Access and connectivity

4.7.1 Transport infrastructure and facilities

The study area is serviced by a range of transport services and facilities, including major roads, public transport and active transport. The following provides a summary of key transport infrastructure and facilities in the study area. Further detailed information is also provided in the Traffic and Transport Working Paper (Appendix G of the EIS).

Roads

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 NLTN is a defined national network of important road and rail infrastructure links and their intermodal connections. The corridor provides key connections to employment areas in Tomago, Newcastle Airport and the Williamtown RAAF Base.

The New England Highway / Maitland Road corridor is a key east-west link of the NLTN, which provides access to the City of Newcastle LGA and the Port of Newcastle to the east and the Hunter Valley to the west.

Other key roads servicing the study area include:

- The Hunter Expressway, which links the M1 Pacific Motorway at Seahampton and the New England Highway west of Branxton and provides an alternative east-west connection between Newcastle and the Lower Hunter Region. It forms part of the National Land Transport Network and is a key freight route to the Upper Hunter and New England regions
- John Renshaw Drive, which is an east-west corridor linking the Hunter Expressway and the towns of Kurri Kurri and Cessnock with the M1 Pacific Motorway and the New England Highway
- Weakleys Drive, which provides a north-south connection between the M1 Pacific Motorway and the New England Highway and serves the adjoining light industrial land uses
- Old Punt Road and Tomago Road, provide access to the Pacific Highway for freight and employment vehicle movements from the Tomago industrial area.

Rail network

The rail network in the study area consists of the Main North Rail Line, which provides access for freight and passenger services.

The Main North Rail Line supports the haulage of coal for export between mines in the Hunter and the Port of Newcastle (Hunter Valley Coal Chain). The track is maintained by the Australian Rail Track Corporation (ARTC), with services provided by four main haulage providers – Pacific National, Aurizon, One Rail and Southern Shorthaul Railroad. Train movements are scheduled by the Hunter Valley Coal Chain Coordinator. A train support facility for Aurizon is located at Hexham, west of the Main North Rail Line. The facility consists of seven tracks with a total length of 10.5 kilometres and allows operational management of Aurizon coal trains, maintenance inspections, and servicing.

Regional passenger services in the study area are provided on the Hunter Line, which is operated by NSW TrainLink. The Hunter Line provides services between the Newcastle Interchange with Maitland, Scone and Dungog. Access to these services within the study area is provided by stations at Thornton, Beresfield, Tarro and Hexham. The study area is also serviced by long distance passenger services operated by NSW TrainLink, connecting Sydney to Moree, Armidale, Grafton, Casino and Brisbane. Access to these services is provided by stations at Broadmeadow and Maitland.

Bus services

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. Bus services within the study area mainly use local roads, apart from:

- Route 140, which connects Newcastle Interchange to Raymond Terrace, via Maitland Road and the Pacific Highway
- Route 145, which connects Newcastle Airport, Raymond Terrace, Woodberry, Beresfield and Stockland Green Hills shopping centre, using Anderson Drive and the New England Highway, west of Weakleys Drive
- Route 181, which connects Woodberry to Rutherford via Beresfield and Tarro, using Anderson Drive, and the New England Highway, west of Weakleys Drive
- Route 160, which connects Cessnock to Newcastle via John Renshaw Drive, New England Highway and Maitland Road.

Route 140 also uses Old Punt Road and Tomago Road at Tomago as does Route 137, which connects Lemon Tree Passage to Raymond Terrace, via Medowie. Roads within the study area are also used for school bus routes, including Lenaghans Drive, John Renshaw Drive, New England Highway, Anderson Drive, Old Punt Road and Pacific Highway.

Pedestrian and cycle network

There are limited pedestrian facilities in the study area, particularly along the NLTN and State roads due to the relatively low demand. Various footpaths and associated facilities are within the key residential catchment areas (for example, 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 (TfNSW, 2020) 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.

Airports

Newcastle Airport is located in Williamtown 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 Williamtown RAAF Base, which is located north of the runway and west of Medowie Road.

4.7.2 Journey to work

Table 4-16 shows information on travel to work for people aged 15 year or over in the study area at the 2016 Census. 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 SA2, reflecting the location of train stations at Thornton, Beresfield, Tarro and Hexham.

About 1.1 per cent of people aged 15 years or older 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.

Table 4-16 Travel to work, 2016

Method of travel	Study area	City of Newcastle LGA	Port Stephens Council LGA	NSW
One method:				
Train	0.4%	0.6%	0.1%	7.5%
Bus	0.8%	2.3%	0.8%	4.0%
Ferry	0.0%	0.1%	0.1%	0.2%
Tram (includes light rail)	0.0%	0.0%	0.0%	0.1%
Taxi	0.0%	0.2%	0.1%	0.2%
Car, as driver	73.4%	67.6%	70.6%	57.8%
Car, as passenger	5.5%	4.7%	4.5%	4.3%
Truck	1.2%	0.5%	1.2%	1.0%
Motorbike/scooter	0.8%	0.8%	0.6%	0.6%
Bicycle	0.3%	1.8%	0.4%	0.7%
Other	0.4%	0.4%	0.5%	0.6%
Walked only	2.0%	3.9%	2.5%	3.9%
Total one method	85.1%	83.0%	81.3%	80.7%
Travel by one or more methods				
Car as driver or passenger (all or part of journey)	79.2%	72.7%	75.3%	63.7%
Train (all or part of journey)	0.8%	1.0%	0.3%	11.2%
Bus (all or part of journey)	1.1%	2.8%	1.0%	6.2%
Worked at home	2.2%	3.5%	4.8%	4.8%
Did not go to work	10.5%	11.1%	11.6%	8.7%
Total	8,449	73,034	27,602	3,380,332

Note, total does not equal 100 per cent due to calculation of travel by one or more methods. Source: Based on ABS, 2016

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. Within the wider region, residents from Port Stephens Council had an average commute of 25 kilometres, while City of Newcastle residents had shorter commutes, which is likely to reflect the urban nature of the LGA (ABS, 2018).

5. Summary of issues raised during consultation

This assessment has been informed by the consultation carried out for the project. Individuals and communities may experience the effects of the project as positive, neutral or negative, depending on individual circumstances and attitudes in relation to changes from the project. Information from community and stakeholder consultation for the project identified a range of views relating to the socio-economic effects of the construction of the project and operation, including both positive and negative impacts.

Table 5-1 summarises the key issues raised by communities and stakeholders during consultation for the project that are relevant to the socio-economic assessment. Further information on issues raised in the business survey is provided in **Section 4.4.2**. More detailed information on the consultation process, including stakeholders consulted and key issues raised, is provided in Chapter 6 of the EIS.

Table 5-1 Summary of key issues raised during consultation relevant to the socio-economic assessment

Issue category		Timing of issue raised	Issues raised
Business impacts	General business impacts	2015	• Concern regarding the loss of trade and impact on businesses being bypassed, particularly at Heatherbrae
		2015	• Loss of trade and impact on businesses being bypassed
		2016	• Loss of trade and impact on Heatherbrae businesses
		2016	• Consider and address informal access arrangements for businesses on the Pacific Highway
	Management measures	2016	• Consider using audio tactile line markings for road safety • Consider directional signage for Newcastle Airport • Consider directional signage for businesses in Heatherbrae, similar to tourist signage
		2016	• Consultation with the community and business owners about the project should continue during construction and operation
		2016	• Access for cattle either side of the project – consideration of allowing access for cattle through tunnel or structure where water also drains
Community values	Amenity impacts	2015	• Concern about noise impacts • Existing noise barriers do not address issues • Concern about compression braking
		2016	• Concern about noise impacts resulting from the proposed floodplain bridge (viaduct)
		2015	• Concern about the visual impact of the project.
		2015	• Concern about light pollution from the road
		2016	• Concerned about the location of the road in relation to home
	Environmental features	2016	• Impact on the Tomago Sandbeds Catchment Area.
		2015	• Need to ensure Aboriginal heritage is considered
		2015	• Concerns about potential impacts on wildlife caused by the project and request for fauna sensitive design • Need to consider impact on natural environment, including koala

Issue category		Timing of issue raised	Issues raised
		2016	• Consider impact on wildlife habitat in HRBG bushland • Biodiversity offset should consider the local strategic priorities surrounding the corridor and engagement should be carried out with key stakeholders.
Social infrastructure	HRBG	2016	• Concern about access and visibility of the Botanic Gardens. Concern over the lack of visibility for motorists accessing the gardens • Consider location of bus stops and pedestrian links for better access to the gardens – bus stops used by staff and volunteers, elderly people, disabled and people with special needs • Loss of business exposure and impact on the Botanic Gardens • The Botanic Gardens provides a useful bank for rare and endangered flora and unique Hunter Valley flora is on display for locals and visitors • Tourist opportunity for the area and passive environmental education – students of all ages access the site as resource for education • Gardens are staffed and supported in the main by volunteers, including disabled folk. Volunteers benefit from their time working on site and sharing their experience with others – psychological plus especially for retired people • Botanic Gardens depends to a large extent on passing trade with visitors dropping in as they travel along the Pacific Highway – potential for negative impact on the future viability of the Botanic Gardens
		2019	• Access needs to be clear and straightforward for access to the Botanic Gardens • It is preferential for the access to be as direct as possible • Clear signage strategy was required to direct patrons to the Botanic Gardens • Existing bus stops fronting the Botanic Gardens. Design options need to give due consideration to how public transport patrons can readily access the Botanic Gardens
	Hunter Valley Traditional Archers	2016	• Occupy and conduct archery events on private land at Black Hill – have used land since 1995 • Archery Club members main concern is to maintain access to their site – currently access to the site is down the power easement
Access and connectivity	Cycling	2015	• Consider planning cycleway networks in the area • Concern regarding safety for cyclists
		2016	• Consider cycling facilities in the design, in line with existing and future cycleways
		2015	• Opportunity to build cycleways to integrate into future cycling facilities
	Property access	2016	• Impact the project would have on access to private property
	Access to Heatherbrae	2015	• Request review of access to Heatherbrae • Lack of ramp for northbound traffic south of Heatherbrae and affect it may have on businesses • No direct access to Heatherbrae

Issue category		Timing of issue raised	Issues raised
		2016	• Southbound access to the motorway from Heatherbrae • Need to ensure access is maintained to and from the M1 Pacific Motorway
	Construction traffic impacts	2015	• Project should minimise impact on existing road network during construction
		2016	• Concern about traffic delays during construction

6. Assessment of potential impacts

6.1 Construction impacts

6.1.1 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 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, if any.

Population and demography impacts related to property acquisition are described in **Section 6.2.1**.

6.1.2 Employment and training

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. The project would also support indirect employment opportunities in local, regional and national businesses and industries that support the construction of the project, for example businesses that provide goods and services to support the needs of the construction workforce, suppliers of construction materials and equipment, and transport operators. It is expected that on average, the project would 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 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. As indicated in **Section 4.3.1**, the study area had levels of unemployment above the NSW average in 2016. The proportion of people in the study area, City of Newcastle LGA and Port Stephens Council LGA employed in construction was above the NSW average. At the time of the 2016 Census, there were 785 people in the study area employed in construction, of which 51 people (6.5 per cent) worked less than 15 hours per week. In the City of Newcastle and Port Stephens Council LGAs, a total of 8,275 people were employed in construction, of which 646 people (7.8 per cent) worked less than 15 hours per week. This suggests that there is likely to be some capacity in the study area and wider LGAs to respond to opportunities on the project.

The project's construction phase 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 the number of women in trade-related work, consistent with the NSW Women's Strategy 2018-2022, Advancing economic and social equality in NSW (NSW Government, 2018).

As indicated in **Section 4.2.3**, the study area had more than double the proportion of people who reported as being Aboriginal and/or Torres Strait Islander at the 2016 Census compared to NSW. The implementation of the NSW Government's Aboriginal Participation in Construction policy would provide employment and training opportunities for Aboriginal people in the Hunter Region. Transport is currently preparing an Aboriginal Participation Plan in accordance with the policy, including an assessment of current Aboriginal businesses in the region and identification of gaps in training and employment, to meet the targeted participation requirements for the project.

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 on construction projects.

6.1.3 Business and industry

Impacts on businesses in the study area

During the four year construction phase, 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
- 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 (for example power and water 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. This includes local shops and food outlets near to construction work such as service stations and cafes at Beresfield, Tomago, Heatherbrae and Raymond Terrace. Businesses supplying goods and services to construction such as earth moving contractors, transport operators and equipment hire may also experience benefits from increased construction activities locally. 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 local businesses during the construction phase, including for staff, customers and service and delivery vehicles was identified as a potential issue during the business survey. In particular, feedback from the business survey included concerns from some businesses about potential negative impacts of traffic delays and disruptions during construction and potential for customers to be deterred from using local businesses.

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 (for example, Pacific Motorway at Black Hill and the New England Highway at Tarro). Given the importance of the key routes in the study area such as the New England Highway and Pacific Highway, traffic flow would also be maintained during construction along with existing speed limits, where possible. While short-term delays and disruptions may occur for some business customers due to roadworks, possibly inconveniencing some customers, these are generally expected to be manageable and are not expected to impact on customer levels for businesses in the study area. Further

discussion about potential construction impacts on access and connectivity, including for oversize overmass (OSOM) vehicles is provided in **Section 6.1.6**.

The project would directly impact on the access road to the Hexham Train Support Facility at Tarro, requiring permanent realignment of the access road. The new access road would be constructed early in the construction phase to ensure continued access is provided to the facility during construction of the Tarro interchange and main alignment.

Businesses located near the project may experience temporary impacts on amenity due to noise and dust from construction activities. Some construction activities are likely to generate noise levels that would be clearly audible for businesses in Beresfield that are near to construction work. Some businesses in Tomago and Heatherbrae may experience noise impacts from some construction activities that may be intrusive, with the highest impacts mainly associated with activities such as pre-construction and site establishment, clearing, grubbing and demolition work, utility work, and piling for bridges and bridge approaches.

The effect of this impact would depend on such things as the nature and type of business, but could impact on customer interaction in outdoor areas (for example, outdoor vehicle sales areas and dining areas) or a decline in general business ambience. Cafes and restaurants with outdoor dining areas are mainly located in Heatherbrae 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, which is located about 100 metres from the construction work. Noise and dust from construction activities may distract from the enjoyment of the café for some visitors (further discussion about potential impacts on the HRBG is in **Section 6.1.5**). Dust from construction activities was identified through the business survey as a concern for businesses such as caravan dealerships at Heatherbrae. This may result in an increase in the frequency that vehicles would need to be cleaned.

The sensitivity of businesses to changes from the construction of the project, such as to customer access or business amenity, is likely to have increased since the survey was conducted in September 2016 given the impact of the 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.

Ongoing consultation with business owners and managers during construction would also be carried out to assist in managing potential impacts. This was identified as important by business owners during consultation for the project.

Further information about potential business impacts from traffic changes and construction noise and dust is provided in the Traffic and Transport Working Paper, the Noise and Vibration Working Paper, and the Air Quality Working Paper (Appendix G, Appendix H and Appendix R of the EIS respectively).

Impacts on fishing and aquaculture

As discussed in **Section 4.4.4**, commercial and recreational fishing is carried out within the Hunter River. 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. Construction activities for the project are also not expected to result in indirect impacts on the areas leased for oyster aquaculture, with water quality impacts expected to be negligible two kilometres downstream of the project, which is the location of the Hunter Estuary Wetlands Ramsar. Further discussion about potential impacts on water quality within the Hunter River is provided in the Surface Water and Groundwater Quality Working Paper (Appendix K of the EIS).

The portion of viaduct (B05) that crosses the Hunter River would be partly constructed from barges within the river, with additional barges required for the supply of materials and removal of spoil. Temporary structures would also be installed in the Hunter River to support construction and up to two temporary wharves, one on both sides of the river crossing, would be constructed to service the barges.

Access for vessels, including commercial and recreational fishing boats, using the Hunter River would generally be maintained during the construction phase, although temporary, short-term closures would be required for some work. Within the construction footprint, access would be limited to the main channel, with access to other parts of the river such as the shoreline restricted for commercial and recreational vessels. Navigational restrictions, for example limits on speeds, would also be required near construction work for safety, resulting in short-term delays and disruptions for river users. As indicated in **Section 4.4.4**, trawling for prawns occurs close to the shore (for example, within about 10 metres of the shoreline). Within the construction footprint, trawling along the shoreline would be prohibited requiring changes to trawling practices during construction, such as nets being pulled in.

During consultation with the Commercial Fisherman's Co-operative, the possibility of timing construction of the viaduct to avoid impact on prawn trawling activities was raised by the co-operative for consideration by Transport. Construction work within the Hunter River for the viaduct are expected to take about 12 to 18 months. 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 river would occur during at least one trawling season.

The need to ensure that waste from construction activities does not enter the river and create snag hazards was also identified. Waste management and handling measures, as described in the Waste Working Paper (Appendix S of the EIS), would be implemented to minimise the risk of this occurring. Following construction, all temporary work in the riverbed (for example temporary piles and wharves) would be removed.

Impacts of the project on maritime access are discussed in **Section 6.1.6**.

Impacts on tourism

During construction, potential impacts on regional and local tourism would mainly be associated with traffic changes resulting in potential delays and disruptions to motorists using the Pacific Highway and other major roads in the study area and amenity impacts for tourist accommodation near to proposed work.

As indicated in **Section 6.1.2**, it is expected that construction workers over the four year construction phase would generally be sourced from across the Hunter and Greater Sydney regions and it is assumed that most workers would commute from their home on a daily basis. However, there is potential 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, such as motels and caravan parks. As described in **Section 4.4.5**, there was a total of 44 hotels, motels and serviced apartments with 15 rooms or more in the City of Newcastle and Port Stephens Council LGAs in 2016, with an average room occupancy rate ranging from 68.7 per cent in the City of Newcastle to about 50 per cent in the Port Stephens Council LGA (Destination NSW, 2016a; Destination NSW, 2016b). There were a further 32 establishments in the Maitland City and Cessnock City LGAs, with an average room occupancy rate ranging from 55.6 per cent to 58.2 per cent There are also a range of accommodation providers in the study area including motels and caravan parks. 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.

The study area is a key tourism service centre for travelling motorists, with feedback from the business survey indicating that many businesses experience increased trade during peak holiday periods such as Christmas, Easter and long weekends associated with motorists travelling along the Pacific Highway. Concerns were raised that some motorists would try to avoid the area due to the roadworks. While there is potential that some travelling motorists may choose alternate routes to avoid construction activities, it is likely that most motorists would continue to use the Pacific Highway as the main route serving coastal towns in Central and Northern NSW. Consultation for the project also identified the need to consider peak holiday periods in the scheduling of construction activities. Where possible, the timing of major

construction activities that have potential to cause increased traffic impacts (for example, movement of materials and equipment by OSOM vehicles) would consider the timing of major holiday periods to minimise potential impacts on travelling motorists. Potential impacts on tourism related businesses such as cafes, restaurants and take-away food outlets have been described previously.

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, although access changes would be required during construction of the new access road and bridge (B09) on the main alignment.

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.

6.1.4 Community values

During construction, potential impacts on community values may be associated with:

- Temporary changes in local amenity near to construction work and haulage routes
- Changes in visual amenity due to the presence of construction work
- Temporary changes in local access and perceptions about road safety
- Disturbance to natural environment and landscape values, particularly for work near the Hunter River and the floodplain, or areas of native vegetation.

Local amenity and character

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.

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

- Residential communities at Beresfield and Tarro, from the construction associated with the Tarro interchange, work on the New England Highway and the main alignment
- Residential uses including visitor accommodation, at Heatherbrae due to construction of the main alignment, utility work and construction activities associated with the ancillary site AS14
- Commercial uses at Heatherbrae due to the construction of the main alignment and work associated with and within ancillary sites AS14, AS16, AS20 and AS21.

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. Further discussion about construction noise and dust impacts is provided in the Noise and Vibration Working Paper (Appendix H of the EIS) and the Air Quality Working Paper (Appendix R of the EIS).

As indicated in **Section 4.5**, the Hunter River provides local communities with a range of commercial and informal recreation opportunities such as boating, fishing and kayaking. Access would be maintained to the Hunter River during the construction phase, helping to minimise potential impacts on commercial and recreational users. Navigational restrictions, for example limits on speeds, would be required near to construction work for safety. While this may impact on some commercial fishing

operations in areas near the construction work (refer to **Section 6.1.3**), 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 about potential impacts on non-Aboriginal and Aboriginal values is provided in Non-Aboriginal Heritage Working Paper (Appendix Q of the EIS) and Aboriginal Cultural Heritage Assessment Report (Appendix L of the EIS).

Community cohesion

During construction, 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 would likely be temporary and 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

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 minimise potential impacts on regional road networks. A list of activities likely to require evening or night-time work is provided in Chapter 5 of the EIS, but would include activities such as delivery of oversized plant and materials; traffic switches; short-term traffic diversions along existing roads such as the M1 Pacific Motorway, New England Highway, John Renshaw Drive, Masonite Road, and the Pacific Highway; bridge construction work over the Main North Rail Line; and utility modifications. Noise and light spill from these work have potential to change night-time amenity at residential properties closest to these work.

Construction activities have the 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. The suburbs with the largest number of residents at potential at risk of sleep disturbance are Beresfield and Tarro, which generally reflects the higher numbers of residential uses near to the work in these locations. There is also potential for some night-time construction activities to impact on sleeping patterns for some residents at Black Hill, Hexham, Tomago and Heatherbrae.

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 construction noise, light spill and dust impacts is provided in the Noise and Vibration Working Paper, Urban Design, Landscape Character and Visual Amenity Working Paper and the Air Quality Working Paper (Appendix H, Appendix O and Appendix R of the EIS respectively).

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 in **Section 6.1.6**.

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. As indicated in **Section 4.5**, the protection and conservation of flora and fauna is important to communities in the study area. 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.

6.1.5 Social infrastructure

As indicated in **Section 4.6**, the study area includes a range of social infrastructure such as schools, childcare facilities, sport and recreation facilities, and cultural facilities such as churches and cemeteries.

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 of some community services and facilities
- 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.

As indicated in **Section 4.6**, there are a range of social infrastructure located within about one kilometre of the project that have potential to experience temporary impacts due to access changes. Specifically, 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 summarised in **Table 6-1** (refer **Figure 4-7** for the location of these facilities), while further discussion about impacts of construction on local amenity and access and connectivity is provided in **Section 6.1.4** and **Section 6.1.6**. Detailed assessment of noise, dust and construction traffic impacts is also provided in the Traffic and Transport Working Paper, the Noise and Vibration Working Paper, and the Air Quality Working Paper (Appendix G, Appendix H and Appendix R of the EIS respectively).

Table 6-1 Summary of impacts on social infrastructure within 400 metres of the project

Facility (ID / name)		Summary of construction impacts
S01	Hunter Valley Equestrian Centre	During construction, potential impacts on the Hunter Valley Equestrian Centre may occur from the construction of the Black Hill interchange and connection to the M1 Pacific Motorway. 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,

Facility (ID / name)		Summary of construction impacts
		arenas, stables, accommodation, etc) are located at least 300 metres 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	As indicated in **Section 4.6**, the Hunter Valley Traditional Archers club is located on private property and operates under an agreement with the landowner. The private property is affected by partial acquisition by the project, although the club is located within an area of the property that is not directly impacted by the project. During construction, potential impacts on the Archers club would occur from the construction of the Black Hill interchange and construction activities at the ancillary site AS2. 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. Further discussion about future access to the club site facilities is in **Section 6.2.5**.
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. During construction, 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 at Beverley Close at Tarro and provides information recreation opportunities. The park is located about 190 metres 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 located at Quarter Sessions Road at Tarro. The cemetery is now closed but provides passive recreation opportunities. The cemetery is located about 130 metres 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	The church is located at Northern Road at Tarro about 330 metres from construction activities for the Tarro interchange. 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.

Facility (ID / name)		Summary of construction impacts
S17/ S18	Our Lady of Lourdes Primary School / Aspect Hunter School	Our Lady of Lourdes Primary School is located at Anderson Drive near to construction work for the Tarro interchange. Anderson Drive is also identified as a construction access route for the project. As indicated in **Section 4.6**, the primary school also has classes for the Aspect Hunter School. During construction, students, teachers and visitors to the school may experience temporary reductions in 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 given that outdoor recreation areas are about 220 metres from the closest construction activities. 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, potential impacts on the schools are expected to be manageable with the implementation of standard mitigation measures and the significance of potential impacts is expected to be low.
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. Further discussion about potential impacts on emergency services during construction is in **Section 6.1.6** The significance of potential impacts on the fire station are expected to be moderate-low.
S20	Tarro Community Hall	The hall is located about 190 metres from construction activities for the Tarro interchange. The hall is available for hire by the public for events and functions. 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	Tarro Public School is located near to construction work for the Tarro interchange. 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. 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.
S22	Tarro Recreation Area	As indicated in **Section 4.6**, Tarro Recreation Area provides a range of formal and informal sport and recreation facilities and is home to a number of sporting clubs. The closest sporting fields are located about 330 metres from the construction work for Tarro interchange. As such, impacts on amenity for users of the facility, if any, are expected to be minor. 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.

Facility (ID / name)		Summary of construction impacts
S25	HRBG	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 HRBG 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 botanic gardens to maintain road safety for users. Construction of the bridge over the access road would require short-term closure of the botanic gardens access road to allow lifting of girders, however these works would be managed in consultation with HRBG. 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 the 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. Management measures for noise, dust and traffic would be implemented to minimise potential disruptions for staff, volunteers and visitors of the HRBG. Overall, the significance of construction impacts are expected to be moderate, with the implementation of management measures. Discussion of potential impacts on the café within the HRBG is provided in **Section 6.1.3**.

6.1.6 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, including heavy vehicles used to deliver materials and equipment, and construction worker vehicles, impacting on road users including private and commercial motorists, cyclists and public transport users
- Temporary changes to road conditions near to construction work, 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.

Motorists

Much of the project would be constructed away from existing major roads and transport networks, helping to minimise potential impacts for road users. Potential road user impacts would mainly occur where the project connects to, or crosses, existing roads, including:

- M1 Pacific Motorway at Black Hill
- John Renshaw Drive and New England Highway at Beresfield
- Anderson Drive at Tarro
- Pacific Highway, Tomago Road, and Old Punt Road at Tomago
- Pacific Highway and Masonite Road at Heatherbrae and Raymond Terrace.

Potential access impacts may also occur on roads used to provide construction access, including for the haulage of materials, equipment and supplies, and transport of the construction workforce. Roads used for construction access include those roads listed above as well as Lenaghans Drive at Black Hill, Woodlands Close and Quarter Sessions Road at Tarro, and Medowie Road at Heatherbrae. These roads provide access for local residents, workers, tourists, and freight transport activities. 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 OSOM vehicles. However, increased construction traffic and changes to road conditions such as temporary lane changes, tie ins, diversions, and reduced speed limits, have potential to increase traffic congestion resulting in temporary delays and disruptions for road users. These activities may also present road safety risks for motorists, pedestrians and cyclists.

Consultation for the project also indicated that high levels of traffic occurs during peak holiday periods such as Christmas and Easter and identified the need for traffic and access disruptions to be limited during these periods.

Public transport bus users

As indicated in **Section 4.7.1**, several roads in the study area are used for public transport bus services, including roads that would be affected by construction work. During construction, potential impacts for bus users would mainly be associated with possible short-term delays to bus services due to changed road conditions and increased congestion. Three bus stops would be directly impacted by construction activities requiring temporary relocation during construction. These include:

- The existing bus stop on the Pacific Highway, just north of the Tomago Road intersection
- The existing northbound and southbound bus stops on the Pacific Highway, near the HRBG intersection.

Temporary relocation of the bus stops may require some bus users to walk further to access bus services, particularly impacting people with mobility difficulties (for example, elderly people, or people who use a wheelchair). Concerns were raised during consultation for the project about potential impacts on bus stops that service the HRBG, with these stops used by staff, volunteers and visitors of the botanic gardens, including elderly people and people with a disability. Where possible, temporary bus stops would be located as close as practicable to the existing stops, while maintaining safety for bus users, which would help to minimise potential impacts on bus users. Consultation would be carried out with bus operators and other stakeholders in determining the location of temporary bus stops. Permanent impacts on public transport services are described in **Section 6.2.6**.

Roads within the study area affected by construction are used by school bus routes servicing primary and secondary schools in the study area and surrounding region. These include Lenaghans Drive, John Renshaw Drive, New England Highway, Anderson Drive, Old Punt Road and Pacific Highway. During construction, potential impacts on school bus routes would include delays due to temporary changes to road condition, and possible safety risks for students and changes to perceptions of safety for children, due to increased construction traffic and construction work near to bus stops used by school bus routes.

Emergency services

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 would include liaison with emergency services before any changes to the existing road network are implemented.

Consultation would be carried out with emergency services in the development of traffic management measures for the project to ensure safe and efficient movement of traffic during construction.

Pedestrians and cyclists

Construction of the project may require changes to pedestrian and cycle access near to construction work. As indicated in **Section 4.7.1**, pedestrian facilities near the project are generally limited, while cycle access mainly includes on-road access using road shoulders. Changes to cycle access, including the narrowing of road shoulders to facilitate construction at some locations, such as at John Renshaw Drive and New England Highway, may result in temporary disruptions or safety risks for users. Traffic management measures would be implemented where construction activities impact on pedestrian and cycle access to maintain safety for pedestrians and cyclists.

Freight and passenger rail

Rail possessions would be required for construction of the viaduct over the Main North Rail Line. Track possessions would be carried out during pre-defined periods of track work to minimise the impact on the rail network. As such, potential impacts of the project on users of passenger rail services and rail freight services are expected to be negligible.

Hunter River users

Access within the Hunter River navigational channel for commercial and recreational vessels would generally be maintained during the construction phase, although navigational restrictions would be required near construction work. This includes temporary, short-term closures during some construction work and access restrictions to the shoreline within the construction footprint, resulting in possible delays and disruptions for some commercial and recreational river users. As indicated in **Section 4.4.4**, boat ramps are located at Tomago and Raymond Terrace that provide access to the Hunter River for recreational users. These are outside of the construction footprint and access to these boat ramps would be maintained during the construction phase.

Private property access

Access to private properties near to construction work would be maintained during the construction phase, although temporary changes may be required for some properties at Black Hill, Tarro, Tomago and Heatherbrae. Where temporary changes are required, suitable access arrangements would be implemented in consultation with affected property owners. Further information on changes to property access are described in the Land Use and Property Working Paper (Appendix N of the EIS).

A detailed assessment of potential construction traffic impacts provided in the Traffic and Transport Working Paper (Appendix G of the EIS).

6.2 Operational impacts

6.2.1 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.

6.2.2 Employment and training

During operation, the project would improve access to key employment areas such as Beresfield, Black Hill, Tomago and the Port of Newcastle, enhancing access to employment for residents and workers in the study area, City of Newcastle LGA, Port Stephens Council LGA and wider Hunter. 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, which is identified as a strategic centre within the Hunter Region, 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.

As indicated in **Section 4.3.2** and **Section 4.7.2**, private vehicle was the predominant mode of transport used by residents and workers in the study area for their commute to work. Workers and residents in the study area also travel further to work compared to those in NSW. Improvements in travel times and travel reliability provided by the project would impact positively on these groups, helping to reduce commuting times for workers and residents in the study area 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 (that is, if alternate premises are found locally or elsewhere) and individual circumstances of employees, for example increased commuting distances and times, and ability of individual employees to travel to the new business location. Further discussion about potential employment impacts on individual businesses is provided in **Section 6.2.3**.

6.2.3 Business and industry

Directly affected businesses

The project would directly impact on three properties at Heatherbrae owned by Transport, that currently accommodate existing businesses, including a takeaway shop, caravan retailer, and a business that sells or hires shipping containers and portable buildings. In addition, partial acquisition would also be required for five businesses at Tarro, Tomago and Heatherbrae.

Table 6-2 summarises potential impacts on individual businesses that would be directly impacted by total or partial property acquisition.

Table 6-2 Impacts on directly affected businesses

Business	Location	Acquisition	Summary of impact
Sandy's Famous Seafoods	Heatherbrae	Total	Siting of the project would directly impact land accommodating this business. This would require this business to relocate to an alternate premise prior to construction. It is likely that suitable alternate premises would be available locally for the business. Relocation to a new premise would result in temporary disruptions to business operations as the business re-establishes. Transport currently own and lease this property to the business owner.

Business	Location	Acquisition	Summary of impact
Royal Wolf Shipping Containers	Heatherbrae	Total	Siting of the project would directly impact land accommodating this business. This 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	Total	Siting of the project would directly impact land accommodating this business. This would require this business to relocate 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.
Palm Valley Village	Tarro	Partial	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. Potential amenity impacts are described in **Section 6.2.4**.
Hexham Train Support Facility	Hexham	Partial	The existing 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. As indicated in **Section 6.1.3**, the new access road would be constructed early in the construction phase to ensure 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	Partial	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	Partial	Refer to discussion in **Section 6.2.5**.
Evergreen Stud Farm	Heatherbrae	Partial	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

As indicated in **Section 4.4**, the study area accommodates a range of business types such as retailing, manufacturing and services business, with these concentrated in Beresfield, Tomago and Heatherbrae. Locally, the project would improve access to the motorway network for businesses in Beresfield, Tomago and Heatherbrae. Further discussion about potential impacts on businesses in Heatherbrae and

Beresfield is provided in the following section, while potential impacts on the HRBG are discussed in **Section 6.2.4**.

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.

Bypass of Heatherbrae and Beresfield

The project would involve diverting traffic from the existing New England Highway and Pacific Highway along the new M1 Pacific Motorway, bypassing Beresfield and Heatherbrae. Interchanges 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 the existing routes. Traffic modelling carried out for the project indicates that the project would reduce traffic on John Renshaw Drive by about 13 per cent in the morning peak period and 19 per cent in the evening peak period. Traffic volumes using the Pacific Highway at Heatherbrae (west of Masonite Road) are expected to reduce by about 52 per cent during the morning and evening peak periods.

A review of literature carried out for Transport in 2012 (Parolin, 2012) identified three main factors that influence the degree of impact on local businesses from a bypass. These include:

- Town size, with smaller towns (that is those with populations less than 2500 people) generally more at risk of adverse economic impacts from a bypass
- Existing business environment, including the nature of businesses and the level of dependence on 'highway generated trade'
- Distance from a larger centre.

The literature review also identified that other factors such as the state of the national and regional economy, and restructuring of industry and services, may have more of an impact on the economy of the town than the introduction of a bypass (Parolin, 2012).

The Beresfield-Hexham SA2, which includes the suburbs of Beresfield, Tarro, Woodberry, Hexham and Lenaghan, had an estimated resident population of about 8500 people in 2019. As indicated in **Section 4.4.2**, the majority of 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 due to specific goods and services being offered. 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 exception to this is the service station and associated eateries, which are likely to have a higher reliance on passing motorists for their customers, although this also attracts residents and workers from the surrounding suburbs.

The Raymond Terrace SA2, which includes Heatherbrae and Tomago, had an estimated resident population of nearly 14,000 people in 2019. The business environment in Heatherbrae is more mixed. It includes a large proportion of retail and service related uses that have a high reliance on passing motorists (for example, service stations, eateries and accommodation providers), reflecting its role as a centre that has traditionally catered for passing motorists. At the same time, Heatherbrae includes concentrations of industrial and manufacturing businesses and specialty retail and 'bulky goods' retail businesses that cater for the needs of communities from surrounding suburbs. As discussed in **Section 4.4**, the business survey and car park survey indicated that businesses in Heatherbrae service a large proportion of customers from surrounding suburbs, and particularly Raymond Terrace, and from across the wider Hunter.

A reduction in traffic using the Pacific Highway through Heatherbrae has potential to impact on those businesses that have a high reliance on passing motorists for their customer base. 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 (that is, the need for motorists to exit the M1 Pacific Motorway to access businesses). Most of the businesses surveyed indicated that a

proportion of their customers came from passing motorists. Seven businesses estimated that between 10 to 25 per cent of customers were passing motorists, while eight businesses suggested that passing motorists comprised between 50 to 75 per cent of their customers. One business surveyed estimated that more than 75 per cent of their customers were passing trade.

Passing trade was particularly identified as important to businesses such as service stations and fast-food outlets, as well as some retail and accommodation businesses. It was estimated by business owners at service stations and fast-food outlets that passing trade accounted for between 50 per cent to 75 per cent of their customers. Passing trade was less important for businesses such as hardware, homewares, pet supplies and recreational goods, with business owners estimating that passing trade accounted for about 10 per cent to 35 per cent of their customers. Other businesses such as accommodation uses and vehicle retailers for cars, caravans and camper trailers, indicated that while customers would generally choose to visit these businesses over similar businesses in other locations, a proportion of customers also comprised passing trade, with estimates differing considerably between similar business types.

Businesses surveyed that felt most at risk from a reduction in traffic included service stations, fast-food outlets and some retail and accommodation businesses. Reduced trade associated with reductions in traffic may have flow on effects on local employment for some businesses. During the survey of business owners, staff at one business in Heatherbrae expressed concern that they may lose their job as a result of the project.

It was suggested by several business owners that Heatherbrae and Beresfield benefit from their locations about two hours from Sydney, with these locations popular rest stops for motorists travelling to and from Sydney as well as for local workers. One business owner also noted that their business was purposely built in Heatherbrae as a service centre for the Pacific Highway, with another business owner suggesting that Heatherbrae was not typical of other ‘homogenous service centres’ and provided opportunities for independent businesses to be established to service passing motorists. Following previous consultation with the community in 2016, interchanges were included in the project at Raymond Terrace and Tomago on either side of Heatherbrae. The project allows motorists travelling in either direction to exit the main alignment to access businesses and services in Beresfield and Heatherbrae. Additionally, it is not proposed to provide a stand-alone highway service centres along the alignment of the project due to the accessibility to the existing services immediately adjoining the project.

While Beresfield and Heatherbrae would continue to service motorists using the M1 Pacific Motorway, the function of these centres is expected to change. As indicated in **Section 4.4.3**, Beresfield and Black Hill are proposed to be a freight and logistics hub, with complementary manufacturing and light industrial activity. Consistent with the Raymond Terrace and Heatherbrae Strategy, the existing business environment in Heatherbrae is expected to change as it transitions into a key destination for bulky goods within the Hunter. Increased commercial development at this location and the residential growth proposed for surrounding areas has the potential to offset potential 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. Without the bypass, traffic levels in Beresfield and Heatherbrae would continue to increase, impacting on business amenity and customer access. This may reduce the attractiveness of these locations for some customers, particularly in Heatherbrae which has a higher proportion of retail businesses that service customers from surrounding areas. 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.

Consultation with business owners identified the need for appropriate signage, such as the names of businesses and logos that could be used to notify customers of the location of businesses. Consideration would be given to signage at all interchanges along the project to inform the travelling public in accordance with Transport signage policy.

Impacts on fishing and aquaculture

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

Concerns were raised during consultation for the project regarding potential impacts on prawn trawling areas due to the design and location of the bridge over the Hunter River. 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 bridge. 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.

Impacts of the project on maritime activities are discussed in **Section 6.2.6**.

Impacts on tourism

Once operational, the project would provide better connections for tourists travelling between Sydney and Brisbane by improving travel time and reliability along the M1 Pacific Motorway and Pacific Highway, John Renshaw Drive and the New England Highway. This would have positive impacts on access to tourism destinations in the Hunter, and City of Newcastle and Port Stephens Council LGAs.

The bypass of Heatherbrae would remove existing through traffic from the existing Pacific Highway, reducing through traffic within Heatherbrae. Further discussion about potential impacts on tourist related businesses such as accommodation providers and cafes, restaurants and takeaway premises is discussed above.

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 are people who 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.

6.2.4 Community values

Local amenity and character

During operation, potential impacts on local amenity and character would main be associated with:

- Changes in traffic noise for communities along the alignment
- Light spill 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.

The siting of the project to bypass Heatherbrae would result in the highway moving further away from communities, individual houses, businesses or community facilities. A reduction in traffic using the Pacific Highway through Heatherbrae would help to improve local amenity through reduced traffic noise in parts of Heatherbrae, particularly at night-time, and safety, making it easier and more attractive for people to walk, cycle and drive.

Adverse impacts on local amenity may result from the intensification of road infrastructure or siting of the project and interchanges near to homes, businesses or community facilities, including at Beresfield, Tarro, Woodberry and Heatherbrae. 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 at Black Hill, Beresfield, Tarro, Heatherbrae and Raymond Terrace due to traffic from the project moving closer to residential uses or other sensitive uses or increasing the exposure to more traffic lanes. This may impact on the character and amenity of these areas for some people and possibly impact on the enjoyment of their properties. Potential impacts on night-time amenity may also occur for residential properties closest to the project and major interchanges due to traffic noise associated with vehicles accelerating or decelerating to enter or exit the motorway.

Operation of 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.

The introduction of new transport infrastructure and clearing of vegetation for the project has potential to change views and vistas in some parts of the study area, impacting on local character and visual amenity. This is likely to have the greatest impact in those areas where the project would change a large portion of the view such as at Black Hill where the project would replace areas of remnant bushland with a bridge and fill embankments. The introduction of the viaduct over the Hunter River floodplain would also affect the open views across the floodplain from areas such as Tarro and for motorists travelling along the New England Highway and train passengers on the Main North Rail line.

Community cohesion

Once operational, the project would support improved travel and accessibility to work, business and leisure activities in the study area and wider Hunter. Improved access and more efficient travel 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 for 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 4.5**, 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

As indicated in **Section 4.5**, protection and conservation of flora and fauna and natural environments such as the Hunter River, is important to communities in the study area. Where possible, the project has been designed to avoid or minimise potential impacts on environmental values within the study area, although potential impacts would be associated with such things as the 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.

6.2.5 Social infrastructure

Directly affected social infrastructure

The project would require the partial acquisition of land along the frontage of the HRBG located south of Heatherbrae. The affected area includes a strip of vegetated land located along the existing Pacific Highway, an area of visitor car parking and the road entry to the HRBG. Entry to the HRBG would be maintained via a new access road. It is likely that additional land would be available on-site as replacement car parking and the direct impacts of the project are not expected to impact on the ongoing operation of the HRBG. Transport would continue to liaise with representatives of the HRBG during the detail design and construction of the new access to the HRBG in accordance with the CCS.

Consultation has been carried out with the HRBG since 2016 about potential implications of the project on the HRBG. Key issues identified by the HRBG included:

- The need for clear and straightforward access to the botanic gardens. While there was preference by the Botanic Gardens for this to be as direct as possible, it was recognised that direct access could not be provided from the motorway and that access from the Pacific Highway was preferred
- Impacts of indirect access on passing trade accessing the Botanic Gardens
- Accessibility and the potential impacts on the bus stops fronting the Botanic Gardens and need to for safe and easy access to the Botanic Gardens for public transport users
- Traffic noise impacts.

An impact assessment on the wetlands adjacent to the HRBG (referred to as the Hunter River wetland) was carried out as part of the Hydrology and Flooding Working Paper (Appendix J of the EIS), the Surface Water and Groundwater Quality Working Paper (Appendix K of the EIS) and the Biodiversity Assessment Report (Appendix I of the EIS). The project may result in minor increases in flooding levels at the Hunter River wetland. However these levels are not expected to have any material impact on the wetland community health. Surface and groundwater quality impacts, from the project are not expected to impact on the wetlands as the water quality measures in this location would be lined.

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.

Access for visitors travelling along the main alignment from the south would need to exit at the Tomago interchange, while those travelling from north of Heatherbrae would need to exit at the Raymond Terrace interchange and travel through Heatherbrae. While this may affect the number of customers who decide to visit the botanic gardens because they are passing, it is likely that many visitors include people who deliberately plan to visit the HRBG.

Reduced traffic on the Pacific Highway would support safer and easier access to the HRBG for visitors, volunteers and staff. The need for access to be as direct, clear and straightforward as possible was identified as important by representatives of the HRBG along with the need to clearly define how visitors

access the botanic gardens. The changed access arrangements have potential to cause confusion for some visitors travelling along the project, particularly tourists who are likely to be unfamiliar with the local road network.

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.

During operation, traffic noise from vehicles using the project has potential to reduce amenity for some visitors, staff and volunteers of the Botanic Gardens. 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 the gardens for some people and diminish perceptions of peacefulness and tranquillity in some locations within the gardens.

Transport would continue to consult with the HRBG during future project phases in accordance with the CCS to ensure any potential impacts are appropriately managed (refer to **Chapter 8** and the Community Consultation Framework (Appendix E of the EIS)).

Impacts on social infrastructure in the study area

During operation, the project would contribute to 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. This includes major regional hospitals and tertiary education facilities in Newcastle, recreation and entertainment facilities, and retail, cultural and community support facilities. This would have positive impacts for local and regional communities.

Locally, access changes associated with the bypass of Beresfield and Heatherbrae may require some people to travel different routes to access facilities in the study area, although any potential impacts associated with these 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 impacts on social infrastructure within 400 metres of the project is provided in **Table 6-3**.

Table 6-3 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.

Facility (ID / name)		Summary of impacts during operation
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. Further information about potential operational noise impacts, including proposed mitigation measures is in the Noise and Vibration Working Paper (Appendix H of the EIS).
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. Further information about potential operational noise impacts, including proposed mitigation measures is in the Noise and Vibration Working Paper (Appendix H of the EIS).
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 previous discussion.

6.2.6 Access and connectivity

Motorists

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 have positive impacts for local and regional communities, business and industry through improved connections and links to employment and growth areas in the study area as well as to destinations across NSW and interstate.

The project would also enable access by higher productivity vehicles (for example, truck and trailer combinations) along the M1 Pacific Motorway and Pacific Highway between Sydney and Brisbane, supporting increased productivity benefits for freight operators. Improved OSOM access across the Hunter River would facilitate the opportunity for more efficient freight vehicles along the corridor. The project would also enable a shift in OSOM movements between Sydney and Brisbane from the New England Highway to the Pacific Highway, supporting productivity benefits for OSOM operators. Improvements in freight efficiency within the lower Hunter would also have indirect benefits for the functioning of the Port of Newcastle.

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 accessing these locations would have the choice to use the project via one of the connections or continue to use the existing road network.

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

Public transport bus users

During operation, the project would support improvements in bus travel times and reliability through reduced traffic volumes and congestion on the existing road network. 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.

Emergency services

Operation of the project would have positive impacts for emergency services due to reduced traffic volumes and congestion on the existing road network and enhance travel times and travel reliability for emergency service vehicles using the M1 Pacific Motorway and Pacific Highway between Black Hill and Raymond Terrace, John Renshaw Drive and the New England Highway.

Pedestrians and cyclists

The project would improve connectivity for cyclists in the study area 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 at Beresfield, Tarro, Hexham, Tomago, Heatherbrae and Raymond Terrace. This would have a positive impact on communities in the study area with additional cycling routes for cyclists providing alternative transport options for residents and workers and potentially encouraging increased use of cycling for commuting and other trips.

Freight and passenger rail

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 ARTC assets.

Hunter River users

The project has been designed to maintain use of the Hunter River by maritime traffic, including commercial and recreational fishers. Potential impacts on trawling operations are discussed in **Section 6.2.3**.

Private property access

Once complete, the project would be classified as a Motorway (or Freeway) owned by Transport with no direct access from surrounding properties in accordance with the provisions of the *Roads Act 1993*. Where existing property accesses are affected by the project, access would be provided either from existing roads or new access provided as part of the project.

The project would reduce through traffic in Beresfield and Heatherbrae, supporting safer and easier access for road users, including motorists, pedestrians and cyclists, 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.

6.3 Evaluation of socio-economic impacts

As indicated in **Section 3.3.1**, an evaluation matrix was used to evaluate the significance of potential negative socio-economic impacts associated with the construction and operation of the project (refer to **Table 6-4**).

The sensitivity of receptors refers to the qualities which influence receptors' vulnerability to changes from the project and/or capacity to adapt. The sensitivity of a receptor may be influenced by existing social and economic conditions, for example amenity, demographic characteristics, business environment, land use, existing access and connectivity, and community values. The criteria for determining the sensitivity of receptors is outlined in **Table 6-5**.

The magnitude of proposed work refers to the scale, duration, intensity and scope of the project, including how it would be constructed and operated. This can be influenced by such things as the geographical area affected, the type, frequency and duration of work; and operational uses and built form. The criteria for determining the magnitude of proposed work is outlined in **Table 6-5**.

Table 6-4 Evaluation matrix

		Magnitude			
		High	**Moderate**	**Low**	**Negligible**
Sensitivity	**High**	High	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Source: Environmental Impact Assessment Practice Note – Socio-economic Assessment (Transport, 2020)

Table 6-5 Evaluation criteria

Level	Description
Level of sensitivity	
Negligible	No vulnerability and able to absorb or adapt to change
Low	Minimal areas of vulnerabilities and a high ability to absorb or adapt to change
Moderate	A number of vulnerabilities but retains some ability to absorb or adapt to change
High	Multiple vulnerabilities and/or very little capacity to absorb or adapt to change
Level of magnitude	
Negligible	No discernible positive or negative changes caused by the impact. Change from the baseline remains within the range commonly experienced by receptors
Low	A discernible change from baseline conditions. Tendency is that the impact is to a small proportion of receptors over a limited geographical area and mainly in the vicinity of the project. The impact may be short term, or some impacts may extend over the life of the project
Moderate	A clearly noticeable difference from baseline conditions. Tendency is that the impact is to a small to large proportion of receptors and may be over an area beyond the vicinity of the project. Duration may be short-term to medium or some impacts may extend over the life of the project

Level	Description
High	A change that dominates over existing baseline conditions. The change is widespread or persists over many years or is effectively permanent

Source: Environmental Impact Assessment Practice Note – Socio-economic Assessment (Transport for NSW, 2020)

Table 6-6 and **Table 6-7** summarise potential socio-economic impacts of the construction and operation of the project and presents the level of impact significance with and without the mitigation and management measures. Further detail on proposed management measures is provided in **Chapter 8**.

Table 6-6 Evaluation of significance – construction

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Population and demography							
No changes expected	N/A	N/A	N/A	No management measures required	N/A	N/A	N/A
Employment and training							
No negative impacts identified	N/A	N/A	N/A	No management measures required	N/A	N/A	N/A
Business and industry							
Changed business access at Beresfield, Tomago and Heatherbrae due to changes in road conditions near to construction work	Moderate	Moderate	Moderate	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Ensure access is maintained to businesses • Notification to motorists, road users and affected communities about proposed changes	Moderate	Low	Moderate-low
Amenity impacts for businesses near the project	Low	Moderate	Moderate-low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected businesses	Low	Low	Low
Impacts on commercial fishing operations	Moderate	Moderate	Moderate	• Maintain access to the Hunter River during construction • Consultation and communication with commercial fishers about construction activities and potential impacts	Moderate	Low	Moderate-low

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Impacts on tourism – loss of customers due to construction activities	Low	Moderate	Moderate-low	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Ensure access is maintained to businesses • Notification to motorists, road users and affected communities about proposed changes	Low	Low	Low
Community values							
Impacts on local amenity near construction work and haulage routes	Moderate	Moderate	Moderate	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected communities	Moderate	Low	Moderate-low
Changes to perceptions of road safety	Moderate	Moderate	Moderate	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Notification to motorists, road users and affected communities about proposed changes	Moderate	Low	Moderate-low
Impacts on environmental values (Hunter River, landscape)	High	Moderate	Moderate-high	• Minimise extent of vegetation clearing required, where possible • Rehabilitation of affected areas in accordance with the measures outlined in the Biodiversity Assessment Report (Appendix I of the EIS)	High	Low	Moderate

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Social infrastructure							
Changes in access to social infrastructure in the study area due to road work	Low	Low	Low	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Ensure access is maintained to businesses • Notification to motorists, road users and affected communities about proposed changes	Low	Low	Low
Impacts on Hunter Valley Equestrian Centre	Low	Low	Low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility	Low	Negligible	Negligible
Impacts on amenity for users of Hunter Valley Traditional Archers	Low	Low	Low	• Implementation of management measures relating to noise and air quality.	Low	Negligible	Negligible
Impacts on Pasadena Crescent Reserve Soccer Fields	Low	Moderate	Moderate-low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility	Low	Low	Low
Impacts on Fiona John Park	Low	Negligible	Negligible	No management measures required	Low	Negligible	Negligible
Impacts on Tarro General Cemetery	Low	Negligible	Negligible	No management measures required	Low	Negligible	Negligible

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Impacts on Tarro Uniting Church of Australia	Low	Low	Low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility	Low	Negligible	Negligible
Impacts on Our Lady of Lourdes Primary School / Aspect Hunter School	Low	Moderate	Moderate-low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility • Minimise construction traffic haulage near the school during drop off and pick up times	Low	Low	Low
Impacts on Tarro Fire Station	Moderate	Moderate	Moderate	• Implementation of traffic management measures to maintain access for emergency vehicles where possible • Consultation and communication with affected facility about proposed changes	Moderate	Low	Moderate-low
Impacts on Tarro Community Hall	Low	Negligible	Negligible	No management measures required	Low	Negligible	Negligible
Impacts on Tarro Public School	Moderate	High	Moderate-high	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility • Minimise construction traffic haulage near the school during drop off and pick up times	Moderate	Moderate	Moderate

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Impacts on Tarro Recreation Area	Low	Low	Low	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Consultation and communication with affected facility	Low	Negligible	Negligible
Impacts on HRBG	Moderate	High	Moderate-high	• Implementation of management measures relating to noise, vibration, air quality and traffic in accordance with the relevant Working Papers • Ensure access to the botanic gardens is maintained • Consultation and communication with affected facility	Moderate	Moderate	Moderate
Access and connectivity							
Increased construction traffic on roads in the study area	Moderate	Moderate	Moderate	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Notification to road users and affected communities about proposed changes	Moderate	Low	Moderate-low
Temporary changes to road conditions	High	High	High	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Notification to road users and affected communities about proposed changes	High	Moderate	Moderate-high

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Changes to bus services (temporary disruptions, delays)	Moderate	Low	Moderate-low	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Notification to road users and affected communities about proposed changes	Moderate	Negligible	Negligible
Changes to emergency vehicle access	High	Low	Moderate	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • liaison with emergency services before any changes to the existing road network are implemented.	High	Negligible	Negligible
Changes to pedestrian and cycle access	Moderate	High	Moderate-high	• Implementation of traffic management measures in accordance with the Traffic and Transport Working Paper (Appendix G of the EIS) • Notification to road users and affected communities about proposed changes	Moderate	Moderate	Moderate

Table 6-7 Evaluation of significance – operation

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Population and demography							
No changes expected	N/A	N/A	N/A	No management measures required	N/A	N/A	N/A
Employment and training							
Loss of local employment due to acquisition of commercial properties	Low	Low	Low	No management measures required	Low	Low	Low
Business and industry							
Partial acquisition of land accommodating local businesses	Moderate	Negligible	Negligible	No management measures required	Moderate	Negligible	Negligible
Total acquisition of land accommodation local businesses	Moderate	High	Moderate-high	• Consideration of business requirements in acquisition process • Acquisition in accordance with NSW *Land Acquisition (Just Terms Compensation) Act 1991* and the Land Acquisition Reform 2016	Moderate	Moderate	Moderate
Bypass of Beresfield	Low	Moderate	Moderate-low	• Provision of signage for the project about facilities in Beresfield in accordance with relevant Transport guidelines	Low	Low	Low
Bypass of Heatherbrae	Moderate	High	Moderate-high	• Provision of signage for the project about facilities in Heatherbrae in accordance with relevant Transport guidelines	Moderate	Moderate	Moderate
Impacts on commercial fishing operations	Moderate	Low	Moderate-low	• Restrictions to shoreline would require permanent changes to trawling practices	Moderate	Low	Low-moderate

Summary of impact	Impact significance (without mitigation)			Management measure	Impact significance (with mitigation)		
	Sensitivity	Magnitude	Significance		Sensitivity	Magnitude	Significance
Impacts on tourism – loss of customers due to bypass of Heatherbrae	Low	Moderate	Moderate-low	• Provision of signage for the project about facilities in Heatherbrae in accordance with Transport guidelines	Low	Low	Low
Community values							
Traffic noise from siting of project and interchanges near homes, businesses and facilities	High	Moderate	Moderate-high	• Provision of noise mitigation in accordance with the Noise and Vibration Working Paper (Appendix H of the EIS)	High	Low	Moderate
Changes to the night-time amenity near major interchanges due to project lighting	Moderate	Moderate	Moderate	• Design lighting for the project in accordance with relevant Australian Standards	Low	Low	Low
Impact on environmental values	High	Moderate	Moderate-high	• Minimise extent of area impacted through the design	Moderate	Moderate	Moderate
Social infrastructure							
Impact on HRBG	Moderate	Moderate	Moderate	• Provision of road signage for the project in accordance with Transport guidelines	Moderate	Low	Moderate-low
Impacts on Hunter Valley Traditional Archers	Low	Moderate	Moderate-low		Low	Moderate	Moderate-low
Changes in access to social infrastructure in the study area	Low	Low	Low	• Notification to motorists and road users about proposed access changes	Low	Negligible	Negligible
Access and connectivity							
Refer to business impacts above.							

7. Cumulative impacts

Cumulative socio-economic impacts may arise from the interaction of construction and operation activities of the project, and other approved or proposed projects in the area. When considered in isolation, specific project impacts may be considered minor. These minor impacts may, however, be more substantial, when the impact of multiple projects on the same receivers is considered.

The projects detailed in **Table 7-1** are in varying stages of delivery and planning. This chapter provides an assessment of cumulative socio-economic impacts based on the most current and publicly available information for these projects. In many instances this is a high-level qualitative assessment.

The interaction with projects listed in **Table 7-1** may change the socio-economic impacts or benefits of the project. During construction, potential cumulative impacts may be associated with:

- Prolonged duration of construction impacts resulting in:
  - Extended periods of traffic disruptions for motorists, public transport users, pedestrians and cyclists, and commercial vehicle movements
  - Extended periods of impacts on communities in the study area, associated with increased noise, dust and traffic, leading to construction fatigue.
- Increase in construction traffic, associated with haulage of materials, plant and equipment for the various construction projects, impacting on community perceptions of safety
- Increased demand for construction workers, providing benefits for local workers.

Where construction timeframes for projects occur sequentially, there is potential for disturbance and disruptions for local communities (for example, construction noise, dust, traffic delays and disruptions) to occur over extended periods, potentially resulting in construction fatigue for some community members.

Overall, the contribution of the project to cumulative impacts on communities, business and industry in the area is minor, considering construction would be managed through the implementation of a range of environmental management measures detailed in **Table 8-1**.

Table 7-1 Assessment of potential cumulative impacts for relevant identified projects

Project (approval status)	Relevance in consideration of cumulative impacts	Potential cumulative impacts
Black Hill Employment Lands (Northern Estates) (In planning)	• Located south of John Renshaw Drive and west of M1 Pacific Motorway • Likely to be some overlap in construction program, meaning likelihood of concurrent (simultaneous) construction and operation.	Extended periods of traffic disruptions for road users and increased construction traffic impacting on community perceptions of safety.
Kinross Industrial Heatherbrae/ Weathertex (Approved)	• Located within the construction footprint of the project on Masonite Road, Heatherbrae • Likely to be some overlap in construction program, meaning likelihood of concurrent (simultaneous) construction and operation.	Benefits for local businesses due to increased demand for goods and services to support construction activities. Increased construction traffic impacting on community perceptions of safety and potential to extend or increase impacts on communities at Heatherbrae (for example, noise, dust and traffic) leading to construction fatigue.

Project (approval status)	Relevance in consideration of cumulative impacts	Potential cumulative impacts
Black Hill Hunter Business Park, Cessnock (in planning)	• Located south of John Renshaw Drive and west of the M1 Pacific Motorway • Likely to be some overlap in construction program, meaning likelihood of concurrent (simultaneous) construction and operation.	This development is currently in planning and is anticipated to be similar to the Northern Estates development. Due to the differing time frames involved, it is not expected there would be any cumulative impacts during construction. Once operational, the project would support future industrial development in the area through improved access and connectivity for freight and commercial vehicles.
Newcastle Power Station (In planning)	• Located within the construction footprint of the project at Tomago near Old Punt Road • Potential to be consecutive (back to back) construction and concurrent (simultaneous) operation.	AGL propose to construct a 250 Mega Watt (MW) gas fired power station at Tomago, with gas pipelines and electricity transmission lines. Construction of the power station is due to commence in 2021 with the power station expected to be operational in 2022. The site for the proposed power station is located between the Pacific Highway and Old Punt Road, north of the Tomago industrial area (AGL, 2019). Benefits for local businesses due to increased demand for goods and services to support construction activities.
Hexham Straight (In planning)	• Located about one kilometre south of the project at Hexham • Potential to be consecutive (back to back) construction and concurrent (simultaneous) operation.	This road project is currently in planning. Transport plan to upgrade the Hexham Straight (Maitland Road) between Sandgate and Hexham Bridge. The proposed scope of the Hexham Straight project involves the addition of an extra lane in both directions, removal of the existing bridges and construction of two new bridges at Ironbark Creek, adjustments to connecting roads as well as significant utility relocation. The preliminary environmental investigation (Roads and Maritime Services, 2019) indicates that the Hexham Straight project location is reflective of the industrial and transportation history of the area. Most buildings and infrastructure function as ancillary facilities to support transportation and industrial uses. Residential and commercial development is sparse. The primary land uses in and near Hexham Straight include infrastructure, industry and commercial, environmental conversation, waterways and Crown land. Utilities are also located in the area. Benefits for local businesses due to increased demand for goods and services to support construction activities. Increased construction traffic impacting on community perceptions of safety and potential to extend or increase impacts on communities at Heatherbrae (for example, noise, dust and traffic) leading to construction fatigue. Combined with the Maitland Road widening, the project would support improved access and connectivity between Newcastle and the NSW central and northern coasts.

Project (approval status)	Relevance in consideration of cumulative impacts	Potential cumulative impacts
Lower Hunter Freight Corridor (In planning)	Investigation area includes Hexham.	The Transport Lower Hunter Freight Corridor (LHFC) website (Transport for NSW, July 2018) indicates that in 2018 preliminary investigations were being carried out to assess options for a dedicated freight rail line between Fassifern and Hexham. No options were available on the website to review. An investigation areas figure between Fassifern and Hexham was available. As corridor options and environmental assessment are not available for the LHFC, the level of impact on land use and property generated by this project is currently unknown. Consequently, cumulative impacts associated with the construction or operation of the project is unknown.
Richmond Vale Rail Trail to Shortland, including Shortland to Tarro cycleway (In planning)	Intersects the project at Tarro	This is located away from communities in the study area that are affected by construction and operation of the project and is not expected to result in cumulative impacts with the project. The Richmond Vale Rail Trail to Shortland would encourage additional cycling use within the study area. The project affords opportunity to connect to on road cycle facilities in the future and does not prevent the future cycleway connecting to Tarro.
Hunter Gas Pipeline (Approved)	Intersects the project at Tomago	This project would cross the construction footprint at Tomago. Construction is planned between 2023 and 2028. Benefits for local businesses due to increased demand for goods and services to support construction activities. Increased construction traffic impacting on community perceptions of safety and potential to extend or increase impacts on communities at Heatherbrae (for example, noise, dust and traffic) leading to construction fatigue

8. Environmental management measures

The following management measures (refer to **Table 8-1**) have been developed to specifically manage potential impacts which have been predicted as a result of the proposed work. These measures should be incorporated into relevant Environmental Management Plans (EMPs) during construction and operations.

Additional measures relevant to the management of socio-economic impacts are also outlined in other Working Papers of the EIS, including:

- Traffic and Transport Working Paper (Appendix G of the EIS)
- Noise and Vibration Working Paper (Appendix H of the EIS)
- Biodiversity Assessment Report (Appendix I of the EIS)
- Urban Design, Landscape Character and Visual Amenity Working Paper (Appendix O of the EIS)
- Air Quality Working Paper (Appendix R of the EIS).

Table 8-1 Environmental management measures

Impact	Reference	Management measure	Responsibility	Timing
Community consultation	SE01	A Community Communication Strategy 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: • Identify people or organisations to be consulted during the delivery of the project • Set out procedures and mechanisms for the regular distribution of information about the project • Outline mechanisms to keep relevant stakeholders updated on site construction activities, schedules and milestones • 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 • Outline a process to resolve complaints and issues raised.	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

9. Conclusion

During construction, the project would have positive impacts for local employment and businesses and industry. On average, the project would create direct employment for about 1050 workers per year and about 1650 indirect jobs per year with businesses that supply goods and services to support construction. Other impacts on communities, business and industry during the construction phase would mainly be associated with:

- Changed amenity for communities and businesses near proposed construction activities due to construction noise, dust and traffic, potentially impacting on the use and enjoyment of homes, businesses and facilities for some people
- Potential impacts on local access and connectivity for motorists, public transport users, pedestrians, cyclists and freight operators, due to increased construction traffic and temporary changes to road conditions, and pedestrian and cycle access near to construction work, and possible disruptions to public transport bus services
- Potential access changes to local businesses and social infrastructure near the project, due to changes in road conditions
- Impacts on community values relating to the environment from the clearing of vegetation and work within the Hunter River, local amenity and safety, due to potential road safety risks.

Once operational, the project would enhance travel times and travel reliability for motorists and access and connectivity to the M1 Pacific Motorway and Pacific Highway, allowing more efficient and safer access for residents, workers, businesses and freight. Improved access and connectivity provided by the project would support future growth and development of these areas and the wider region. The project would also enable access by high productivity vehicles along the M1 Pacific Motorway and Pacific Highway between Sydney and Brisbane, supporting increased productivity benefits for freight operators. Improved OSOM vehicle access across the Hunter River would facilitate the opportunity for more efficient freight vehicles along the corridor.

The project would involve diverting traffic from the existing New England Highway and Pacific Highway along the new M1 Pacific Motorway, bypassing Heatherbrae and parts of Beresfield. The siting of the project to bypass Heatherbrae would result in the highway moving further away from communities, individual houses, businesses or community facilities. This would help to improve local amenity through reduced traffic noise, particularly at night-time, and safety within Heatherbrae, making it easier and more attractive for people to walk, cycle and drive. However, the siting of the project and interchanges near to homes, businesses or community facilities in some areas of Tarro, Woodberry and Heatherbrae, may impact on the use, enjoyment, character and visual amenity of these areas for some people due to increased traffic noise and changes in visual amenity. This is particularly relevant for those areas that are currently unaffected by existing major roads such as at Woodberry and within parts of Heatherbrae.

A reduction in through traffic at Heatherbrae and Beresfield, particularly heavy vehicles, would also help to enhance business amenity and improve local business access. Without the bypass, traffic levels in Beresfield and Heatherbrae would continue to increase, impacting on business amenity and customer access. This may reduce the attractiveness of these locations for some customers, particularly in Heatherbrae which has a higher proportion of retail businesses that service customers from surrounding areas. At the same time, the project would result in the reduction of through traffic in Beresfield and Heatherbrae, reducing the level of passing trade. Businesses surveyed that felt most at risk from a reduction in traffic included service stations, fast-food outlets and some retail and accommodation businesses.

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

Overall, the project achieves the desired performance outcomes in minimising potential adverse social and economic impacts while capitalising on opportunities potentially available to affected communities.

10. References

Arup (2013), Collaborative Community Map Output Report – Port Stephens Council Raymond Terrace Town Centre and Heatherbrae Strategy. 13 May 2013.

Australian Bureau of Statistics (2016), *2016 Census of Population and Housing General Community Profile (Catalogue number 2001.0) (for New South Wales, Beresfield-Hexham Statistical Area Level 2, Raymond Terrace Statistical Area Level 2, Newcastle (C) Local Government Area, Port Stephens (A) Local Government Area)*, released 23 October 2017, available online: ***www.abs.gov.au***

Australian Bureau of Statistics (2016a) *Census of Population and Housing: Socio-economic Indexes for Areas, Australia, 2016, released 27 March 2018Australian Bureau of Statistics (2016a) Census of Population and Housing: Socio-economic Indexes for Areas (SEIFA)*, Australia, 2016, released 27 March 2018

Australian Bureau of Statistics (2016b), 2016 Census of Population and Housing Worker Population Profile (Catalogue number 2006.0) (for New South Wales, Beresfield-Hexham Statistical Area Level 2, Raymond Terrace Statistical Area Level 2, Newcastle (C) Local Government Area, Port Stephens (A) Local Government Area), released 23 October 2017, available online: ***www.abs.gov.au***

Australian Bureau of Statistics (2018) *Census of Population and Housing: Commuting to Work - More Stories from the Census, 2016, Catalogue No. 2071.0.055.001,* Commuting Distance from Place of Usual Residence and Commuting Distance to Place of Work.

Australian Bureau of Statistics (2020a) *Counts of Australian Businesses, including Entries and Exits, June 2015 to June 2019, Catalogue No. 8165.0*, released 20 February 2020

Australian Bureau of Statistics (2020b) *Estimated Resident Population, ERP by LGA (ASGS 2019), 2001 to 2019 and ERP by SA2 and above (ASGS 2016), 2001 onwards*, last updated 25 March 2020

Australian Bureau of Statistics (2020c), *Regional Statistics, ASGS 2016, 2011-2019* (for *New South Wales, Beresfield-Hexham Statistical Area Level 2, Raymond Terrace Statistical Area Level 2, Newcastle (C) Local Government Area, Port Stephens (A) Local Government Area)*, Catalogue No. 1379.0.055.001, last updated 20 July 2020

City of Newcastle (2018) *Community Strategy Plan 2018-2028: Newcastle 2030*

City of Newcastle (2020) *Strategic Sports Plan (Draft)*, report prepared by Otium Planning Group

Department of Primary Industries (2015), *Fisheries Final Report Series | No. 149,* Survey of Recreational Fishing in New South Wales and the ACT, 2013/14 L. D. West, K. E. Stark, J. J. Murphy, J. M. Lyle and F. A. Ochwada-Doyle Published by the NSW Department of Primary Industries Survey of Recreational Fishing in New South Wales and the ACT, 2013/14 NSW DPI – Fisheries Final Report Series No. 149 First published December 2015

Destination NSW (2016) *Newcastle Local Government Area Tourist Accommodation Profile, All Establishments (Hotels, motels and serviced apartments with 15 rooms or more)*, Year end June 2016

Destination NSW (2016) *Port Stephens Local Government Area Tourist Accommodation Profile, All Establishments (Hotels, motels and serviced apartments with 15 rooms or more)*, Year end June 2016

Destination NSW (2016) *Maitland Local Government Area Tourist Accommodation Profile, All Establishments (Hotels, motels and serviced apartments with 15 rooms or more)*, Year end June 2016

Destination NSW (2016) *Cessnock Local Government Area Tourist Accommodation Profile, All Establishments (Hotels, motels and serviced apartments with 15 rooms or more)*, Year end June 2016

NSW Department of Planning, Industry and Environment (2019) *NSW 2019 Population Projections* ASGS 2019 LGA projections and Greater Sydney Region and Regional NSW Projections

NSW Department of Primary Industries (2016) *NSW Oyster Industry Sustainable Aquaculture Strategy Third Edition 2016*

NSW Department of Primary Industries (2017) *Hunter/Lake Macquarie Recreational Fishing Guide*

NSW Department of Primary Industries (2017) *Assessment of the NSW Estuary Prawn Trawl Fishery* - Prepared for the Department of the Environment and Energy for the purposes of assessment under Part 13 and 13 (A) of the Environment Protection and Biodiversity Act 1999

NSW Government (2018), *NSW Women's Strategy 2018-2022, Advancing economic and social equality in NSW*.

NSW Procurement (2018), Aboriginal Participation in Construction (APIC) Policy, June 2018. Department of Finance, Services and Innovation.

NSW Treasury (2020), draft Aboriginal Procurement Policy, October 2020.

Port Stephens (2018) *Community Strategic Plan 2018-2028: Our place. Our plan*

Port Stephens (undated) P*ort Stephens Economic Development and Tourism Strategy 2018-2020*

Port Stephens (2015) Raymond Terrace and Heatherbrae Strategy 2015-2031, 24 November 2015

Tourism Research Australia (2019), *Local Government Area Profiles, 2019, Newcastle (C), New South Wales; Port Stephens (A), New South Wales; Maitland (C), New South Wales and Cessnock (C), New South Wales*

Transport for New South Wales (2020) *Environmental Impact Assessment Practice Note – Socio-economic Assessment*

Terms and acronyms

Term / Acronym	Description
ABS	Australian Bureau of Statistics
ARTC	Australian Rail Track Corporation
CCS	Community Consultation Strategy
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
ERP	Estimated Resident Population
LGA	Local government area
LHFC	Lower Hunter Freight Corridor
NSW	New South Wales
OSOM	Oversize overmass
RAAF	Royal Australian Air Force
SA	Statistical area
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Indexes for Areas
SSI	State Significant Infrastructure
TAFE	Technical and Further Education
Transport	Transport for New South Wales

Appendix A Demographic information

Table A-1 Demographic information within and around the study area

Indicator	Beresfield-Hexham SA2	Raymond Terrace SA2	Study area	City of Newcastle	Port Stephens Council	NSW
Population and growth						
ERP 2019*	8,490	13,994	22,484	165,571	73,481	8,089,817
Average annual change (2009-2019)	-0.2%	0.0%	0.0%	0.9%	1.2%	1.4%
Projected population (2041)**	–	–	–	199,680	82,068	10,572,696
Average annual change (2016-2041)	–	–	–	0.9%	0.6%	1.3%
Same address one year prior to 2016 Census	80.7%	77.0%	78.4%	76.1%	76.8%	77.4%
Same address five years prior to 2016 Census	63.7%	54.8%	58.2%	52.3%	52.6%	53.8%
Age profile						
Median age	41 years	38 years	40 years#	37 years	45 years	38 years
14 years or younger	18.5%	20.7%	19.9%	16.9%	18.0%	18.5%
15-64 years	61.9%	63.3%	62.7%	67.2%	59.1%	65.2%
65 years or over	19.6%	16.0%	17.4%	15.9%	22.9%	16.3%
Cultural diversity						
Aboriginal and/or Torres Strait Islander	6.7%	8.2%	7.6%	3.5%	4.8%	2.9%
Overseas born	8.2%	7.6%	7.8%	13.9%	11.0%	27.7%
Main overseas countries of birth	• England (1.9%) • Taiwan (0.8%)	• England (2.0%) • New Zealand (1.1%)	• England (2.0%) • New Zealand (0.9%)	• England (2.1%) • China (excl SARs and Taiwan) (1.1%)	• England (3.8%) • New Zealand (1.3%)	• China (excl SARs and Taiwan) (3.1%) • England (3.0%)

Indicator	Beresfield-Hexham SA2	Raymond Terrace SA2	Study area	City of Newcastle	Port Stephens Council	NSW
	• New Zealand (0.6%) • China (excluding special administrative regions and Taiwan) (0.5%) • Philippines (0.5%)	• Philippines (0.4%) • Germany (0.3%) • Scotland (0.3%)	• Philippines (0.5%) • Germany (0.4%) • Scotland (0.3%)	• New Zealand (1.0%) • India (0.7%) • Philippines (0.5%)	• Scotland (0.5%) • Germany (0.5%) • South Africa (0.4%)	• India (1.9%) • New Zealand (1.6%) • Philippines (1.2%)
Speaks language other than English at home	4.5%	3.4%	3.8%	10.1%	3.6%	25.2%
Main non-English languages spoken at home	• Mandarin (1.4%) • Tagalog (0.3%) • Polish (0.2%) • Cantonese (0.2%) • Italian (0.2%)	• Tagalog (0.2%) • Italian (0.2%) • Punjabi (0.2%) • Samoan (0.2%) • Thai (0.2%)	• Mandarin (0.6%) • Tagalog (0.2%) • Italian (0.2%) • Punjabi (0.2) • Cantonese (0.2%)	• Mandarin (1.2%) • Macedonian (0.7%) • Italian (0.5%) • Greek (0.5%) • Arabic (0.5%)	• Italian (0.2%) • Spanish (0.2%) • German (0.2%) • Italian (0.2%) • Tagalog (0.2%)	• Mandarin (3.2%) • Arabic (2.7%) • Cantonese (1.9%) • Vietnamese (1.4%) • Greek (1.1%)
Speaks English not well or not at all	1.5%	0.4%	0.8%	1.6%	0.4%	4.5%
Dwellings and households						
Total dwellings	3,414	5,456	8,870	66,471	31,090	2,889,057
Occupancy rate	92.3%	92.8%	92.6%	90.2%	81.9%	90.1%
Separate house	85.5%	73.6%	78.1%	64.1%	65.3%	59.9%
Semi-detached dwelling, flat or apartment	6.5%	14.6%	11.5%	25.4%	14.3%	29.0%
Other dwelling	0.1%	4.3%	2.7%	0.3%	1.9%	0.8%
Owner occupied (owned outright or owned with a mortgage)	69.4%	56.6%	61.5%	61.2%	69.8%	64.5%

Indicator	Beresfield-Hexham SA2	Raymond Terrace SA2	Study area	City of Newcastle	Port Stephens Council	NSW
Rented (total)	28.2%	38.0%	34.3%	35.5%	26.2%	31.8%
Rented (State housing authority)	7.4%	10.9%	9.5%	5.8%	2.8%	4.0%
Median mortgage repayment (monthly)	$1,370	$1,463	$1,417[#]	$1,768	$1,733	$1,986
Median rent (weekly)	$280	$270	$275[#]	$340	$305	$380
Households with mortgage repayments greater than or equal to 30% of household income***	6.3%	5.4%	-	5.4%	6.4%	7.4%
Households with rent payments greater than or equal to 30% of household income***	12.2%	16.0%	-	14.2%	10.8%	12.9%
Need for assistance						
Has need for assistance	7.8%	7.8%	7.8%	5.9%	6.4%	5.4%
Does not have need for assistance	85.8%	84.1%	84.8%	88.6%	85.8%	87.7%
Need for assistance not stated	6.3%	8.1%	7.4%	5.5%	7.8%	6.9%
Income and employment						
Median total household income (weekly)	$1,042	$1,084	$1,063	$1,368	$1,180	$1,486
Median total personal income (weekly)	$514	$551	$533	$660	$571	$664
Lower income households (less than $650 per week)	12.8%	13.5%	13.3%	8.7%	10.2%	9.5%
Higher income households (more than $2500 per week)	10.8%	13.7%	12.6%	26.8%	17.9%	27.7%

Indicator	Beresfield-Hexham SA2	Raymond Terrace SA2	Study area	City of Newcastle	Port Stephens Council	NSW
Total labour force	3,589	5,855	9,444	78,864	29,752	3,605,881
Labour force participation	52.7%	53.4%	53.1%	61.0%	52.2%	59.2%
Unemployment	11.3%	10.0%	10.5%	7.4%	7.2%	6.3%
Vehicle ownership & travel						
No motor vehicles	6.2%	6.5%	6.4%	9.3%	4.1%	9.2%
One motor vehicle	40.3%	38.2%	39.0%	37.6%	35.1%	36.3%
Two or more vehicles	50.0%	49.2%	49.5%	49.7%	56.4%	50.8%
Average commuting distance from place of usual residence (km)^	17.6	20.4	19.0	14.1	25.0	16.3
Worker population						
Total number of workers	6,766	9,897	16,663	97,327	25,725	3,358,175
Average commuting distance to place of work km)^	23.2	24.0	23.6	16.3	20.4	16.1
Businesses+						
Total number of businesses	555	966	1,521	13,969	4,872	805,986

Notes: # average of median ages for Beresfield-Hexham SA2 and Raymond Terrace SA2

Sources:

Based on *ABS 2016 Census of Population and Housing General Community Profile* (unless otherwise indicated)
* ABS (2020) *Estimated Resident Population*, ERP by LGA (ASGS 2019), 2001 to 2019 and ERP by SA2 and above (ASGS 2016), 2001 onwards
** NSW Department of Planning, Industry and Environment (DPIE) (2019) *NSW 2019 Population Projections* ASGS 2019 LGA Projections and Greater Sydney Region and Regional NSW Projections
*** ABS (2016), *2016 Census of Population and Housing QuickStats*
^ABS (2018) *Census of Population and Housing: Commuting to Work - More Stories from the Census, 2016, Catalogue No. 2071.0.055.001,* Commuting Distance from Place of Usual Residence and Commuting Distance to Place of Work
+ ABS (2020) *Counts of Australian Businesses, including Entries and Exits, June 2015 to June 2019, Catalogue No. 8165.0*

Appendix B Business survey

M1 Pacific Motorway extension to Raymond Terrace – Business survey

Business details:

Business name (optional): .....

Business address (optional): .....

Contact details (optional): .....

Survey questions

Question 1: Where is your business located?

- ☐ Heatherbrae
- ☐ Tomago
- ☐ Hexham
- ☐ Beresfield
- ☐ Black Hill
- ☐ Other (please specify)

.....

Question 2: Which of the following industries best describes your business?

- ☐ Agriculture, forestry and fishing
- ☐ Mining
- ☐ Manufacturing
- ☐ Electricity, gas, water and waste services
- ☐ Construction
- ☐ Wholesale trade
- ☐ Retail trade
- ☐ Accommodation and food services
- ☐ Transport, postal and warehousing
- ☐ Information, media and telecommunications
- ☐ Financial and insurance services
- ☐ Rental, hiring and real estate services
- ☐ Professional, scientific and technical services
- ☐ Administrative and support services
- ☐ Public administration and safety
- ☐ Education and training
- ☐ Health care and social assistance
- ☐ Arts and recreation services
- ☐ Other services (please specify) .....

Question 3: What is the nature of your business?

- ☐ Agricultural business – crop growing
- ☐ Agricultural business – livestock farming
- ☐ Agricultural business – other (please describe) .....

- ☐ Manufacturing – food products
- ☐ Manufacturing – metal products
- ☐ Manufacturing – machinery and equipment
- ☐ Manufacturing – other (please describe) .....

- ☐ Construction – building construction
- ☐ Construction – construction services
- ☐ Construction – other (please describe) .....

- ☐ Wholesaling – building products
- ☐ Wholesaling – machinery and equipment
- ☐ Wholesaling – other (please describe) .....

- ☐ Service station
- ☐ Supermarket/ grocery store/ food store
- ☐ Retail – hardware, building, garden supplies
- ☐ Retail – household/ electrical goods
- ☐ Retail – clothing/ footwear
- ☐ Retail – recreational goods
- ☐ Retail – chemist, newsagent
- ☐ Retail – other (please describe) .....

- ☐ Accommodation
- ☐ Take-away
- ☐ Café/ restaurant
- ☐ Pub/ club/ tavern
- ☐ Real estate
- ☐ Machinery/ equipment hire
- ☐ Repair and maintenance (for example, crash repair, mechanic, machinery/ equipment repair)
- ☐ Personal services (for example, hairdresser)
- ☐ Medical/ health care
- ☐ Other (please describe) .....

Question 4: How long has your business been operating in its current location?

- ☐ Less than 12 months
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-10 years
- ☐ 11-20 years
- ☐ More than 20 years (please specify) .....

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Question 5: How many people does your business employ (including yourself)?

- ☐ One
- ☐ 2-5 people
- ☐ 6-10 people
- ☐ 11-20 people
- ☐ 21-50 people
- ☐ More than 50 people

Question 6: Where do most of your customers come from?

- ☐ Raymond Terrace
- ☐ Ferodale
- ☐ Nelsons Plains/ Millers Forest
- ☐ Medowie/ Campvale/ Williamtown
- ☐ Heatherbrae
- ☐ Tomago
- ☐ Hexham
- ☐ Beresfield/ Tarro/ Woodberry
- ☐ Lenaghan/ Black Hill/ Stockrington
- ☐ Fletcher/ Minmi
- ☐ Newcastle region (east)
- ☐ Maitland region (west)
- ☐ Port Stephens region (north)
- ☐ Lake Macquarie region (south)
- ☐ Greater Sydney area
- ☐ Other (please specify) .....

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Question 7: Approximately, what proportion of your business/customers would you estimate to be frompassing motorists?

- ☐ None
- ☐ Less than 10 per cent
- ☐ 10 – 25 per cent
- ☐ 25 – 50 per cent
- ☐ 50 – 75 per cent
- ☐ More than 75 per cent

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Question 8: How do most customers travel to your business?

- ☐ Car
- ☐ Walk
- ☐ Cycle
- ☐ Public transport (bus)
- ☐ Not sure
- ☐ Other (please describe) .....

Question 9: What benefits do you think the project may have on your business?

Construction:

- ☐ Increased business from workers
- ☐ Not sure
- ☐ Don't think it will have any benefits
- ☐ Other (please specify)

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Operation:

- ☐ Improved safety
- ☐ Better property access
- ☐ Not sure
- ☐ Don't think it will have any benefits
- ☐ Other (please specify)

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Question 10: Do you foresee any negative impacts the project may have on your business?

Construction:

- ☐ Traffic delays/ disruptions for customers and employees
- ☐ Possible loss of customers/ construction may deter customers
- ☐ Changes to property access
- ☐ Disruption to access for service/ delivery vehicles
- ☐ Not sure
- ☐ Don't think it will have any impacts
- ☐ Other (please specify)

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Operation:

- [ ] Loss of passing trade/ loss of customers
- [ ] Loss/ changes to parking
- [ ] Changes to property access
- [ ] Increased travel for customers
- [ ] Increased travel for service/ delivery vehicles and employees
- [ ] Not sure
- [ ] Don't think it will have any impacts
- [ ] Other (please specify)

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Question 11: What measures do you think could be put in place to maximise benefits/ minimise impacts ofthe project?

Construction:

- [ ] Consultation/ communication with business about construction activities
- [ ] Public notification/ communication about access changes
- [ ] Managing traffic disruptions
- [ ] Maintaining property access
- [ ] Signage
- [ ] Not sure
- [ ] Other (please specify)

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Operation:

- [ ] Public notification/ communication about access changes
- [ ] Signage
- [ ] Ensuring easy access is maintained to/ from Pacific Motorway
- [ ] Not sure
- [ ] Other (please specify)

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Question 12: Are there any other matters that should be considered as part of this assessment?

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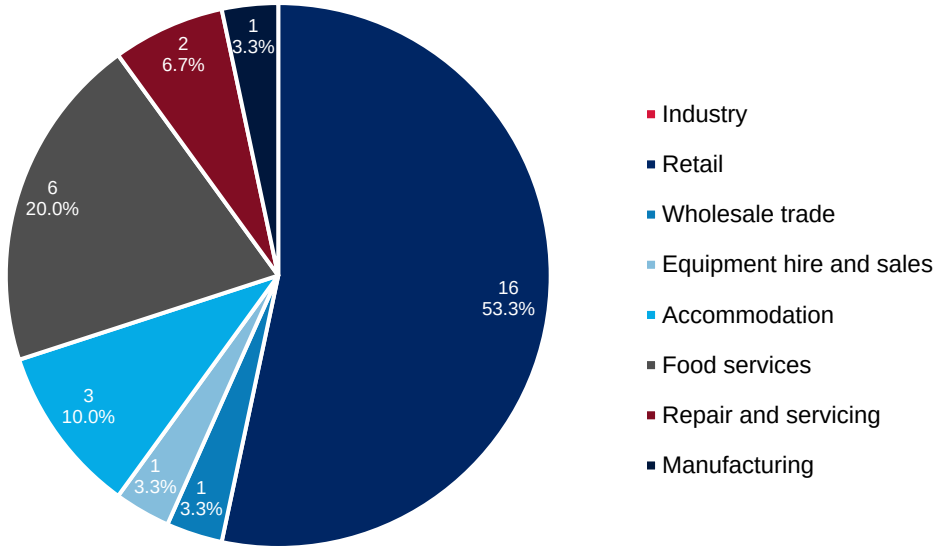
Appendix C Business survey results

Where is your business located?

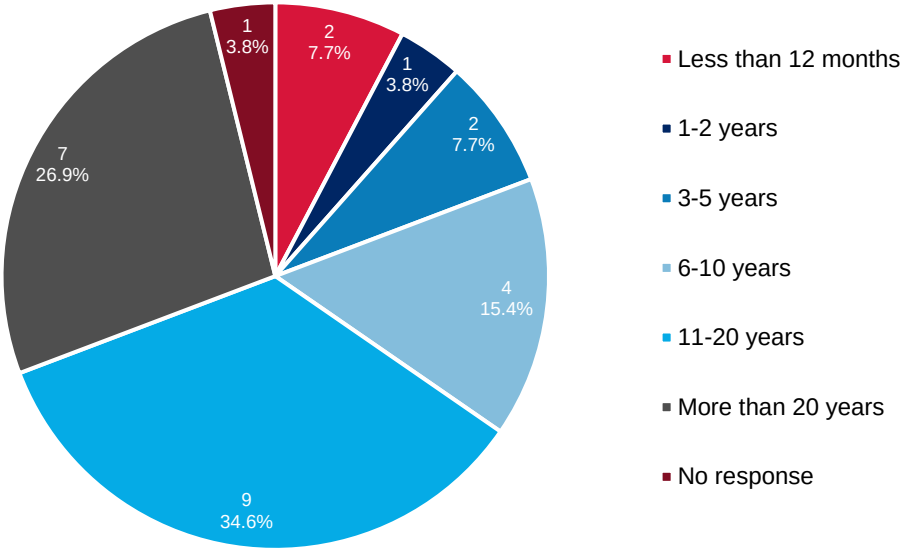
Location	Number
Heatherbrae	24
Beresfield	2

Which of the following industries best describes your business?

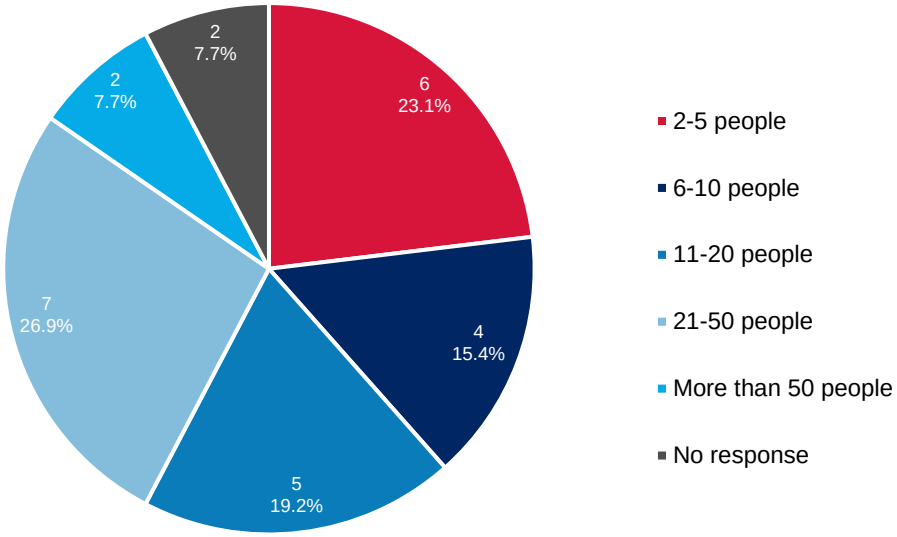


Note that some businesses indicated more than one type of service (for example, accommodation and food services)

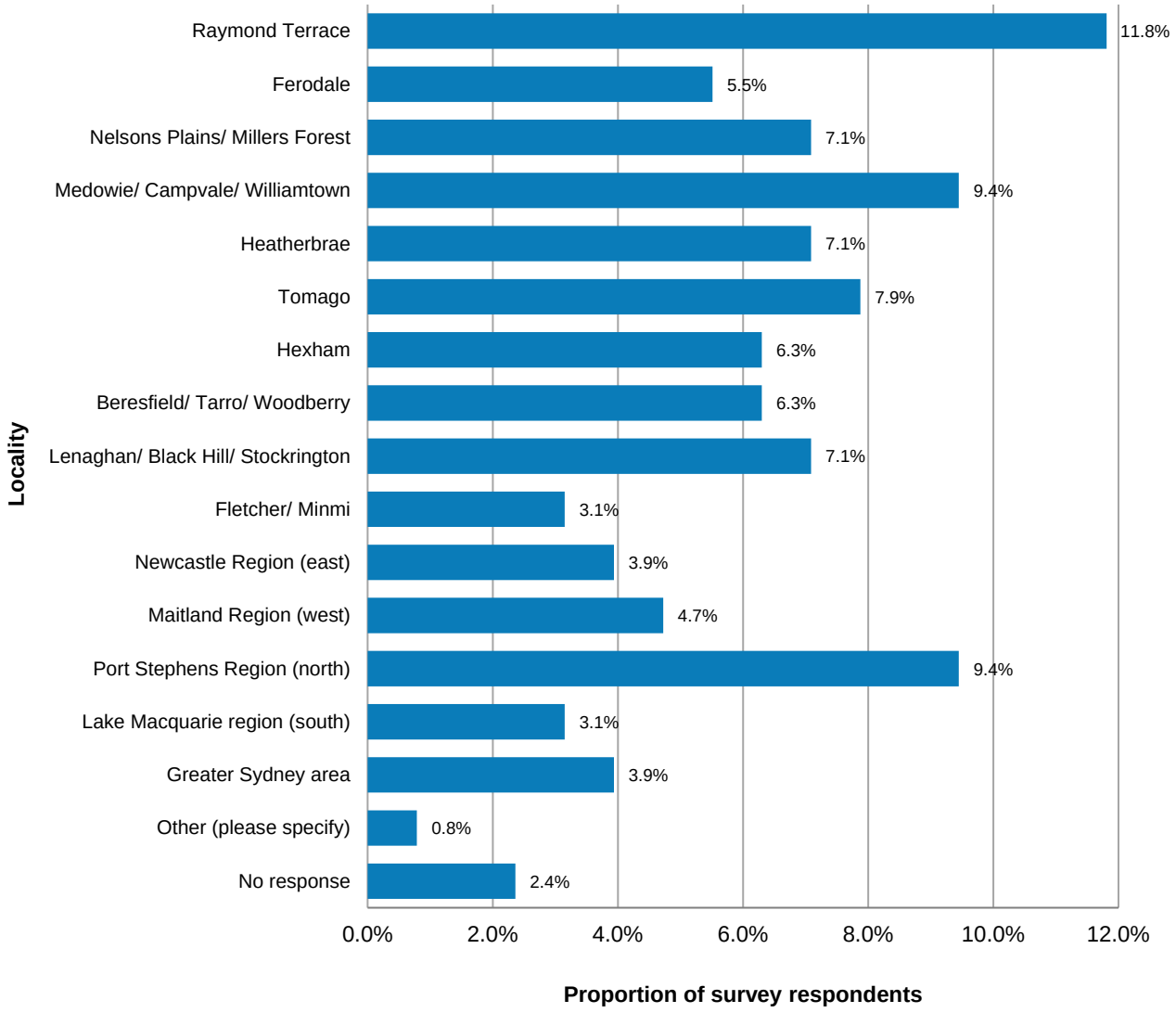
How long has your business been operating in its current location?



How many people does your business employ (including yourself)?



Where do most of your customers come from?



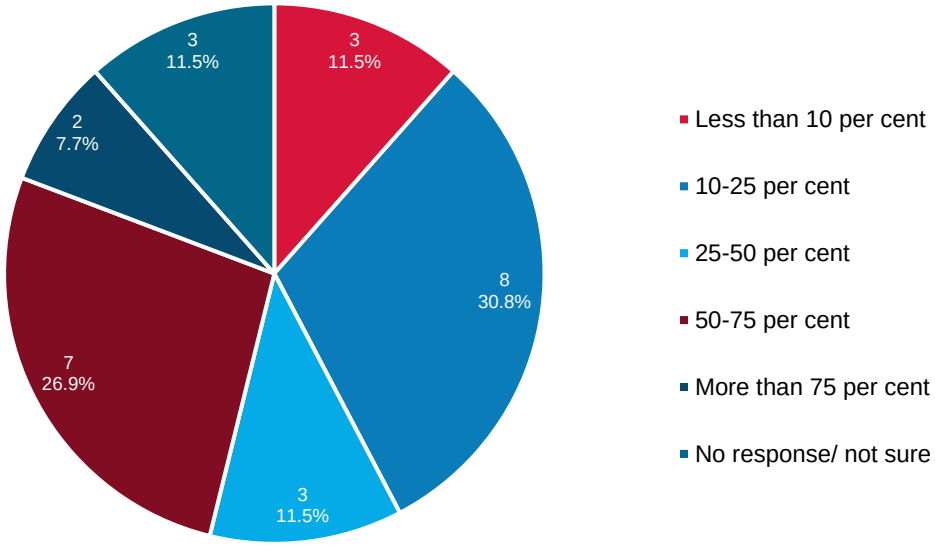
Note, some businesses identified more than one locality

Comments received on 'where do most of your customers come from?'

Comments

- Holiday traffic (for example, people travelling during school and public holidays, and people holiday travellers outside of these periods)
- Majority from Raymond Terrace or along the Pacific Highway
- Locals still come in on way to work (for example, from Maitland to Newcastle). Also attract people from surrounding businesses
- Local residents from all areas listed make up about 50 per cent.
- Local customers mostly. Also people from north (for example, Taree and Port Macquarie)
- Local residents, highway travellers and local workers
- 60-70 per cent are from Raymond Terrace, Stroud, Karuah, Bulahdelah, Medowie, Hawks Nest. 30 per cent from southern areas
- Local residents from Raymond Terrace, Williamtown. Workers in the morning from 6.00 am
- Most local residents (that is, Lake Macquarie, Newcastle, Port Stephens and Hunter Valley) – 70-80 per cent of customers are from within 100-kilometre radius
- Entire City of Newcastle and Port Stephens LGAs, extending to Maitland and Scone
- Client base, including north and south Sydney, Forster, Port Macquarie
- Pacific Highway traffic, including trucks
- Travellers
- Highway exposure is mandatory for business to survive
- People passing from Sydney will stop anyway as know about the store
- Other areas include Central Coast as well due to timber mill. Larger catchment associated with timber mill and trade store
- Come from everywhere – more of a destination business.

Approximately, what proportion of your business / customers would you estimate to be from passing traffic?



Comments received on "approximately, what proportion of your business / customers would you estimate to be from passing traffic?"

Comments

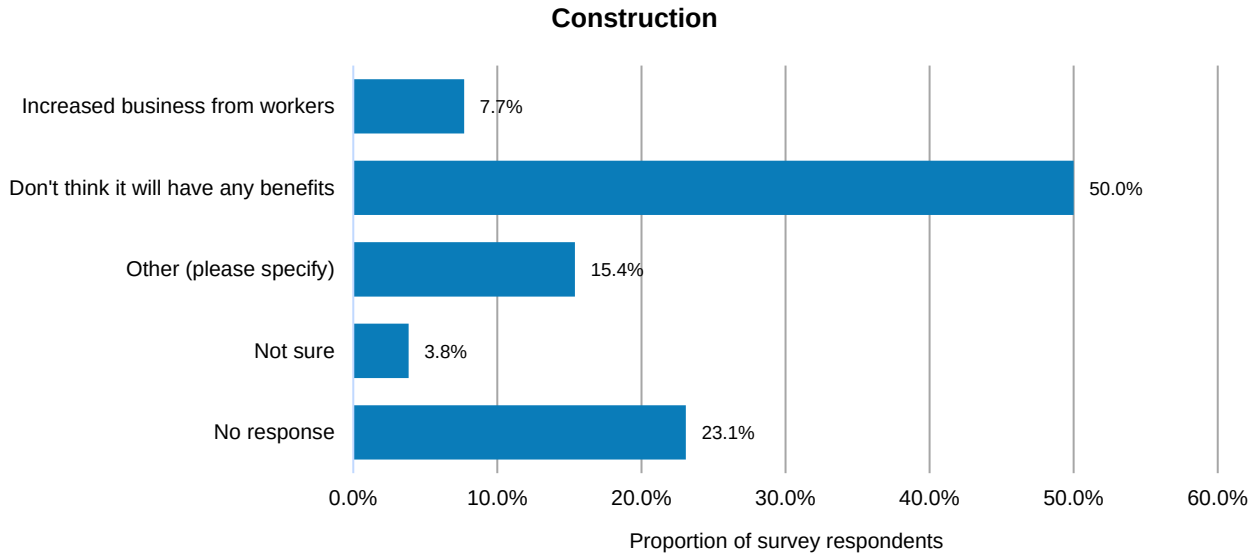
- Nearly all of the business relies on passing trade – will have large impact on business (lose 85 per cent). Very concerned about impacts of the project and what this will mean. Expect that we will need to close
- 10-15 per cent of customers are from holiday makers and truck drivers
- Average over the year is about 35 per cent. Passing trade as high as 70 per cent during holiday periods (for example, Christmas / Easter)
- This is a stop for travellers to Sydney as 'mid way' between beaches and Sydney
- Destination shop – have been here a long time, reputation. Was only business of this type in Heatherbrae for a while, now one other. Do get passing trade (less than 10 per cent). People see 'chalk board' (advertising) and may stop as result, but not many
- Holiday times – motorists from all over Australia travelling past. During school holiday sold product to someone in Blue Mountains travelling up north. Traffic high percentage 60-70 per cent for all areas
- Don't get a lot from Raymond Terrace – workers. Lot of people from Sydney (who know us). Slowly build up during day to lunch rush. Weekends busier. More local employment during weekday – but only small part.
- Travellers – commercial / grey nomads week. Families on weekends.
- Higher at holidays (for example, long weekends). Long weekends are busiest period. Stopping point to Sydney
- Big percentage of customers is workers (for example, contractors associated with local business)
- Restaurant gets a lot of take away – about 90% of their business
- Constant throughout the year
- Travellers – fairly constant
- Difficult to answer. Drive-by high on list from surveys conducted (that is, top in past three surveys). Most people driving past see us due to long frontage.

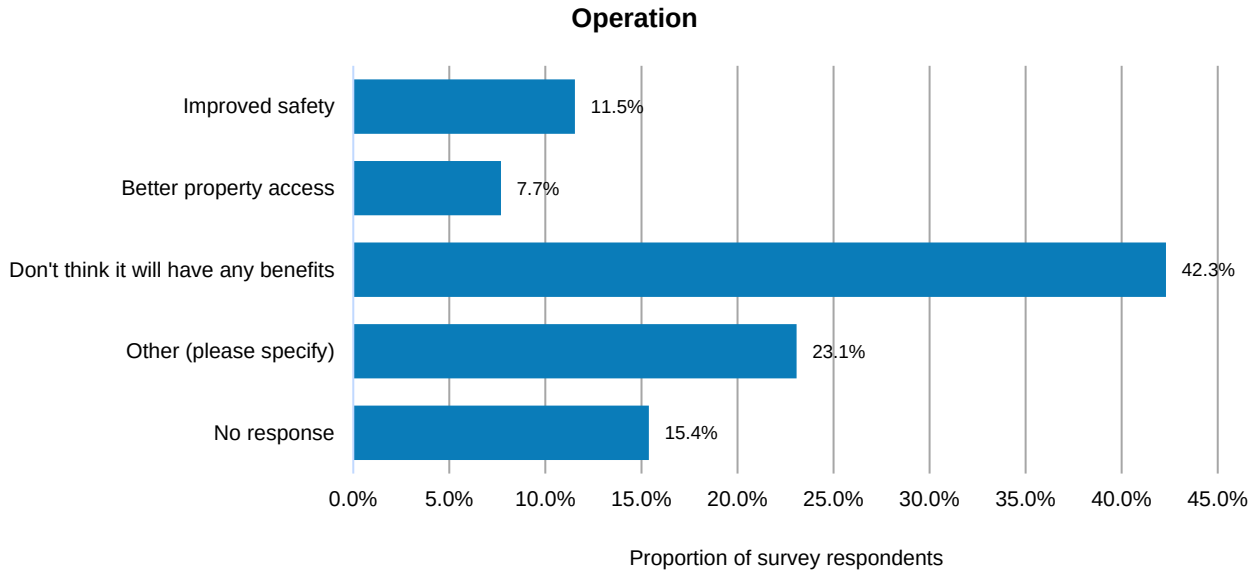
How do most customers travel to your business?

Mode of transport	Number of survey respondents	Proportion of survey respondents
Car	22	73.3%
Walk	1	3.3%
Cycle	0	0.0%
Public transport (bus)	1	3.3%
Not sure	0	0.0%
Other (Please describe)	2	6.7%
No response	4	13.3%
Total	30	100.0%

Note that some businesses provided more than one response

What benefits do you think the project may have on your business?



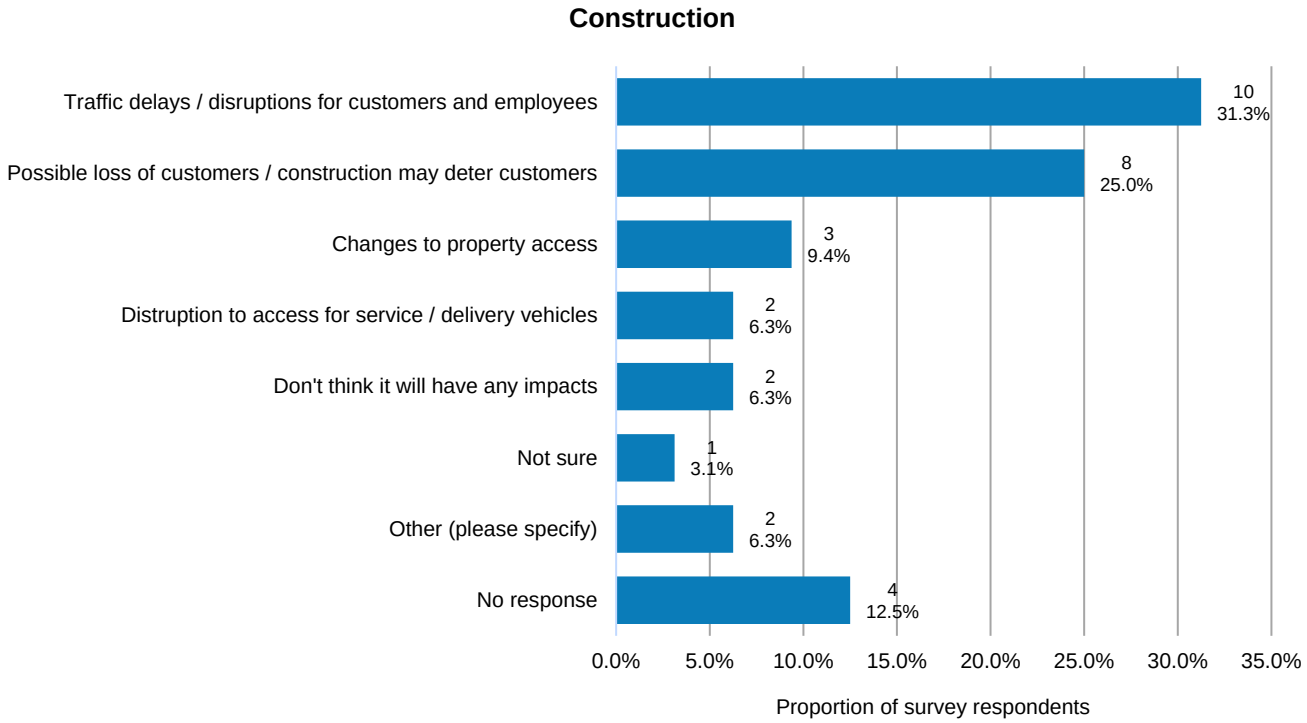


Comments received on “what benefits do you think the project may have on your business?”

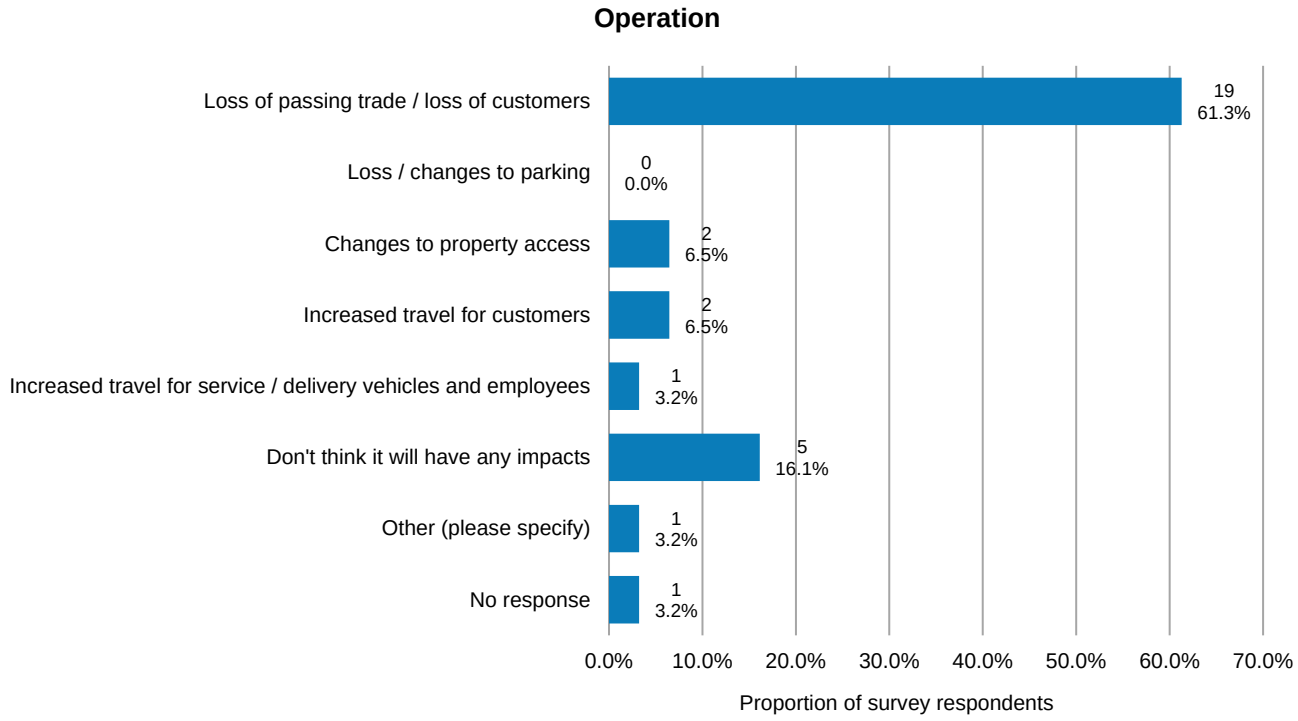
Construction	Operation
• May be uplift from worker sales (workforce). Not sure if will be offset during construction period (for example, by traffic disruptions, etcetera) • Different trades may require different products. Have supplied products to Transport for other projects. Depends on construction contractor • Maybe – purchase of construction materials • Yes, from heavy vehicles • Turn people away as won't know how to get here during construction and operation • Increased business from workers. Influx of people into area – reasonably high-income persons. Could be an increase during construction.	• Don't think it will have any benefits. Reduction in dust resulting in less cleaning • Improved safety. Elderly clientele who currently find it difficult to access due to high traffic – go out of way to use lights etc as safer • Benefit of reduced traffic (heavy vehicles). • Logistically no benefit. Benefit traffic congestion not as bad but not a positive for business and sales • Hopefully still get regulars – people that know • Less business due to loss of passing traffic as a result of the bypass • Will depend on how hard to get here – access to Heatherbrae. Already competition with other stores. People want to come here, so if make it harder, will go elsewhere • Do not think it will affect us

Construction	Operation
	• Less traffic on this section of highway. Safer – currently daunting for customers to come into our street. Certain customers come between 10.00am and 2.00pm because highway quieter • Easier to access into the area. Not a lot of issues now in relation to access to property • Improved safety. Better property access – congestion on the car park during busy periods. Intersection turning into car park • Better property access – easier access • Don't think it will have any benefits – visibility and potential clients driving past us would dramatically drop. Still get local customer. Expect a drop in further (regional) customers • Hopefully more local motorists passing by.

Do you foresee any negative impacts the project may have on your business?



Note that some businesses provided more than one response

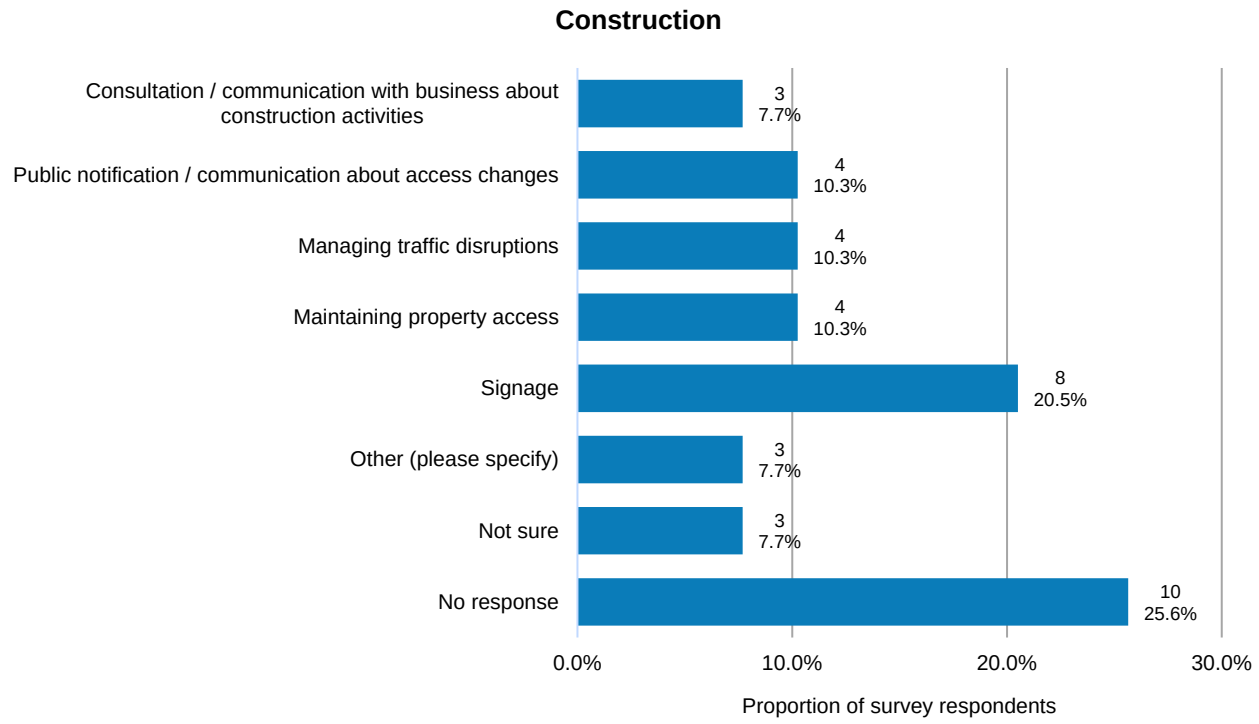


Note that some businesses provided more than one response

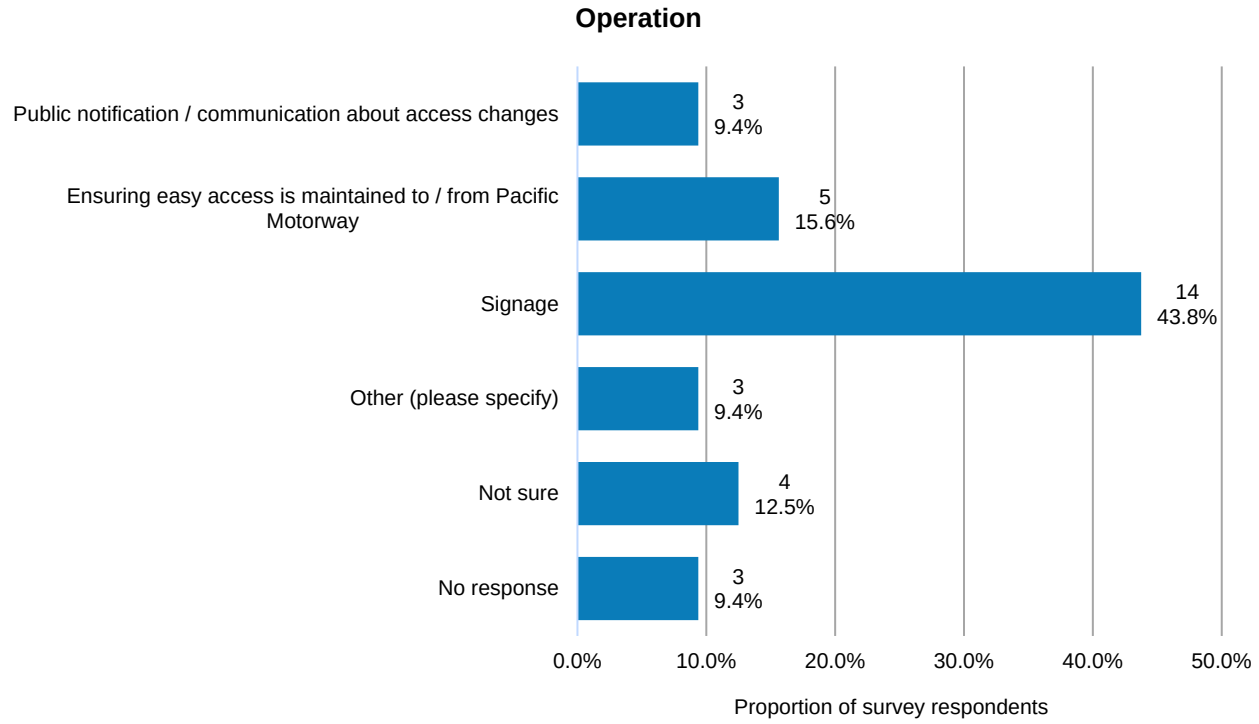
Comments received on 'do you foresee any negative impacts the project may have on your business?'

Construction	Operation
• If people try to avoid area (due to road work) • Disruption – better information that can provide, then better • Main issue will be traffic flow – if accident on highway now people are held up and less likely to stop • Stop / start traffic – this may be issue if construction disruption • Getting to work – this is already a challenge at holiday times (due to congestion) • Traffic congestion during construction • Currently provide a service to Transport and other properties that will be directly impacted (potential loss of customers) • Loss of customers – business relies on exposure and easy access • Access – making sure people can get here • Traffic delays/disruptions for customers and employees. Need to maintain access, clearly signed • Dust – have issues now (coal transport) and think will continue to be issue • Potential loss of trade through loss of exposure. • Not in immediate vicinity – do not expect interruption. Nuisance to get here	• Harder to find – easy to find at the moment because on the Pacific Highway • Won't affect local trade, will affect passing traffic. Looking at options for signage / billboards • Passing trade is big – Christmas / Easter / Holiday period is biggest. Get a lot of people coming out of Sydney first week in December to end January (non-stop). Two hour mark from Sydney. • Won't be destination stop. Currently 'travels centre' with Hungry Jacks, KFC, etcetera • Less passing trade • Think will see drop in holiday travellers – not on same route. Real service centre (Heatherbrae) not as obvious as Taree service centre ('laissez faire' service centre – independents can set up). More character to it than just an homogenous service centre • Decrease in holiday sales • Loss of convenience to get here, loss of trade • Will have to affect a bit. 50 per cent (of customers) ring up and 50 per cent drive in. Will be affected if people can't find them (due to access). Particularly late evenings / weekends – cabins. Lot drive-ins for cabins (at night) • Don't think any – likely to have positive • Do not know how much the internet will impact business • Millions of dollars – what does achieve? Can't see value for money on project from (Hexham Bridge).

What measures do you think could be put in place to maximise benefits / minimise impacts of the project?



Note that some businesses provided more than one response



Note, some businesses provided more than one response

Comments received on 'what measures do you think could be put in place to maximise benefits / minimise impacts of the project?'

Construction	Operation
• Signage – sign posted on how to get to us • Signage – safety for staff and customers • Business is exploring own measures – direct marketing to customers – target information to key customers through loyalty cards, etc • Avoid peak times (for example, holidays such as Christmas / Easter). Traffic banks up from bridge in holiday periods • Maximise use of local business where possible (for example, batching plants. bitumen, irrigation pumps, fittings). Transport provide list of local business and services they provide to construction contractor for consideration • Do construction in stages and segments – less disruptive • Planning / managing of construction to decrease disruption – do bridges first and then bypass • Making Heatherbrae a rest stop / destination complete with directional signage and signage that displays the business name and logo.	• Listing businesses so motorway traffic know what is in Heatherbrae to keep them aware • Business on Pacific Highway signed to keep aware from loss of passing vehicles • People know we are here. Making sure signage is right so people know we are here. Make sure off / on ramps are sign posted correctly • Signage for businesses. Speak a lot to customers about things happening • Signage – but depends where will be. If access is hard, no one will stop • Signage will be important for Heatherbrae • Make sure road is always open (for example, John Renshaw Drive) • Minimise impacts – no mitigation, just progress • Maintain traffic speed – at moment different speeds (consistency) • Property access not directly impacted – regional access impacted.

Are there any other matters that you think should be considered as part of this assessment?

Comment (verbatim)
• Can't expect important project to be put on hold – project has greater good • Less deliberation time – let's see the system work • Get on with it • It is progress – benefits some, impact others • Longer drive without break – help reduce stress and fatigue • Will help alleviate traffic during peak times – takes about 2.5 hours to get to work during peak period. Staff go the back way through Raymond Terrace – call staff to notify them of traffic • As long as plenty of access is maintained to the place, signage etc • Lot of trucks stop prior to going to Sydney • Beresfield serves people travelling north • Project is away and not on doorstep – cannot see project having much effect on us, during both construction and operation • Flood impacts – April floods last year • Leave the Motorway through Heatherbrae • Biggest change for Heatherbrae was when bypassed Raymond Terrace – people stop at Taree, which is two hours from Heatherbrae • Slight concern that will lose passing trade • Caravan industry came in last five years – previously was at Bennett's Green. Some products suit that need. • More marketing / advertising • People don't want to be on road, but if not on road, don't see you. Let people know well signed to Heatherbrae (northbound) • Do as much as possible to transition. Effect on business. Access and visibility – improving ease of access. Letting customers know about changes • Gateway signage at entry points to Heatherbrae – is still a service centre, highlight that still a service centre • Shopping destination for caravans. Lake Macquarie / Belmont has next 'concentration' of caravans • Council is being proactive in building business • Signage for businesses should be available for north and south entry / exit for business (for example, logo, business name, location).

Appendix D Businesses near the project

Table D-1 Businesses near the project or along John Renshaw Drive – New England Highway (Maitland Road) – Pacific Highway

ID	Businesses	Business type
Beresfield		
B01	Robson Civil Projects	Professional services
B02	Daimler Trucks Newcastle	Retail – vehicle sales (trucks)
B03	Iveco Newcastle	Retail – vehicle sales (trucks)
B04	Newcastle Hino	Retail – vehicle sales (trucks)
B05	BP Truckstop Beresfield	Retail – service station
B06	Hungry Jacks	Cafe / restaurant / take-away
B07	Roadhaven Café	Cafe / restaurant / take-away
B08	Glenwood Rural Buildings	Manufacturing / industrial
B09	Jackson Plant and Transport Repairs	Automotive repairs
B10	Hunter Power Systems	Equipment hire
Tarro		
B11	Palm Valley Village	Accommodation
Tomago / Hexham		
B12	Access Hire Newcastle	Equipment hire
B13	Hexham Train Support Facility	Manufacturing / industrial
B14	Tomago Village Van Park	Accommodation
B15	Volgren	Manufacturing – vehicles
B16	Caravan Fix	Automotive repairs
Heatherbrae		
B17	Hunter Region Botanic Gardens (HRBG)	Arts and recreation services
B18	Shells Coles Express Motto Farm	Retail – service station
B19	Evergreen Stud Farm	Agriculture – horse breeding/ training
B20	Sandy's Famous Seafood	Cafe / restaurant / take-away
B21	Royal Wolf Shipping Containers	Retail – container sales and hire
B22	7th Street Caravans	Retail – vehicle sales (caravans / camper trailers)
B23	Bunnings	Retail – hardware
B24	BCF	Retail – sporting goods
B25	Pet Stock	Retail – pet supplies
B26	Autobarn	Retail – automotive supplies
B27	Pacific Gardens Van Village	Accommodation
B28	Golden Terrace Chinese	Cafe / restaurant / take-away
B29	McDonalds	Cafe / restaurant / take-away
B30	Jax Tyres and Auto	Automotive repairs

ID	Businesses	Business type
B31	Horseland	Retail – sporting goods
B32	7 Eleven	Retail – service station
B33	Subway	Cafe / restaurant / take-away
B34	JB Caravans	Retail – vehicle sales (caravans / camper trailers)
B35	Golden Hind Restaurant	Cafe / restaurant / take-away
B36	Sir Francis Drake Inn	Accommodation
B37	Ryans at Newcastle Equestrian Centre	Agriculture – horse breeding/ training
B38	Holcim Heatherbrae	Manufacturing – cement
B39	North Star Motors	Retail – vehicle sales (trucks)
B40	Caltex Service Station	Retail – service station
B41	Country Comfort Motto Farm Motel	Accommodation
B42	JS Transport Group	Retail – vehicle sales (trucks)
B43	Clarke Equipment	Retail – machinery and equipment
B44	Parravans Caravan World	Retail – vehicle sales (caravans / camper trailers)
B45	Choices Flooring	Retail – flooring
B46	Cub Camper Trailers	Retail – vehicle sales (caravans / camper trailers)
B47	Newcastle Camper Trailers	Retail – vehicle sales (caravans / camper trailers)
B48	Premier Bricks, Blocks & Pavers	Retail – bricks / pavers / tiles
B49	Terrace Tiles	Retail – bricks / pavers / tiles
B50	Our Town Fencing	Retail – fencing
B51	Pioneer Water Tanks	Retail – water tanks / pumps / supplies
B52	Bonanza Trailers	Retail – vehicle sales (trailers)
B53	Civcon Water Services	Retail – water tanks / pumps / supplies
B54	Motto Farm Auto Repairs	Automotive repairs
B55	Smith Aluminium	Manufacturing
B56	Motto Farm Veterinary Hospital	Professional services
B57	Kennards Hire	Equipment hire
B58	The Caravan Company	Retail – vehicle sales (caravans / camper trailers)
B59	Joe Cappiello Motors	Retail – vehicle sales (cars)
B60	AllGal Residential & Rural Steel Frame Buildings	Manufacturing
B61	Stony Creek Campers	Retail – vehicle sales (caravans / camper trailers)
B62	4WD Supacentre	Retail – vehicle sales (caravans / camper trailers)
B63	MDC Camper Trailers & Offroad caravans	Retail – vehicle sales (caravans / camper trailers)

ID	Businesses	Business type
B64	Battery Kingdom	Retail – automotive supplies
B65	Terrace Boating	Retail – boats
B66	Wild Bean Café	Cafe / restaurant / take-away
B67	BP Truckstop	Retail – service station
B68	Guzman Y Gomez	Cafe / restaurant / take-away
B69	KFC	Cafe / restaurant / take-away
B70	Hungry Jack's	Cafe / restaurant / take-away
B71	Heatherbrae Pies	Cafe / restaurant / take-away
B72	Shed Boss	Manufacturing / industrial
B73	H&D Hardware	Retail – hardware
B74	Weathertex	Manufacturing / industrial
B75	SRO Group	Manufacturing / industrial
B76	Loc-a-Bloc	Construction
B77	B & S Timber Products	Retail – landscape supplies
B78	Bellhaven Caravan Park	Accommodation
B79	Metro Petroleum	Retail – service station
B80	Jayco Newcastle	Retail – vehicle sales (caravans / camper trailers)
B81	Apollo RV Sales	Retail – vehicle sales (caravans / camper trailers)
B82	Newcastle Caravans & RVs	Retail – vehicle sales (caravans / camper trailers)
B83	OMP	Manufacturing / industrial
B84	Reece Plumbing	Retail – plumbing supplies
B85	Impact Stockfeed & Saddlery	Retail – agricultural supplies
B86	A & L Windows & Doors	Manufacturing / industrial
B87	Australian Plastics Profiles	Manufacturing / industrial
B88	Australian Caravan Centre	Retail – vehicle sales (caravans / camper trailers)
B89	Anderson’s Scaffolding	Construction
B90	Allied Newcastle	Furniture removalists

Appendix E Social infrastructure within one kilometre of the project

Table E-1 Social infrastructure within one kilometre of the project

ID	Facility	Social infrastructure type
S01	Hunter Valley Equestrian Centre	Sport, recreation and leisure facilities
S02	Hunter Valley Traditional Archers	Sport, recreation and leisure facilities
S03	Pasadena Crescent Reserve Soccer Fields	Sport, recreation and leisure facilities
S04	Beresfield Golf Club	Sport, recreation and leisure facilities
S05	Park	Sport, recreation and leisure facilities
S06	Lindsay Memorial Park	Sport, recreation and leisure facilities
S07	Catholic Church	Cultural facilities
S08	War Memorial Monument	Cultural facilities
S09	Beresfield Bowling Club	Sport, recreation and leisure facilities
S10	Beresfield Public School	Education
S11	Beresfield Pre-School	Education
S12	Newcastle Memorial Park	Cultural facilities
S13	McCauley Park	Sport, recreation and leisure facilities
S14	Fiona John Park	Sport, recreation and leisure facilities
S15	Tarro General Cemetery	Cultural facilities
S16	Uniting Church of Australia	Cultural facilities
S17	Aspect Hunter School Tarro	Education
S18	Our Lady of Lourdes Primary School	Education
S19	Tarro Fire Station	Other facilities
S20	Tarro Community Hall	Other facilities
S21	Tarro Public School	Education
S22	Tarro Recreation Area	Sport, recreation and leisure facilities
S23	Boat Ramp	Sport, recreation and leisure facilities
S24	Tomago Bowling and Sporting Club	Sport, recreation and leisure facilities
S25	Hunter Region Botanic Gardens (HRBG)	Sport, recreation and leisure facilities
S26	Newcastle Equestrian Centre	Sport, recreation and leisure facilities
S27	Hunter River High School	Education
S28	Kinross Park	Sport, recreation and leisure facilities
S29	Green Hill Park	Sport, recreation and leisure facilities
S30	Jaycees Park	Sport, recreation and leisure facilities
S31	Kia Ora Park	Sport, recreation and leisure facilities
S32	Raymond Terrace Cemetery	Cultural facilities
S33	Pioneer Hill Cemetery	Cultural facilities
S34	Muree Golf Club	Sport, recreation and leisure facilities

ID	Facility	Social infrastructure type
S35	Nargoon Reserve	Sport, recreation and leisure facilities
S36	Keith Pond Reserve	Sport, recreation and leisure facilities
S37	Community Kids Early Education Centre	Educational facilities
S38	New Life Church Raymond Terrace	Cultural facilities