

# **Appendix G** – Socio-economic Impact Assessment

The background of the cover is a photograph of a rural landscape. A dirt path or rail trail runs diagonally from the bottom left towards the center of the image. To the left of the path is a field of tall, golden-brown grass. To the right is a grassy area with a fence line. In the distance, a tall utility pole stands prominently, and another smaller one is visible further along the path. The horizon shows rolling hills under a clear blue sky with some light clouds.

# City of Newcastle Richmond Vale Rail Trail Socio-Economic Impact Assessment

September 2019

# Executive summary



The **Richmond Vale Rail Trail (RVRT)** will be a **unique and iconic multi-use recreational trail**, with health, social, educational, tourism, safety, and other non-motorised travel benefits. As part of this socio-economic assessment, a rigorous **benefit-cost analysis (BCA)** has been completed that shows that the expected benefits provided by the RVRT are close to **two and half times** the expected costs. The BCA justifies the public expenditure on the project, as investment in the RVRT will create lasting community benefits for the region.

## Project overview

The RVRT will deliver a 32 kilometre (km) shared pathway from Kurri Kurri to Shortland utilising the former Richmond Vale railway alignment and unused Hunter Water pipeline route.

A number of branch lines from the main trail alignment are proposed to provide connections to the suburbs of Tarro, Fletcher and Minmi, as well as a section traversing the Stockrington State Conservation Area. The trail will be located within the Newcastle, Cessnock and Lake Macquarie local government areas (LGAs). The trail will utilise the following corridors:

1. Shortland to Tarro utilising an unused Hunter Water Corporation (HWC) pipeline corridor.
2. Hexham to Minmi utilising the closed Richmond Vale rail alignment. A connection to Fletcher is proposed using HWC corridor.
3. Minmi to Kurri Kurri using the Richmond Vale rail alignment.

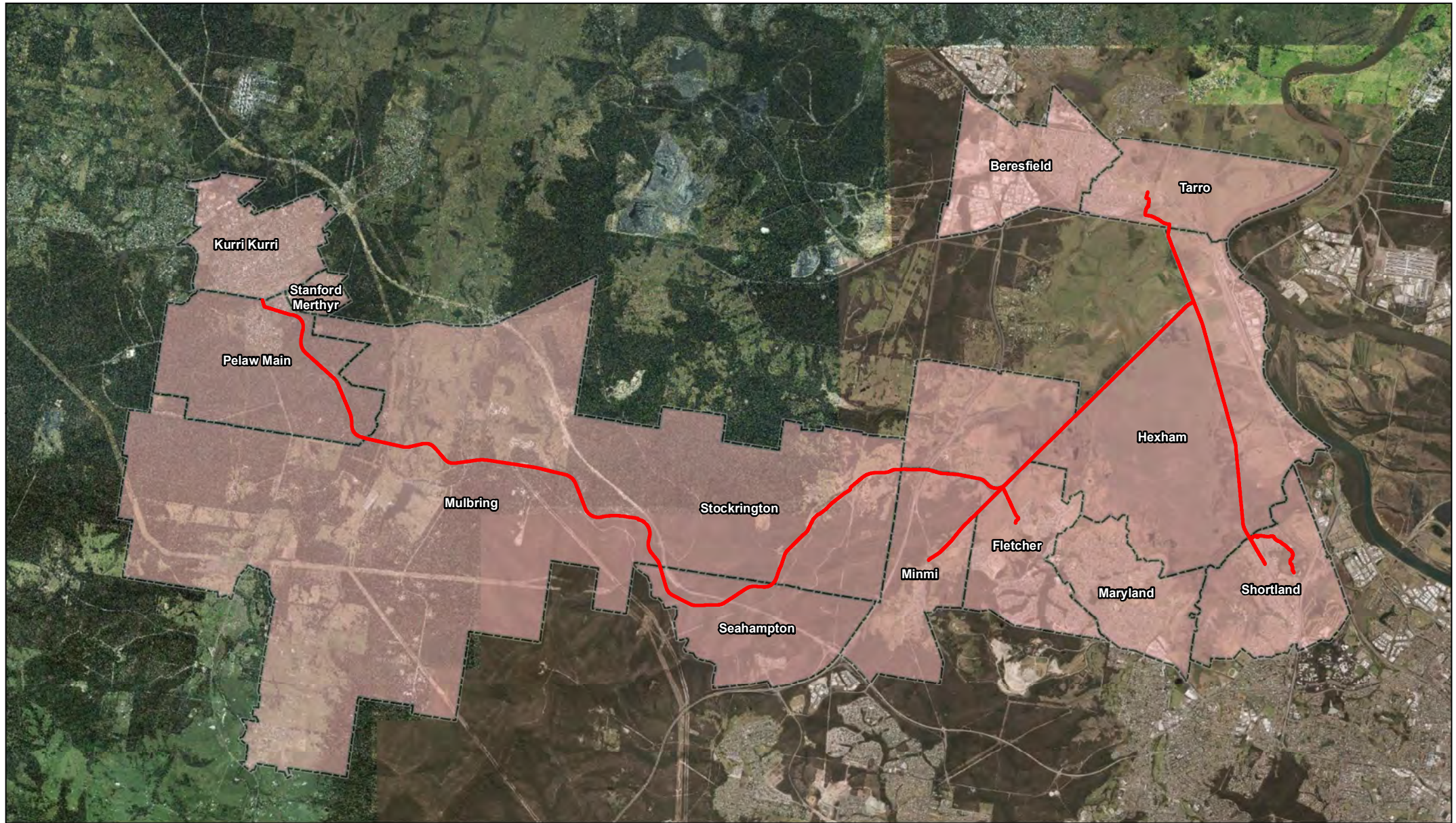
The path will typically be a three metre wide sealed pavement up to four metres wide where it is expected that a high number of cyclists and pedestrians will interact, such as the connection between Shortland and Tarro (Hunter Wetlands National park). Formal access points will be provided at Minmi, Dog Hole Road, George Booth Drive (at both Tunnel 1 and Surveyors Creek) and Kurri Kurri. These facilities will include parking, toilets, rest areas and water.

This socio-economic impact assessment has been undertaken to support the environmental planning and approvals processes for the project.

## Study area

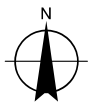
The local area of influence for the assessment of the RVRT was considered to be the thirteen state suburb areas that intersect with the proposed pathway and may be directly impacted by the project, both during construction and during future use. A regional study area including the LGAs of Newcastle, Lake Macquarie, Cessnock and Maitland was also considered. In 2016 the local area population was 30,951 persons and 486,000 for the regional area. The local study area is shown in Figure E-1.





Paper Size A4  
0 700 1,400 2,100 2,800  
Metres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



#### LEGEND

- Proposed route
- Local Study Area



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment

Job Number	22-18317
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Local study area

Figure E-1

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## Socio-economic profile

The project links both old and new suburbs with varying characters. Younger families are more common in Fletcher and Seahampton, with older families, and increasingly empty nesters in other suburbs such as Shortland, Kurri Kurri, Pelaw Main, Mulbring, Stanford Merthyr, Tarro and Beresfield. Significant population growth is anticipated in the region, and particularly in the local area in coming decades.

Health data indicates that populations in the region face significant behavioural health challenges, with the poorest health indicators in Cessnock and Maitland LGAs. The RVRT will provide infrastructure to facilitate increased physical activity for these communities.

The RVRT will be in close proximity to public schools in Shortland, Minmi and Pelaw Main, and accessible for schools in Maryland, with the potential for the RVRT to be utilised for educational purposes/field trips. Opportunities for local businesses are likely to be located in Shortland, Kurri Kurri, Tarro and potentially Minmi and Fletcher. The RVRT is close to sports fields and facilities at both Shortland (Tuxford Park) and Kurri Kurri (Kurri Kurri sports ground). Walking trails already exist at both ends of the trail (in the Hunter Wetlands Centre and Log of Knowledge Park). There is potential for activation and use of these areas by trail users.

The proximity of the RVRT to the University of Newcastle Callaghan Campus creates a significant opportunity for use by commuting students in the local and regional area.

The RVRT has the potential to improve accessibility between areas as there are no rail services, and bus networks and timetables are limited (perhaps even connecting Seahampton, which has limited bus services and connections).

Commuter travel in the local area is dominated by a reliance on motor vehicles, a reliance that is greatest in the middle of the route, around Fletcher. However less than 40 percent of all trips are commuter related, and average trip lengths are less than 15 km, indicating there is considerable potential in the local area for increasing mode change to cycling or walking for both commuter and non-commuter trips.

The RVRT is well supported by State and local government planning policies. It is consistent with the *Greater Newcastle Future Transport Plan*, which includes multiple actions to facilitate and promote cycling, is a priority project in the *Cessnock Cycling Strategy* and will respond to multiple cycle routes noted in the *Newcastle Cycling Strategy and Action Plan*. The RVRT will also support many of the overall objectives for local government including providing community connectivity, healthier communities, more sustainable travel and recreational assets, improved access to natural areas, and increased tourism.

## Consultation

The evolution of the RVRT has been a process that has been cooperatively driven by local government and members of local communities over many years. Consultation for this socio-economic impact assessment has drawn on these evolving consultations, as well as engaging key stakeholders, including those who currently use or have an interest in the area the route will traverse and those who may have in the future.

## Future users

Estimating the demand of active transport users (cyclists and pedestrians) for the RVRT is one of the key parameters for economic justification of this project. The RVRT has great potential to attract a broad range of user groups, owing to the variety of experiences that the trail can offer. Estimating demand for the future use of the RVRT is inherently difficult. In order to estimate demand for the RVRT, a combination of different techniques were used. These included an analysis of other comparable and local trails, local and regional population growth trends and a survey of potential users. An average of the different approaches was used to estimate future use as 250,030 trips per annum. This approach is outlined in the economic assessment, but includes consideration of:

- Experience in Mundaring Shire in Western Australian where 10 percent of users were local but represented 63 percent of trips, and spent on average \$1.44 per trip.
- Bicycle counts which found the nearby 15 km Fernleigh Track receives 2,800 trips per week, or approximately 145,000 trips per annum.
- Considerable population growth expected in the region with extensive residential growth planned and occurring along the route.
- Trends in increasing domestic overnight stays and preferences for active and nature-based tourism.
- Research into cycling participation, which highlights its growth, size, mobility and economic contribution to the local and regional economy. The RVRT would have the potential to host cycling events and would attract cycling club tours and independent cyclists from outside the regional area.
- Potential for commuter use, given the proximity of the trail to the University of Newcastle and the enhanced safety afforded by the proposed route, especially for the section from Tarro to Sandgate.

## Economic assessment

A BCA was completed in order to justify public expenditure for the RVRT. A BCA is commonly used to appraise projects to see if they are economically worthwhile (i.e. the project provides an economically efficient use of resources). The analysis provides an economic evaluation of the societal costs and benefits likely to be accrued as a result of the RVRT. Where possible, attempts have been made to quantify all of the benefits and costs for the proposed route.

The decision rules most commonly used in BCA to test the economic justification of a project are the net present value (NPV) and the benefit cost ratio (BCR).

A project is deemed economically worthwhile if the NPV is positive (i.e. the present value of the benefits of the project exceeds the present value of the costs). Alternatively, a project is economically worthwhile if the BCR is greater than 1 (i.e. the present value of the benefits divided by the present value of the costs is greater than 1).

The results of the economic evaluation indicate that a **NPV of \$44.7 million** would be achieved by the RVRT project. The **BCR of 2.40** indicates that the level of expected benefits provided by the RVRT is close to two and a half times the level of expected costs.

## Benefits

A summary of the key benefits that were either quantitatively or qualitatively assessed to inform the BCA is as follows:

***Increased safety for commuting cyclists between Tarro and Shortland.*** There have been three cyclist fatalities in six years in this section of the New England Highway. Recent bicycle counts in this section indicate that 23 commuter cyclists use this route daily.

***Reduction in disease, morbidity and mortality.*** The physical health benefits of the trail would be greatest for the inactive and underactive, and by extension in savings to health care costs for individuals and government. Health data indicates that populations in the regional area face significant behavioural health challenges, with the poorest health indicators in Cessnock and Maitland LGAs. The RVRT will provide infrastructure to facilitate increased physical activity in the regional area.

***Improved mental health.*** There is evidence to support the premise that increased accessibility to natural areas for all ages and abilities improves mental health. Exposure to nature and natural areas reduces the risk of developing chronic depression and cardiovascular disease. This would be particularly beneficial for children and older people.

***Patronage by regional users will support local businesses and generate economic benefit.*** Cyclists would be particularly advantageous group of tourists to attract as they have been demonstrated to be a high spending market. Although expenditure per trip by local and regional visitors is generally estimated to be low, evidence from other trails demonstrates that due to their frequent use, the cumulative spend and flow-on benefits to the community from local users are significant.

***Attract bicycle tourists and general tourists.*** The RVRT will diversify current tourism offerings in the region, likely evolving into a significant destination itself and attracting both cycle specific and general tourists. Australians are having longer and more frequent domestic trips and participating in more outdoor, active, nature-based and cultural activities than ever before. It is estimated that 4.89 percent of jobs and 2.65 percent of the Newcastle LGA economic output is generated by tourism, and as high as 15.7 percent of employment and 10.73 percent of economic output in Cessnock is generated from tourism (REMPAN 2016).

***Primed to integrate mountain bike tourism opportunities.*** Mountain bikers will likely use the George Booth Drive and Mount Sugarloaf Road trail entry points to access Awaba Mountain Bike Park (AMBP) trails amongst the Watagan National Park, as well as Mount Sugarloaf State Conservation Area trails. The RVRT is also in close proximity to mountain bike trails accessed via Holmesville, east of Mount Sugarloaf. The Lake Macquarie City Council has recently announced a \$450,000 grant to the Hunter Mountain Bike Association (HMBA) as part of a state funded package to rejuvenate sporting and community projects in the region. HMBA are funding maintenance of current trails within the AWMP, as well as establishing four entirely new trails. The AMBP is already a significant destination for mountain bikers across the country, attracting as many as 500 visitors per week. The potential to connect with mountain bike networks in the area also presents significant economic opportunities in tourism, which is evidenced by the experience of the Blue Derby Mountain Bike Trails in Tasmania where a \$3.1 million investment saw returns of \$30 million a year. Since the 30 km of mountain bike trails were established in the town of Derby in 2015, it is estimated that 30,000 visitors flock to the town annually.

**Growth and diversification for local business.** Organisations such as the Hunter Wetlands Centre and the Richmond Vale Railway Museum will be the main beneficiaries, with other local food and beverage businesses in Shortland, Kurri Kurri, Tarro and potentially West Wallsend, Minmi and Fletcher also benefiting from patronage of the RVRT. Opportunities for new businesses or diversified services along the route such as accommodation, bicycle hire and repair services are also anticipated. It is expected that the RVRT will also be the catalyst to extend cycling routes into the Hunter Valley and have a cluster of cycling towns generating economic benefits for businesses right across the region.

**Improved journey ambience.** The RVRT will provide improved aesthetic environments. As an off-road facility in a natural area, it can reduce traveller stress by providing a more reliable and safe route.

**Enhanced property values.** Proximity to green infrastructure has been shown to increase property values. Properties in close proximity to the Fernleigh Track are advertised to highlight their access to the track, and it is likely that this will occur to some degree for properties in close proximity to the RVRT.

**Diverse and equitable active travel access to open spaces and social infrastructure.** Consistent with the Hunter Regional Plan 2036, the RVRT will enhance access to recreational facilities and connect open spaces, supporting thriving communities (Goal 3 in the Plan). Additionally, the RVRT is expected to provide greater accessibility for residents and visitors within Newcastle and between Newcastle and the Maitland and Cessnock LGAs, connecting not only recreational and natural areas (including the Hunter Wetlands National Park, Stockrington and Werakata State Conservation Areas and Pambalong Nature Reserve), but also education (University of Newcastle), health and employment facilities.

Key to this improved accessibility is the safety of the route, as it is off road and thus free of vehicular traffic risks, and its usability (i.e. a relatively low gradient path making it easily navigable by, and attractive to, people of varied abilities).

The RVRT is likely to be used primarily for recreational purposes, including sporting, fitness, nature and bird watching, tourism and general recreation, and some parts are also likely to be used for commuting. As such, the trail is expected to benefit a diverse cross section of the community, including people at different life stages, with different abilities, and of varied common interests likely to benefit.

With significant population growth anticipated in the region and particularly the local area, the RVRT is expected to accommodate a growing population. The RVRT will provide equitable access for local residents with varied socio-economic status, with the route passing close to both higher and lower income areas.

**Activate local spaces and build social capital.** Due to its universal accessibility, the RVRT will enhance activation, primarily around its start, end and access points and create opportunities for interest groups and incidental social interaction between users, reducing social isolation and increasing opportunities for community inclusion.

**Daily commuting provides financial and environmental benefits.** While users who incorporate cycling as part of their daily commute benefit from not having to sit in their car on congested roads, they are also at a financial advantage through avoiding vehicle operating costs. There will also be benefits as users switch from cars to more active forms of transport like cycling and walking, which in turn reduces vehicle emissions.



**Placing the Hunter Region on the map as a cycling destination.** Cycling destinations have fast become highly sought after in the wake of ecotourism trends worldwide. The region is primed as a key cycling destination by the existing networks of trails, as well as natural and tourist attractions, such as the internationally popular Hunter Valley wine region. Newcastle harbour is also a popular cruise boat destination, where passengers sweep through to experience the offerings and attractions of the region during their stay. Encouraging multi-day tourism through such attractions has promising economic benefits. Tourism expenditure indicates that domestic overnight visitors can spend more than double that of day trippers in the Cessnock and Newcastle regions. The local and regional area hosts an evolving network of recreational trails and cycleways, and the construction of the RVRT will continue to forge important connections between towns, villages and attractions in the region, supporting the growing tourism culture of the region.

**Heritage management.** The RVRT is strewn with archaeologically significant places, landforms, structures and artefacts, both Aboriginal and European, as well as conservation areas. These include places of Aboriginal cultural significance, as well as the Richmond Vail Rail Museum. Heritage items and conservation areas along - and in proximity to - the trail are attractive to visitors, as well as bringing recognition to the importance of heritage management in the area. Heritage assessment during the design stage will inform ongoing conservation and management however, informal management though user best practice will be encouraged by signage along the trail. This signage will encourage users to stay on the trail as well as educate them on areas or items of significance. The RVRT is also of historical significance and the adaptive reuse of the former railway into a recreational trail preserves and protects the site's history.

**Critical regional conduit to high conservation value areas.** The RVRT passes through or nearby to several high conservation value areas that have previously been largely inaccessible to the general public (e.g. the western sections of the Hunter Wetlands National Park, the majority of the recently established Stockrington State Conservation Area). Establishment of the RVRT will provide a unique conduit for accessing the region's varied ecosystems (e.g. from estuarine wetlands to red gum forests), which will encourage longer-term development of other local walking trails, further social/ recreational infrastructure investment, and associated educational and environmental programs. It will also stimulate long-term development of related recreational, educational and environmental programs.

The RVRT's rail and coal history, wetlands systems, and flora and fauna have been documented recently in *Towards the Richmond Vale Rail Trail* (2017) produced by the University of Newcastle's Tom Farrell Institute for the Environment. While appropriate environmental safeguards will be put in place to protect these areas, there will be considerable long-term societal-ecological 'opportunity benefits' associated with the RVRT, beyond the predominantly 'active transport' related socio-economic benefits included in the current assessment.

### **Mitigation measures**

Some properties may be impacted by land acquisition or by proximity to the route. Negative impacts (e.g. privacy and land access issues) will need to be addressed with appropriate measures that have been extensively informed by consultation with relevant stakeholders and a deep understanding of the local and regional communities that live within close proximity to the RVRT, as well as drawing on experience from other similar trails.

Construction of the trail will generate some short-term noise, vibration, traffic and amenity impacts in the local area. Generally, these will be temporary (in the order of less than a month) as works progress along the route. However these will be longer and more severe at the Tarro underpass and at bridge locations.

Recommended mitigations to avoid or ameliorate negative impacts from the RVRT are:

- Rest areas and trail interpretation locations and content be developed in consultation with local and regional bird observers, Aboriginal stakeholders, railway historians, and other key members of the community or management authorities.
- Motorised cycles/ scooter/ chairs (adequate to carry birdwatching equipment) and hire facilities for these to be provided at some access points.
- Lighting of the route to be provided to enhance safety.
- Fencing or screening of private properties close to the route to be implemented to minimise overlooking and privacy impacts.
- Adequate waste facilities would be provided to avoid nuisance to other users from litter in areas that might be used for social gatherings
- Property acquisition would be negotiated with affected land owners in accordance with legal requirements to reach fair compensation and acquisition arrangements.

### Enhancement measures

A number of enhancement measures are recommended to augment health, access, social connectedness and place activation benefits. The recommended enhancement measures are:

- Accommodation options along the trail would be explored and promoted, including the existing RV friendly site at Kurri Kurri and other potential sites along the route.
- Existing and evolving cycle networks in the region to be used to market the region as a cycle tourism destination.
- Joint marketing of the trail and associated 'RVRT friendly' businesses be undertaken to maximise benefits to local business and make users feel welcomed.
- Accessibility features of the RVRT to be promoted in promotional materials and signage.
- Bike hire services (automated) to be provided at key points along the route (e.g. Hunter Wetlands Centre, Kurri Kurri, Fletcher).
- Bike skills workshops and courses would be conducted, aimed at various age groups, including school aged children, mature adults and retirees. Such events could be timed with other events and programs such as Ride to School Days and Seniors Week.
- Formation of new common interest groups or activity groups would be supported such as Heart Foundation walking groups, parent/ family cycle or walking groups, birdwatching or seniors walking or cycling groups.
- Opportunities for future connections to and from the RVRT would be explored to encourage tourism into other parts of the region, e.g. Hunter Valley.

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# Appendices

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Appendix B – Local social infrastructure

Appendix C – Community facilities

Appendix D – Strava heat maps



# 1. Introduction

## 1.1 Background to the project

The Richmond Vale railway is a former rail line that runs from Hexham to Pelaw Main in the Lower Hunter region of NSW (see Figure 1-1). The first section of the railway was opened in 1857 and originally ran from Hexham to Minmi. In 1905 the line was extended from Minmi to the Richmond Main and Pelaw Main Collieries, near Kurri Kurri. A number of small branch lines were also established from the 1920s to the 1950s to service collieries in the Stockrington area to the east of Pelaw Main. Industrial operation of the railway ceased in 1987 following the closure of the collieries in the region. In 1991, a direct passenger line was re-opened along a section of railway from the former Richmond Main Colliery to the former Pelaw Main Colliery. This passenger line continues to operate as a tourism facility managed by the Richmond Vale Railway Museum. The balance of the line has remained closed since 1987 (Richmond Vale Railway Museum, 2016).

An opportunity now exists to use the disused sections of the former rail line, along with a disused section of the former Chichester to Newcastle water main corridor, to establish a multi-use recreational trail for non-motorised travel. Once constructed, the trail would extend for approximately 32 kilometres (km), from Shortland in the east to Kurri Kurri in the west. There would also be a number of branch lines from the main trail alignment that would provide connections to the suburbs of Tarro, Fletcher and Minmi. The trail would be located within the Newcastle, Cessnock and Lake Macquarie local government areas (LGAs).



Figure 1-1 View along the existing trail at Hexham

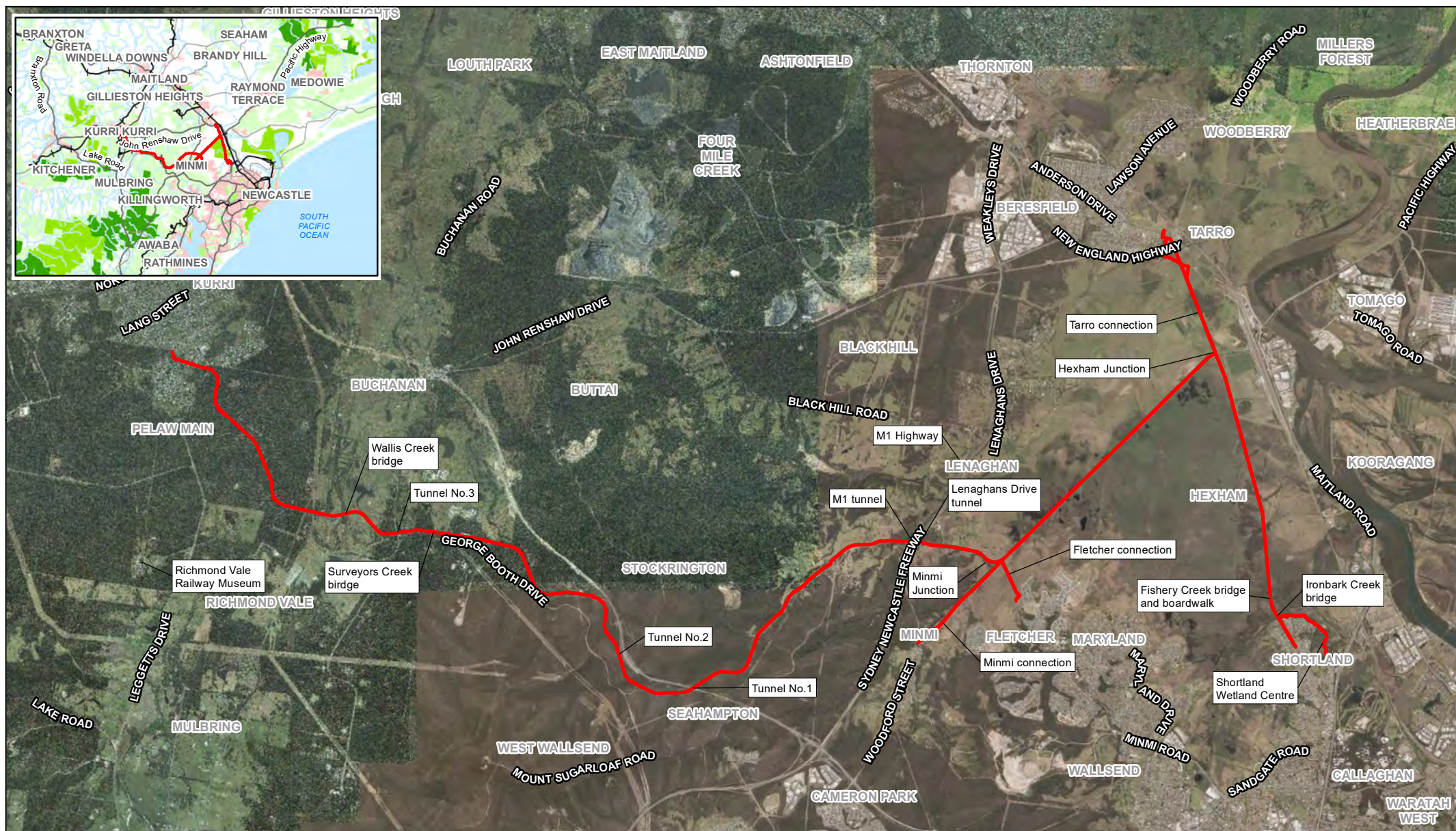
## 1.2 Proposed development

### 1.2.1 Overview

The Richmond Vale Rail Trail (RVRT) would deliver a 32 km shared pathway from Kurri Kurri to Shortland utilising the former Richmond Vale railway alignment. The route is indicated on Figure 1-2 and is generally defined as follows:

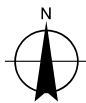
1. Shortland to Tarro utilising a Hunter Water Corporation (HWC) pipeline corridor.
2. Hexham to Minmi utilising the Richmond Vale rail alignment. A connection to Fletcher is proposed utilising the HWC corridor.
3. Minmi to Kurri Kurri utilising the Richmond Vale rail alignment.





Paper Size A4  
0 0.65 1.3 1.95 2.6  
Kilometres

Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



#### LEGEND

— Proposed route



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment

Job Number 22-18317  
Revision 0  
Date 05 Mar 2019

RVRT alignment

Figure 1-2

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Data source: Geoscience Australia: 250k Topographic Data Series 3, 2006; LPI: DTDB, 2012, Aerial 2016. Created by: tmorton, fmacKay



### 1.2.2 Cross section and alignment

The path will typically be three metres wide sealed pavement along flat and straight alignments in accordance with shared path standards. It is proposed to widen the path to four metres where it is expected that a high number of cyclists and pedestrians will interact, such as the connection between Shortland and Tarro (Hexham Wetlands). Trail grades of less than two percent are desirable for walking and cycling.

### 1.2.3 Access

Formal access points will be provided at Minmi, Dog Hole Road, George Booth Drive (at both Tunnel 1 and Surveyors Creek), Kurri Kurri and Shortland. These facilities will include parking, toilets, rest areas and water. This infrastructure has been designed to attract users by providing both functionality and visual appeal. The trail utilises existing facilities at Shortland and Fletcher, being the Shortland Wetlands Centre and the Fletcher Community Centre respectively. Existing water, toilets and parking are available at each location. A café operates at the Wetlands Centre and consultation suggests that a cafe is likely to be developed by the private sector at Fletcher.

Extension to the University of Newcastle is under consideration by City of Newcastle separately to this project.

### 1.2.4 Bridges and other structures

Several bridges will need to be constructed along the path to cross watercourses and an underpass constructed to cross the New England Highway at the Tarro extent. Bridge options were assessed in the concept design and include:

- Multispan low-maintenance concrete structures at Tarro, Ironbark Creek and Surveyors Creek.
- Lightweight and durable aluminium truss bridge over Fishery Creek.
- A suspension bridge extending for approximately 70 metres over Wallis Creek. This has been developed as a cost effective solution, which also reduces the environmental impacts to the site. It would also create another appealing destination along the trail.

### 1.2.5 Features

Various observation points, rest areas and shelters have been proposed along the trail. This infrastructure will be important to attract users and provide a pleasant experience along the trail.

A link from the trail into the northern end of the Hunter Wetlands Centre will support universal access to the trail. Toilet facilities are also proposed in the vicinity of this connection, further supporting use by diverse groups.

A number of significant historical items such as three brick lined tunnels (see Figure 1-3) have been identified along the trail and where possible these have been retained. It is expected that these items will attract users and where possible access has been provided for pedestrians to also easily walk to these features. Where remnant structures require removal, such as Surveyors and Wallis Creek bridges, signage and signboards are proposed to capture the rich heritage along the trail.





Figure 1-3 Tunnel 2 near Blue Gum Creek

#### 1.2.6 Facilities and further attractions

To facilitate diverse and equitable use of the trail the design will include:

- **Viewing and rest areas at key locations** – these areas will be located to provide rest and shelter for visitors and users (including families with small children and less mobile users) travelling both the length of the route and shorter return trips, from various access points. Rest sites (trail side seating) will be located approximately every kilometre along the route, with larger rest and/ or viewing areas off the trail at ten locations along the route (four within the Hexham Wetlands and six along the route or collocated with access points). Locations within the wetlands will be determined in consultation with the Hunter Wetlands Centre and the Hunter Bird Observers Group to ensure they facilitate continued survey of bird populations in the wetlands and are located at key sites for environmental awareness, interpretation and education.
- **Regular access points** – many visitors will access only sections of the route. Four points with car parking, universal access and amenities (toilets and water fountains) will be located along the route, in addition to the route end points. These access points will open up the middle sections of the route to diverse user groups. Two of the western access points would facilitate short return walks of less than four km to specific points of interest (e.g. tunnels).
- **A connection to Tarro** – a link route along the pipeline corridor extending to Tarro will make the wetlands accessible from the north and south, creating a link to the suburbs of Tarro and Beresfield and the potential for onward linkages for Maitland communities, including the expanding residential areas near Thornton.
- **Universal access will support diverse user groups** – universal access will be provided at both ends of the trail and at four other access points along the route. Such access means that less mobile visitors including those in wheelchairs, motorised scooters and families with prams will also have access to the easily traversable trail. Further, boardwalks and viewing platforms would ensure visibility is maintained for people in wheelchairs.

- **Connecting existing and potential local trail networks** - while current studies are considering only the route from Shortland to Kurri, with extensions into the Hunter Wetlands Centre, Tarro, Fletcher and Minmi, the project is envisaged as part of a larger future network of recreational trails with potential extensions or access to:
  - Cessnock and the Hunter Valley vineyards
  - Maitland
  - Shortland and the University of Newcastle Callaghan campus
  - Seahampton
  - Pelaw Main and Kurri Kurri
  - Blue Gum Hills planning precinct
  - Seahampton/West Wallsend to Teralba or Cockle Street Stations via a heritage listed rail trail, which will provide access to the Lake Macquarie area
  - Awaba Mountain Bike Park and Watagan National Park as well as Mount Sugarloaf State Conservation Area trails.

### 1.3 Surrounding environment

The RVRT commences in Shortland, a low density residential area close to the University of Newcastle Callaghan campus and hosting significant local and regional infrastructure including a private hospital, the Hunter Wetlands Centre and a local commercial and retail precinct (see Section 2). The RVRT route then travels within or immediately adjacent to the Hexham Swamp (see Figure 1-4), which is located within the floodplain of the Hunter River.



Figure 1-4 View of Hexham Swamp

Dominant land uses within the Hexham Swamp are recreation and conservation (Hunter Wetlands National Park). The swamp is of vital importance as a storage area for floodwaters and is also a valuable nutrient sink and nursery for a range of terrestrial, aquatic and marine flora and fauna. The area provides important habitat for at least fifteen internationally protected migratory bird species. Access to the Hunter Wetlands National Park is currently very limited with informal access primarily in the east along the pipeline route.

Seasonal grazing is also undertaken in some of the outer areas of the swamp. Immediately to the north of the RVRT, across the New England Highway are the residential and industrial suburbs of Beresfield, Tarro (Newcastle LGA), and Woodberry (Maitland LGA). The RVRT would terminate at Tarro Reserve. The regional centre of Maitland is located 10 km further north. To the east of this section of the RVRT lies the industrialised suburbs of Sandgate and Hexham, which extend along the western bank of the Hunter River.



The route of the RVRT travels west to the north of the suburbs of Fletcher and Minmi. Land use in this section of the route is dominated by low density residential housing and the residential growth areas within the Blue Gum Hills planning district (Newcastle LGA), which extend south to the Newcastle Link Road, and onward to the urban renewal corridor of Glendale to Cardiff (Lake Macquarie LGA). These areas are expected to experience significant population growth in coming years.

To the west, the dominant land uses include agriculture (grazing), and rural-residential housing (as it passes through Stockrington and close to Seahampton), as well as extensive natural areas. The trail terminates in Kurri Kurri.

The trail will traverse and link several natural areas along its route, from the state significant Hunter Wetlands National Park at Hexham, skirting the Pambalong Nature Reserve and through Stockrington State Conservation Area and the wooded Werakata State Conservation Area in the west (see Figure 1-5). Access to these areas is currently very limited (with the exception of Pambalong Nature Reserve).



Figure 1-5 Werakata State Conservation Area

## 1.4 Purpose and structure of this report

This report presents an assessment of the socio-economic impacts and benefits of the proposed RVRT. The report is structured as follows:

- Section 2 – an analysis of the existing socio-economic profile of the local and regional area and communities that may be impacted.
- Section 3 – a review of policy and planning documents relevant to the project.
- Section 4 – outcomes from consultation with residents, councils, key user and likely beneficiary groups, including results of an online survey undertaken to understand current and likely future behaviours of trail users and residents in the region.
- Section 5 – an overview of likely future users of the RVRT and predicted trips.
- Section 6 – a detailed description of the socio-economic assessment of the project including identification of potential costs and social benefits.
- Section 7 - mitigation strategies for each negative impact and recommendations for enhancement strategies to maximise positive social outcomes.
- Section 8 – a conclusion to the assessment and recommendations for the project.



## 1.5 Limitations

This report has been prepared by GHD for City of Newcastle and may only be used and relied on by City of Newcastle and partner Councils for this project for the purpose agreed between GHD and the City of Newcastle as set out in section 1.4 of this report.

GHD otherwise disclaims responsibility to any person other than City of Newcastle and its partner Councils for this project arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in the relevant sections of this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by City of Newcastle and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has prepared the preliminary cost estimate set out in section 6.3 of this report ("Cost Estimate") using information reasonably available to the GHD employee(s) who prepared this report; and based on assumptions and judgments made by GHD.

The Cost Estimate has been prepared for the purpose of estimating costs estimate for the CBR and must not be used for any other purpose.

The Cost Estimate is a preliminary estimate only. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change. Unless as otherwise specified in this report, no detailed quotation has been obtained for actions identified in this report. GHD does not represent, warrant or guarantee that the project can or will be undertaken at a cost which is the same or less than the Cost Estimate.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the user and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

## 2. **Socio-economic profile**

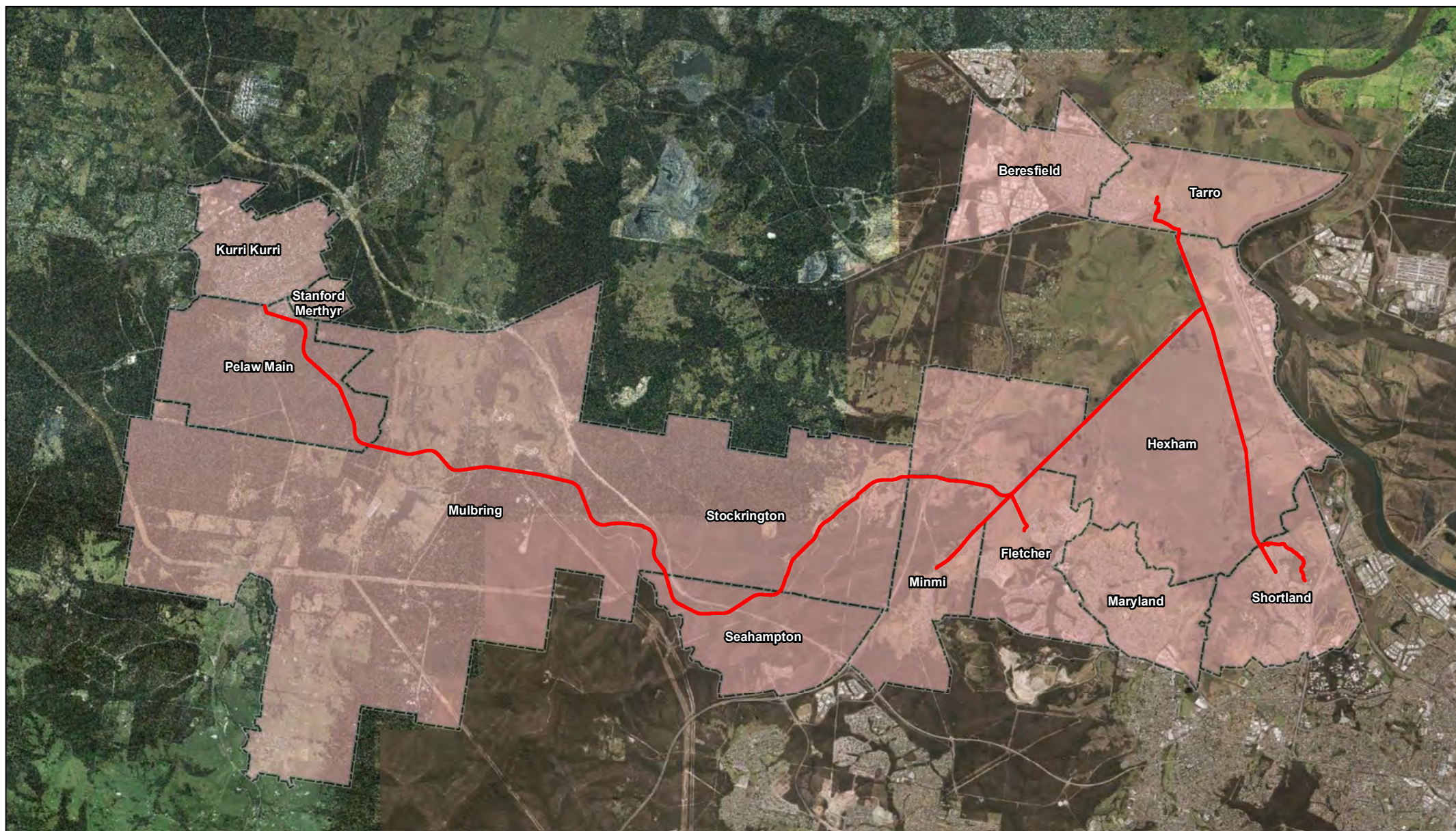
This socio-economic profile presents a picture of the people who live, work and recreate in areas potentially affected by the RVRT. The profile defines these areas, the people who live in them, their demographic characteristics and health, how they travel, and the social infrastructure available to them. It also describes the regional economy and the main businesses local to the RVRT. Together, these descriptors provide a basis for understanding potential socio-economic impacts of the project.

### 2.1 Study areas

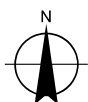
The local area of influence includes thirteen state suburbs that intersect with the proposed cycleway and may be directly impacted by the project. For the purpose of this report, all thirteen suburbs will be referred to as the 'local area', as illustrated in Figure 2-1.

The local area is situated across three LGAs within the Greater Newcastle Region including Newcastle, Lake Macquarie and Cessnock. For the purpose of this report the regional area has been considered as the wider area of influence and includes these three LGAs and the adjoining Maitland LGA, as it is likely that people from across the four LGAs would be the predominant regional users of the trail. The regional study area is shown in Figure 2-2.





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Metres  
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Grid: GDA 1994 MGA Zone 56



#### LEGEND

- Proposed route
- Local Study Area



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment

Job Number	22-18317
Revision	0
Date	05 Mar 2019

Local study area

Figure 2-1

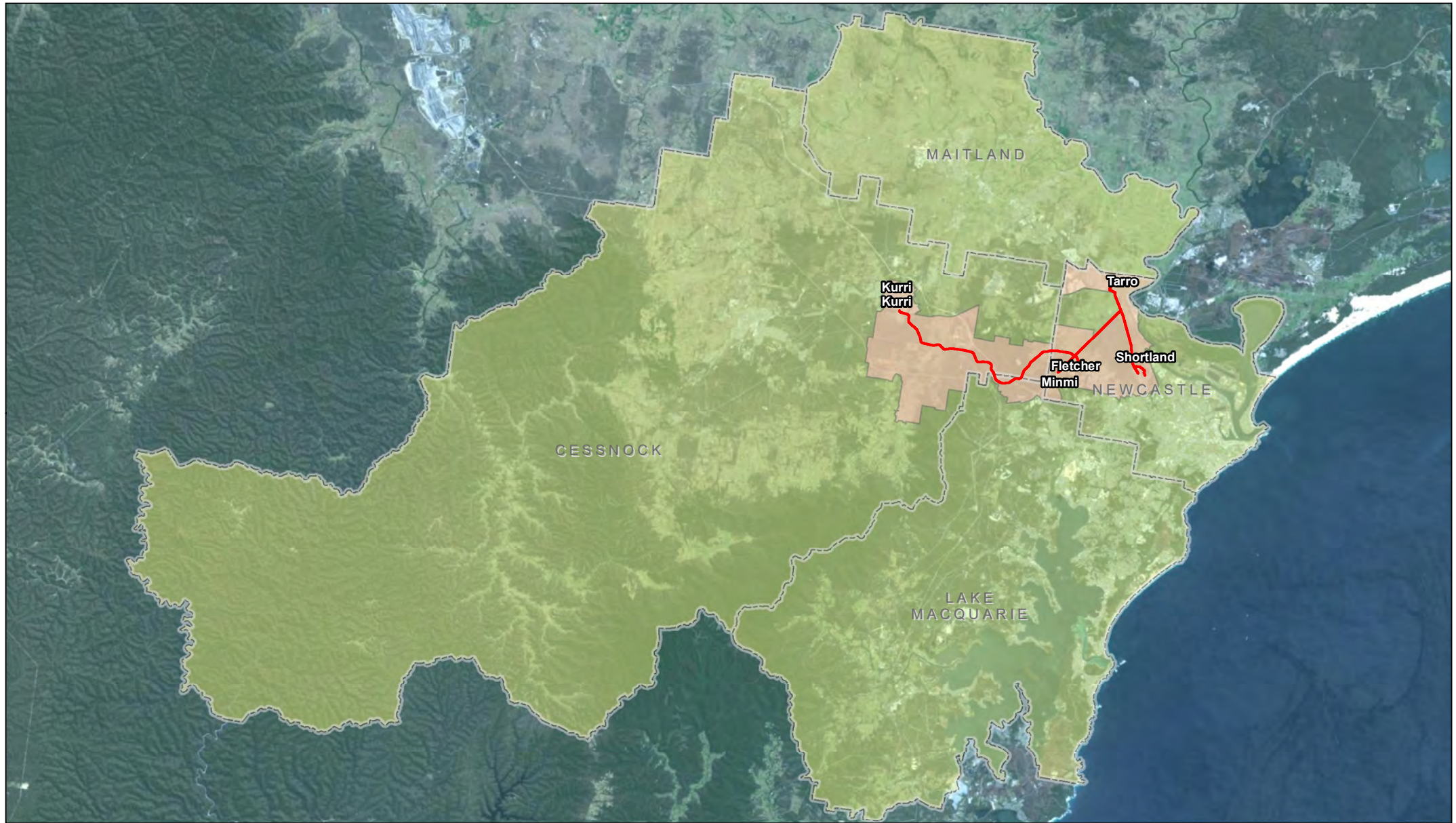
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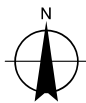
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Data source: LPI: DTDB, 2012, Aerial 2016. Created by: tmorton, fmackay





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Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



#### LEGEND

- Proposed route
- Local Study Area
- Regional study area
- LGA boundary



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment

Job Number	22-18317
Revision	A
Date	05 Mar 2019

Regional Study Area

Figure 2-2

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Data source: LPI: DTDB, 2012, Aerial 2016. Created by: fmacKay



## 2.2 Demographic profile

This section provides an analysis of the key demographic indicators for the local and regional areas, and have been developed based on 2016 Australian Bureau of Statistics (ABS) Census data, with additional data referenced as appropriate. Appendix A provides the detailed demographic indicators assessed.

### 2.2.1 Population and age profile

In 2016, 30,951 people lived in the local area, representing roughly 6.4 percent of the regional area's population of around 486,000. Compared to the regional area, the local area is characterised by:

- A younger average age of 37 compared to the regional area, which is 39 years.
- The proportion of the population under 18 years is greater in the local area compared to regional area (24.4 percent and 22.2 percent respectively).

Within the local area, the average age is younger within Shortland (33), Maryland (36), Fletcher (31) and Seahampton (35), and older in Beresfield (40), Tarro (45), Stanford Merthyr (43), Mulbring (43) and Hexham (50).

The 2016 age profile for the local area compared to the regional area is illustrated in Figure 2-3.

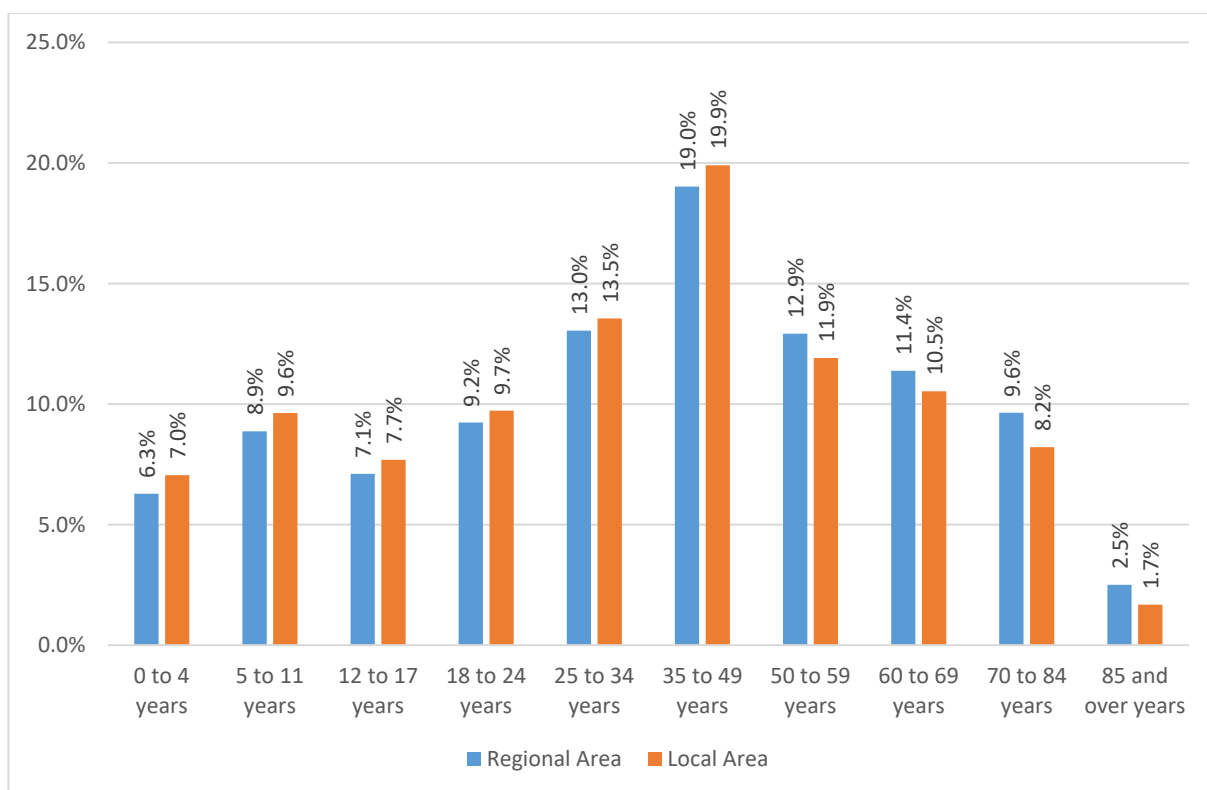


Figure 2-3 Study areas age profile 2016

Source: ABS, *Census of Population and Housing 2016*. Compiled and presented by GHD.

### 2.2.2 Cultural diversity

In 2016, the Indigenous population of the local area made up 5.7 percent of the total population. This is slightly higher than the regional area (4.4 percent), with higher representation in Kurri Kurri, Pelaw Main and Hexham (7.6, 7.6 and 8.5 percent) and the lowest representation in Minmi (3.8 percent). The regional and local areas were predominantly English speaking; 89 percent of people speak English only in the regional area, and 87.9 percent in the local area.

### 2.2.3 Dwellings and tenure

In the local area, larger households in separate houses were more dominant, with 82.9 percent of properties being separate dwellings with an average household size of 2.7 persons. This is higher than the regional area (74.1 percent and 2.5 persons respectively).

Tenure types in the local area were relatively consistent with those in the regional area, 72.8 percent of people own their property, either outright or with a mortgage compared to the regional area (70.3 percent). Rentals in the local area make up 27.2 percent of the tenure types compared to 29.7 percent in the regional area.

Within the local area, the suburbs of Shortland, Hexham, Kurri Kurri, Beresfield and Pelaw Main have higher percentages of renters compared to other suburbs.

### 2.2.4 Households and families

In the local area, 73.5 percent of households are families, which is 2.9 percent higher than the regional area (70.6 percent). Family composition in the local area is relatively consistent with the regional area for most family types. The prevalence of couple families with children is higher in the local area, 44.5 percent compared to the regional area at 42.1 percent.

Couple families without children make up 34.4 percent of families in the local area compared to 38.2 percent in the regional area, similarly, lone person households are higher in the regional area compared to the local area (25.5 percent and 23.2 percent respectively). The dominance of different family types varies within the local area, with younger families in Fletcher and Seahampton, and older families and increasingly empty nesters in others such as, Maryland, Minmi, Seahampton, Mulbring, and Tarro.

In the local area, group households are 3.4 percent of household types. This is highest in Shortland (9.5 percent), Minmi (3.7 percent) and Beresfield (3.5 percent). The regional area has a higher proportion of group households at 3.9 percent, the higher percent of which are in the Newcastle LGA (6.9 percent) with less than 3.0 percent in the other LGAs.

### 2.2.5 Employment and education

In the local area, 59.7 percent of people aged 15 years and over are actively participating in the labour force, compared to 58.6 percent of the regional area. In the local area there are more people employed full time, whereas there is a higher number of part time employees in the regional area. Those employed full time in the local area make up 61.1 percent compared to 59.6 percent and part time are 33.6 percent compared to 35.1 percent. The unemployment rate is consistent across the local area (7.7 percent) and the regional area (7.3 percent).

Table 2-1 demonstrates the distribution of students within the local area and regional area. In the local area 29.8 percent of the population are attending an educational institute of some description, this is consistent with the regional area (29.6 percent).

Table 2-1 Educational achievement and attendance

Education		Local area (%)	Regional area (%)
Level	Attendance		
Completion of Year 12 (or equivalent)		35.1	40.6
Pre School		7.2	6.6
Infant/Primary School		30.1	28.0
Secondary School		22.5	20.7
Technical or Further Educational Institutes	Full Time	1.6	1.9
	Part Time	5.1	5.0
University or other Tertiary Institute	Full Time	9.6	10.6
	Part Time	4.5	5.1
Other Educational Institute	Full Time	0.4	0.5
	Part Time	1.3	1.3

Source: ABS, Census of Population and Housing 2016. Compiled and presented by GHD.

Within the local area, those attending university or other tertiary institutes, either full time or part time, are predominately located in the suburb of Shortland (43.8 percent), whereas suburbs including Hexham, Mulbring, Stanford Merthyr and Pelaw Main all have less than 15 percent of students in the population. Minmi has the highest rate of students studying at technical or further education institutes. Similarly, within the regional area, the majority of people attending further education reside within the Newcastle LGA (34.5 percent) compared to Lake Macquarie (20.7 percent), Maitland (19.5 percent) and Cessnock (13.4 percent). This is likely due to the main campus of the University of Newcastle being located in Callaghan, the suburb adjacent to Shortland in the Newcastle LGA and Hunter TAFE campuses throughout the regional area, including Kurri Kurri.

#### 2.2.6 Household income

The average weekly household income in the local area was marginally higher (\$1,376) than in the regional area (\$1,331). However there was a significant range across the suburbs within the local area with Tarro, Hexham, Kurri Kurri and Pelaw Main having averages less than \$1,000 per week, and other suburbs more than \$1,000 per week. Fletcher had the highest average weekly household income at \$2,296.

#### 2.2.7 Crime and safety

Table 2-2 and Table 2-3 summarise key crime statistics for the local area in comparison to the regional area and NSW from the NSW Bureau of Crime Statistics and Research (BOCSAR) crime data for July 2015 to June 2016.

Table 2-2 Regional area crime statistics, July 2015 to June 2016

Offence	Rate per 100,000 and 2 year trend			
	Newcastle	Lake Macquarie	Cessnock	NSW
Assault - domestic	429.3 Stable	362.2 Stable	689.4 Stable	388.6 Stable
Assault - non-domestic	661.2 Stable	317.3 Stable	471.1 Up 24.5 percent	415.9 Stable
Theft - dwelling	437.4 Stable	269.4 Stable	482 Stable	277.9 Down 6.6 percent
Theft - vehicle	270 Stable	238.3 Stable	471.1 Stable	175.5 Down 12.6 percent

Source: NSW Bureau of Crime Statistics and Research, 2016

Table 2-3 Local area crime statistics, July 2015 to June 2016

Offence	Rate per 100,000 and 2 year trend					
	Shortland	Maryland	Fletcher	Beresfield	Kurri Kurri	NSW
Assault - domestic	561.5 Stable	294.5 Stable	224.4 Stable	1083.3 Stable	1138.2 Stable	388.6 Stable
Assault - non-domestic	195.3 -	94.2 -	96.2 -	804.7 Stable	894.3 Stable	415.9 Stable
Theft - dwelling	390.6 -	117.8 -	320.5 -	247.6	422.8 Stable	277.9 Down 6.6 percent
Theft - vehicle	366.2 -	94.2 -	192.3 -	1795.1 Stable	357.7 -	175.5 Down 12.6 percent

Source: NSW Bureau of Crime Statistics and Research, 2016. Note: “-” denotes no trend observed

Overall the tables above demonstrate that most crimes have been stable over the last two years. Levels of theft and assault in Lake Macquarie are lower than the NSW average for most offences, but considerably higher for all offences for Newcastle and Cessnock. Most of these rates have remained relatively stable. However a notable rise of 24.5 percent compared to the NSW average in non-domestic assault has occurred in the Cessnock LGA. Incidence rates of offences at the local level are more varied, with certain offences more common in different areas, such as high levels of theft in Fletcher, theft from vehicles in Beresfield, domestic assault in Shortland and all listed offences in Kurri Kurri.

#### 2.2.8 Population growth

The regional area is expected to experience significant growth in the coming decades. *The Hunter Regional Plan 2036* (see the *Policy and planning context* section) estimates the Hunter region growing from 732,400 in 2016 to 862,250 in 2036, an increase of 17.8 percent.

The City of Newcastle forecasts its population to grow by 16.6 percent to 180,643 by 2036, representing an average annual growth rate of 0.62 percent (Forecast.id 2013). As indicated in the *Hunter Regional Plan 2036*, outside of the Newcastle city centre, much of this growth is occurring within close proximity to the RVRT. That is, within the Blue Gum Hills Precinct (including Fletcher, Minmi and Maryland, extending south towards Glendale, and connecting to the urban renewal corridor of Glendale to Cardiff), areas to the east of Kurri Kurri, and just to the northwest of Tarro and Beresfield near Thornton in Maitland LGA (see Section 3.1.1). While Shortland-Sandgate is expected to experience minimal growth of only 0.2 percent per year, and Tarro-Beresfield 0.32 percent, annual population growth to 2036 in Fletcher-Minmi is expected to average 4.65 percent, or a more than three-fold increase by 2036 (Forecast.id 2013).

The project links both old and new suburbs with varying characteristics. Younger families are more common in Fletcher and Seahampton, with older families, and increasingly ‘empty nesters’, in other suburbs such as Shortland, Kurri Kurri, Pelaw Main, Mulbring, Stanford Merthyr, Tarro and Beresfield. The RVRT would provide a useful and accessible recreational resource for both younger families and an ageing population.

With significant population growth anticipated in the region and particularly the local area, the RVRT is expected to be accessible to a growing catchment and consequently for potential users for both recreation and commuting from adjacent areas. The RVRT would provide equitable access for local residents with varied socio-economic status, with the route passing close to both higher and lower income areas.



## 2.3 Health

As noted in *Towards a Healthy Hunter* (Hunter Medicare Local 2014), the region has high rates of behavioural health risk factors:

- Over half of the Hunter residents aged 18 years and over do not eat the recommended two serves of fruit each day and nine in ten do not eat the recommended five serves of vegetables each day.
- Although the smoking rates have declined in recent years, one in seven Hunter residents aged 18 years and over still smoke.
- Over two thirds of Hunter residents aged 18 years and over do not meet the recommended amount of physical activity per week.
- High risk alcohol consumption was 30 percent greater in the region compared to the nation.
- Seven in every ten Hunter residents aged 18 years and over are classified as overweight or obese (Hunter Medicare Local, 2014).

These risk factors may contribute to the region's higher rates of hospitalisation for health behaviour related conditions, which exceed the state average.

Whilst average obesity related hospitalisations have been decreasing in recent years in NSW, they are higher than the state average in the region, with no significant trend indicating improvement. In NSW in 2013/14, the incidence of hospitalisations per 100,000 people due to high body mass related issues was 453, for high blood pressure related issues it was 1,115.1, and for smoking attributable conditions it was 542 (HealthStats 2016). For each of these indicators, Lake Macquarie is the closest to the state average, and appears to have the lowest burden of behavioural health issues within the project region, whilst Maitland and Cessnock show the highest incidence of health behaviour related hospitalisations, significantly above state averages. Figure 2-4 shows the health behavioural hospitalisations for the period 2010 to 2014 for the Newcastle, Cessnock, Maitland and Lake Macquarie LGAs.

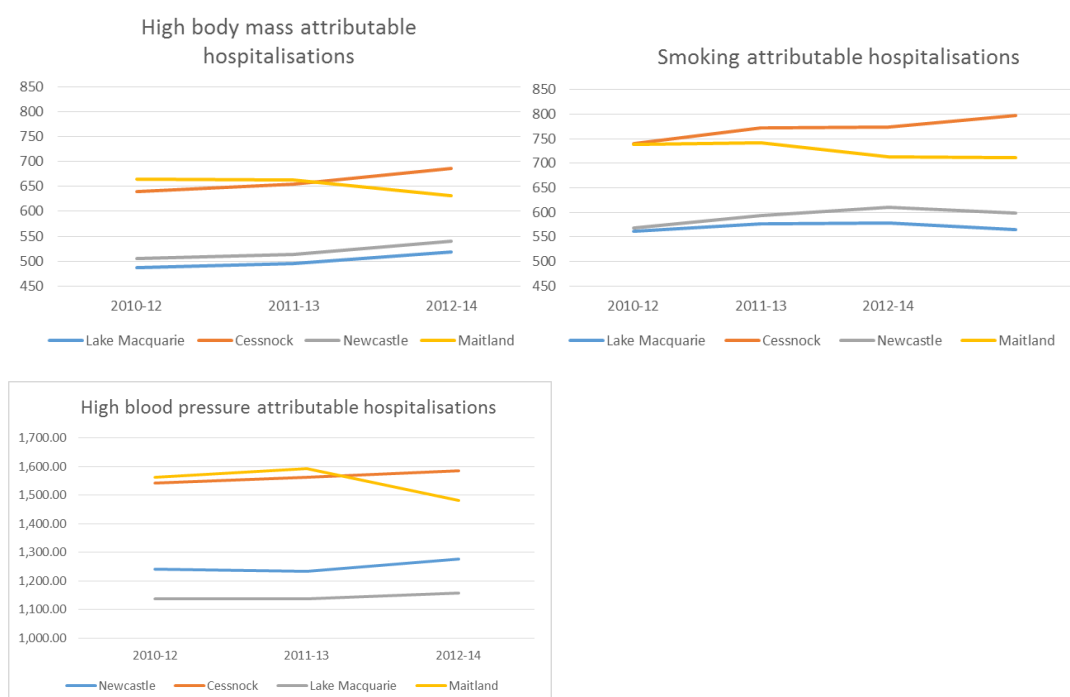


Figure 2-4 Health behaviour attributable hospitalisations, 2010-2014

Source: Centre for Epidemiology and Evidence. HealthStats NSW. Sydney: NSW Ministry of Health. Available at: [www.healthstats.nsw.gov.au](http://www.healthstats.nsw.gov.au). (Accessed 26 October 2016).

## 2.4 Travel and transport

Within the local area, heavy rail train stations are located at Hexham, Tarro and Beresfield. The next closest train stations are located within surrounding suburbs including Warabrook, (located at the University of Newcastle), Sandgate and Maitland.

There are several bus services operating within the local area. However, there are no existing bus routes that travel through the entire project area with an average of 3-4 buses and/or train journeys required to travel from Shortland to Kurri Kurri. The standard bus routes include:

- Bus route 12 travels from Maryland to Merewether via Wallsend and Jesmond. The bus route operates seven days a week. On weekdays and Saturdays it runs twice hourly throughout the daytime, hourly on Sundays.
- Bus route 24 connects Wallsend to Marketown via the University of Newcastle. It runs seven days, and on weekdays it runs twice hourly during peak day time periods.
- Bus route 27 travels from Wallsend to Broadmeadow Station, running through the University of Newcastle. It runs seven days, with services every hour during the day time, running as late as 10:30 pm on weekdays.
- Route 47 travels from Jesmond to Marketown via Shortland and Warabrook. It runs seven days a week, with services every hour during the daytime.
- The 260 and 261 buses travel from Minmi through Maryland and Fletcher to the University. Both buses operate seven days a week averaging one to two trips every hour.
- Bus route 160 travels from Wallsend to Cessnock and operates six days a week express to Cessnock via Newcastle University, Kurri Kurri and Stanford Merthyr along the M15 Hunter Expressway.
- Bus route 267 occasionally runs through Seahampton but usually runs no further than West Wallsend.
- Route 266 travels from Seahampton, via West Wallsend to Newcastle East. It runs weekdays, with services clustered around work/school start and finish times.
- Route 164 connects Cessnock to Green Hills via Kurri Kurri, Pelaw Main and Stanford Merthyr. It runs seven days, and services run hourly during the daytime.
- Bus route 166 travels from Kurri Kurri to Maitland via Pelaw Main and Stanford Merthyr during weekdays only.
- Additionally, starting at Cessnock, bus route 163 travels through Kurri Kurri and Pelaw Main with a final destination of Morisset. On weekdays and Saturdays, this bus operates twice every day, with varying times between weekdays and weekends.

Census data indicates that in the local area, 94.7 percent of residents own one or more cars, which is greater than 93.0 percent in the regional area. Within the local area, the lowest level of car ownership is in Shortland with 91.0 percent of residents owning one or more motor vehicles compared to 100 percent in Fletcher.

Dependence on motor vehicles is slightly higher in the local area compared to the regional area. In the local area, 94.1 percent of people travel to work by car, either as the driver or passenger, compared to 91.7 percent in the regional area. The RVRT has the potential to improve accessibility for some residents in the local area, including the potential to connect Seahampton. The improved active travel infrastructure is also expected to increase commuter cycling both in the local and regional area, with the RVRT presenting an alternate travel route for current cyclists using the New England Highway and the Hunter Expressway.

Active travel rates for commuters also vary across the local and regional area. The regional area averaged 1.0 percent mode share for cycling and 2.6 percent for walking to work. However this varied across the LGAs, as illustrated in Table 2-4. The local area demonstrated lower rates of active travel with 0.3 percent cycling and 1.3 percent of commuters walking, with the highest rates in Beresfield, Pelaw Main and Kurri Kurri.

Table 2-4 Commuting mode share (percentage of area)<sup>1</sup>

Area	Walking	Cycling	Public transport	Vehicle
Regional area LGA's				
Newcastle	4.7	2.2	4.8	88.3
Lake Macquarie	1.7	0.5	2.7	91.9
Cessnock	2.1	0.2	1.2	93.7
Maitland	1.7	0.3	2.3	93.0
Selected local area suburbs				
Tarro	0.5	0.7	2.1	95.2
Beresfield	3.0	0.6	3.8	89.9
Shortland	1.2	0.4	3.1	92.6
Minmi	1.6	0.0	0.0	95.3
Fletcher	0.6	0.5	1.4	93.9
Pelaw Main	2.7	0.0	0.9	92.1
Kurri Kurri	2.3	0.0	1.3	94.3
Maryland	0.7	0.4	2.3	94.2
Stanford Merthyr	1.5	0.0	0.0	93.9

Source: ABS, *Census of Population and Housing 2016*. Compiled and presented by GHD.

The census data summarised in Table 2-4 refers to modes of travel to work, while the Household Travel Survey presents a more holistic picture of travel habits. As indicated in Table 2-5, travel for commuting or work related purposes accounts for between 18 and 28 percent of all trips, with social/ recreation, shopping and servicing passengers together accounting for the bulk of trips. Whilst close to eight or nine out of each ten trips are by car (as driver or passenger) a higher proportion of overall trips are made by walking, with higher numbers linked to lower average travel distances in the more built-up areas of Lake Macquarie and Newcastle.

<sup>1</sup> Notes: Percentages do not add up to 100%, as worked at home and 'other' are not included in the table. Suburbs with 100% vehicle or 100% vehicle/other/working from home are not shown.



Table 2-5 Household travel indicators

	Cessnock LGA	Lake Macquarie LGA	Maitland LGA	Newcastle LGA
Trips per person (weekday)	3.5	3.7	3.85	4.5
Trips per person (weekend)	3.3	2.9	2.6	3.6
Average trip length (km)	13	9.2	12.8	7.2
<b>Purpose (%)</b>				
Commute and work related	28	18	25	22
Education/childcare	7	7	9	7
Shopping	17	20	18	17
Personal business	7	9	4	6
Social recreation	22	25	21	28
Serve passenger	16	18	19	16
Other	4	3	4	4
<b>Mode (%)</b>				
Car (as driver or passenger)	90	82	85	79
Public transport	2	3	4	3
Walk only	7	13	9	16
Other	0	2	2	2

*Source: 2014/15 Household Travel Survey (HTS) based on five years of pooled data (June 2010 to June 2015) and using 2011 ABS LGA Boundaries*

While cycling rates are so low as to be included with 'other', additional data sheds light on cycling activities. The Cessnock Cycle Strategy data drew on survey data, which indicates that the most common destinations for cyclists are recreational areas, visiting friends and family, going to shops and restaurants, and going to sporting facilities. The most common reasons for cycling were fun/ recreation (41 percent) and exercise (38 percent) (Cessnock City Council 2014).

The CycleSafe Network (CSN) note that high cycle mode share can occur where infrastructure is present such as in Maryville, close to the Throsby Creek cycleway, with six percent of commuters travelling by bicycle (Cycle Safe Network Active Travel Infrastructure Project, 2015).

The CSN comprises representatives from Newcastle Cycleways Movement, University of Newcastle, Bicycle NSW and the Heart Foundation. The CSN has developed a proposal that would see a system of family safe, easily navigated and useful shared paths across the Lake Macquarie and Newcastle LGAs. The proposal would involve the connection of 90 km of existing paths with 140 km of newly built paths to create a network that allows walking and cycling for short trips (less than 2 km for walking and 10 km for cycling).

The network would be located within 500 metres of 93 of the 125 regional schools. The proposal notes that amongst the benefits will be an increase in tourism directly related to the CSN and its connection to the RVRT.

Commuter travel in the local area is dominated by a reliance on motor vehicles, a reliance that is greatest in the middle of the route around Fletcher. However less than 40 percent of all trips are commuter related, and average trip lengths are less than 15 km, indicating there is a large potential in the local area for increasing mode change to cycling or walking. The RVRT could facilitate some of this mode change for both commuter and non-commuter trips.

## 2.5 Local business

There are a number of businesses in the local area in close proximity to the proposed cycle route. These are discussed below and shown in Appendix B.

Within Shortland, the eastern most point of the route, the most relevant business is the Hunter Wetlands Centre as well as a number of convenience and retail food outlets/ cafes that are located largely on Sandgate Road. The Hunter Wetlands Centre currently hosts approximately 30,000 visitors a year providing a nature-based educational and recreational facility for the enjoyment and appreciation of wetlands. Approximately one quarter of visitors to the centre are school groups. The centre also provides function and small conference facilities that are frequently used by local community and environmental organisations. The centre operates a visitor centre, café and kayak hire, and facilitates bike and segway hire (hosted by the Centre but owned by external operators). The RVRT will have a universal access link directly into the Centre in its north, drawing users through the wetlands, and to its facilities and amenities.

Maryland and Fletcher are new urban release areas that are predominantly residential with two local retail centres, one located off Minmi Road in Fletcher (including Aldi) and one within a village shopping centre further east on Minmi Road in Fletcher (including a Coles and several speciality retailers), which is also close to preschools, health and other services. These facilities are located roughly 1.5 km from the proposed spur to Fletcher.

The quieter locality of Minmi has a liquor store and takeaway shop 700 metres uphill from the RVRT, and a hotel further along the road. The Blue Gum Hills Regional Park (BGHRP) is located between Minmi and Fletcher along Minmi Road and hosts the Tree Top Adventure Park, a commercially operated outdoor activity business. The BGHRP has approximately 100,000 visitors annually, with around 30 percent of these visitors to the Tree Top Adventure Park. Visitors are primarily from within the region, representing close to 25 percent of the total regional population. BGHRP has picnic areas, amenities, multiple tracks and is currently considered to be operating close to capacity.

Kurri Kurri has the largest commercial precinct in the local area located on Lang Street and Barton Street in the centre of Kurri Kurri. This area is located roughly 600 metres from Log of Knowledge Park on the corner of Stanford Street and Mulbring Street, which marks one of the starting points of the route. Directly opposite Log of Knowledge Park is a former hotel (pub) that has gone out of business. Other business such as the local bowling club and a McDonalds are located approximately 400 metres away on Victoria Street. There are no bicycle shops in Kurri Kurri; however the local hardware shop does sell some basic spare parts.

The Richmond Vale Rail Museum is a not for profit organisation committed to the preservation and promotion of history of the Richmond Vale Rail. It runs a museum at its Richmond Vale base (approximately 1 km from the RVRT at its closest point at Richmond Vale) and operates historic steam train rides from there to Pelaw Main Colliery (approximately 600 metres from the RVRT Kurri Kurri end).

The RVRT could bring patronage benefits to a number of existing business/organisations, including the Hunter Wetlands Centre, businesses in the Kurri Kurri commercial centre, Minmi, Shortland and the Richmond Vale Rail Museum.

## 2.6 Social infrastructure

A summary of the community facilities currently serving the local area for the RVRT, and of relevance for potential users of the RVRT is provided below. The locations of these facilities is shown in Appendix B and facilities are listed in Appendix C.

There are a number of schools and religious organisations within Shortland. The main commercial strip is along Sandgate Road, with multiple cafés and food and beverage businesses and pharmacies. Shortland Public School, a preschool and the Hunter Valley Private Hospital are also close to the start of the RVRT (and would flank a likely extension to the RVRT along an existing easement).

Newcastle University Callaghan campus is located nearby and to the south of the RVRT. The campus has over 17,500 students and promotes active travel to its student and staff body, with cycling rates increasing from around 2 percent in 2014 to 4 percent in 2016 (University of Newcastle 2016). The University offers multiple incentive programs to encourage cycling and active transport use including the development of active travel guides for various areas, providing end of trip facilities (secure storage, change and showering facilities), free repair and maintenance services onsite, cycling skills and cycle repair workshops, and programs for affordable access to bicycles (including safety equipment).

The Tarro Public School and Tarro Reserve are close to the RVRT endpoints, with some food and beverage shops located in Tarro and Beresfield on Anderson Drive.

The main commercial areas in Fletcher-Minmi, including children's and health services, are on Minmi Road approximately 1.5 km from the RVRT link into Fletcher. The Fletcher community centre is a short distance (approximately 300 metres) from the RVRT link and adjoined by evolving outdoor sports fields and facilities that are intended to service the growing population. Glendore Public School and Bishop Tyrrell Anglican College are located approximately 2.5 and 1.5 km by road respectively from the Fletcher section of the RVRT.

The Minmi Fire and Rescue Station is located adjacent to the Minmi RVRT link, and the Minmi Public School is approximately 450 metres to the south. The Fletcher and Minmi RVRT links would also enhance non-motorised access to nearby environmental features such as the Stockrington State Conservation Area and Pambalong Nature Reserve. The only social infrastructure in Seahampton is a Fire Station.

The RVRT end point in Kurri Kurri is close to the Pelaw Main Public School, Pelaw Main heated pool, the Kurri Kurri Sports Ground, the Kurri Kurri District Hospital (approximately 1.75 km away) and Pelaw Main Colliery (part of the Richmond Vale Rail Museum). Also at the Kurri Kurri end is the Log of Knowledge Park hosting an entrance to a local bush walking path. The Kurri Kurri Visitor Information Centre and many of the murals for which Kurri Kurri is well known are located in the commercial town centre approximately 800 metres from the RVRT. Of note also is that Kurri Kurri is an RV (recreational vehicle) friendly town and has recently established a short term overnight parking area in the Kurri Kurri Sports Ground with an RV dump point. Parking at the site is currently being formalised and has been developed in response to observed demand.

The RVRT is close to public schools in Shortland, Tarro, Minmi and Pelaw Main, and accessible for schools in Maryland, with the potential for the RVRT to be utilised for educational purposes/ field trips. The RVRT is close to sports fields and facilities at Shortland (Tuxford Park), Kurri Kurri (Kurri Kurri Sports Ground), Tarro Reserve and Fletcher. Walking trails already exist at both ends of the trail (in Hunter Wetlands Centre and Log of Knowledge Park). There is potential for further activation and use of these areas by trail users.



## 2.7 Active travel networks

Connections to onward active travel networks are currently limited, however regional visions for cycle networks in the longer term include onward connections to the University of Newcastle from Shortland, through Minmi to BGHRP and Blue Gum Hills development precinct, from Kurri Kurri to Cessnock and on to the vineyards, and also from Kurri Kurri to Maitland. There is currently a short shared walking and cycling path at Log of Knowledge Park in Kurri Kurri, which will link to the RVRT.

Residential developments in the Fletcher and Minmi areas are currently integrating active travel networks into their planning to facilitate links to the RVRT and onward to the BGHRP.

## 2.8 Tourism

Tourism numbers in the Hunter region have varied over the last eight years, initially declining from a 2011 high before gradually increasing every year from 2015. The Hunter region currently hosts in excess of 10 million visitors per year (Destination NSW, 2018).

Domestic day trippers represent around two thirds of all visitors, and their numbers increased by 11.4 percent between 2010 and 2018. The value of tourism in terms of expenditure is however dominated by domestic overnight visitors, who represent around one third of all visitors but over 60 percent of expenditure, compared with just 30 percent for day trippers.

Council economic strategies recognise tourism as an opportunity to develop (refer discussion in Section 3.2), both in terms of numbers of visitors and diversity of offerings, and thus types of visitors to attract.

It is estimated that 4.82 percent of jobs and 2.87 percent of the Newcastle LGA economy is generated by tourism, and as high as 15.8 percent of employment and 9.82 percent of economic output in Cessnock is generated from tourism (REMPPLAN 2016/2017). Tourism is measured by a range of activities such as retail, accommodation, cafes and restaurants, cultural and recreational services. In Cessnock, tourism is the third biggest contributor to gross revenue generated, after manufacturing and construction (see Table 2-6 and Table 2-7).

Table 2-6 Hunter Region tourism statistics

	2011	2012	2013	2014	2015	2016	2017	2018	YE Jun 18 vs. YE Jun 17
<b>Number of visitors (000)</b>									
Domestic overnight	2,948	2,688	2,862	2,847	3,091	3,229	3,346	3,775	12.8%
Domestic day trippers	6,166	6,198	5,401	5,738	6,115	6,582	6,658	6,661	0.10%
International overnight	154	128	133	144	164	153	186	200	7.5%
<b>Total visitors</b>	<b>9,269</b>	<b>9,014</b>	<b>8,396</b>	<b>8,729</b>	<b>9,370</b>	<b>9,964</b>	<b>10,191</b>	<b>10,637</b>	<b>4.40%</b>
<b>Visitor expenditure (\$million)</b>									
Domestic overnight	1,363	1,231	1,238	1,287	1,461	1,431	1,563	1,750	12.0%
Domestic day trippers	557	615	520	645	644	707	736	730	-0.9%
International overnight	175	173	144	167	177	175	221	179	-18.8%
<b>Total</b>	<b>2,095</b>	<b>2,019</b>	<b>1,901</b>	<b>2,099</b>	<b>2,282</b>	<b>2,313</b>	<b>2,520</b>	<b>2,659</b>	<b>5.5%</b>

Source: Destination NSW – Travel to the Hunter Tourism Region (year end June 2018)

Table 2-7 Hunter Region tourism statistics by location

Location	Domestic Day	Domestic Overnight (2 nights)	
	Average Spend per Trip	Average Spend per Trip	Average Spend per Night
Newcastle	\$116	\$363	\$156
Lake Macquarie	\$102	\$261	\$101
Cessnock	\$127	\$590	\$267
Maitland	\$106	\$278	\$119

Source - REMPLAN, 2016/17. Compilation from Economic Profiles for Newcastle, Lake Macquarie, Maitland and Cessnock LGAs

Tourism expenditure indicates that domestic overnight visitors may spend more than double that of day trippers in Cessnock and Newcastle. However, this spend also varies across the Hunter with close to a third of expenditure spent on accommodation and food services in Newcastle and Lake Macquarie and close to two thirds in Cessnock, where wine tourism is prevalent (see Table 2-8). This large proportion of visitor expenditure on accommodation and food services is relevant for the RVRT as these are the industries likely to benefit from rail trail visitors.

Table 2-8 Visitor expenditure per dollar by LGA

Industry	Visitor Expenditure Per Dollar		
	Newcastle	Lake Macquarie	Cessnock
Accommodation & Food Services	\$0.37	\$0.33	\$0.65
Transport, Postal & Warehousing	\$0.16	\$0.16	\$0.06
Retail Trade	\$0.11	\$0.18	\$0.04
Education & Training	\$0.13	\$0.04	
Ownership of Dwellings	\$0.04	\$0.03	\$0.08
Arts & Recreation Services	\$0.04	\$0.04	\$0.01
Manufacturing	\$0.03	\$0.10	\$0.13

Source - REMPLAN, 2016/2017. Compilation from Economic Profiles for Newcastle, Lake Macquarie, Maitland and Cessnock LGA's

The most recent Tourism Research Australia report (2016) also notes that Australians are travelling within Australia in record numbers (with increases in the number of domestic overnight stays for holidays also increasing 14 percent). Domestic overnight visitors are participating in far more outdoor, active, nature-based and cultural activities than ever before (Tourism Research Australia, 2016). Cycling tourism has increased 23 percent, and bushwalking and rainforest walking had increased 13 percent. Visiting heritage buildings and sites increased 22 percent, and exercise, gym or swimming had also increased 31 percent on the previous year. The report notes that overall the number of domestic overnight stays for holidays also increased by 14 percent. The RVRT would create a tourism opportunity that could deliver on a number of these experiences, including cycling, heritage, and bush-rainforest walking activities.

Events and concerts are also important for the region, with events across both regional and urban areas. The City of Cessnock estimates events in the Hunter Valley during summer 2013/14 attracted approximately 167,800 attendees. Modelling indicated this generated a gross annual stimulus of \$2.2 million and a total value added impact of \$27.7 million, representing approximately 1.3 percent of the total gross regional product for the City of Cessnock (Cessnock City Council, 2015).

The RVRT could further diversify the region's tourism offering by hosting cycling or walking/running events. The 'Fernleigh 15' is a 15 km fun run with 878 runners reported attending the October 2018 race. This rate of attendance is similar to previous years, with a peak participation of 1,167 in 2014. This race also attracts a number of competitors using wheelchairs, demonstrating the demand for accessible trails for these users. In Queensland, the Brisbane Valley Rail Trail hosts yearly events such as the 'Toogoolowah Dash', a 75 km bicycle race that utilises low gradients to encourage cyclists of all levels and experiences. The race has a registry fee of \$45, with 200 places available. The *Cycling Australia* website lists cycling events, with a large number already available in NSW, which demonstrates the popularity of both competitive and recreational events across Australia.

The Great Victorian Rail Trail spans 134 km and is a multi-use trail between Mansfield and Tallarook. A number of community events are held at the towns and villages that are traversed by the rail trail. In particular, the Cycle Dindi 19 is a family friendly bicycle ride encompassing the Great Victorian Rail Trail allowing cyclists to choose either long (121 or 80 km) or short (54 or 42 km) ride options while also visiting other local attractions. Proceeds for the event go towards supporting youth programs in the area.

## 2.9 Implications for the assessment

- The project links both old and new suburbs with varying characters. Younger families are more common in Fletcher and West Wallsend, with older families and increasingly empty nesters in other suburbs such as Shortland, Kurri Kurri, Pelaw Main, Mulbring, Stanford Merthyr, Tarro and Beresfield.
- With significant population growth anticipated in the region and particularly the local area, the RVRT would be accessible to a growing catchment and consequently potential users for both recreation and commuting from adjacent areas. The RVRT would provide equitable access for local residents with varied socio-economic status, with the route passing close to both higher and lower income areas.
- Communities at either end of the trail have higher incidence of rental housing, and of tertiary students (university students in Shortland and technical college students in Pelaw Main and Stanford Merthyr).
- Health data indicates that populations in the regional area face significant behavioural health challenges, with the poorest health indicators in Cessnock and Maitland LGAs. The RVRT would provide infrastructure to facilitate increased physical activity in the regional area.
- Over two thirds of Hunter residents aged 18 years and over do not meet the recommended amount of physical activity required each week, and seven in every ten are classified as overweight or obese. Rates of hospitalisation stemming from poor health related behaviours are much higher than the state average, especially in Cessnock and Maitland.
- The RVRT would be close to public schools in Shortland, Minmi and Pelaw Main, and accessible for schools in Maryland, with the potential for the RVRT to be used for educational purposes/field trips.
- Opportunities for local businesses are likely to be located in Shortland, Kurri Kurri, Tarro and potentially Minmi and Fletcher.

- The RVRT is close to sports fields and facilities at both Shortland (Tuxford Park) and Kurri Kurri (Kurri Kurri Sports Ground). Walking trails already exist at both ends of the trail (in Hunter Wetlands Centre and Log of Knowledge Park). There is potential for activation and use of these areas by trail users. New walking trails and related activities are also likely to be developed within the adjacent Stockrington State Conservation Area.
- The proximity of the RVRT to the University of Newcastle Callaghan Campus creates a significant opportunity for use by commuting students in the local and regional area.
- The RVRT has the potential to improve accessibility between areas (perhaps even connecting Seahampton, which has limited bus services and connections) as there are few direct rail services and bus networks, and timetables are limited.
- Commuter travel in the local area is dominated by a reliance on motor vehicles, a reliance that is greatest in the middle of the route around Fletcher. However less than 40 percent of all trips are commuter related, and average trip lengths are less than 15 km, indicating there is a large potential in the local area for increasing mode change to cycling or walking. The RVRT could facilitate some of this mode change for both commuter and non-commuter trips.
- Higher than state average levels of assault and theft (from dwellings and vehicles) along the route present issues for safety and security for residents close to the trail and users of the trail.
- In the local area, 93.3 percent of residents own one or more cars, which is greater than the 90.9 percent in the regional area. Within the local area, the lowest level of car ownership is within Shortland with 89.4 percent of people owning one or more motor vehicles compared to 99.6 percent in Fletcher.
- Tourism is a large contributor to the regional economy, with growth in overnight visits and visits related to nature-based and active holidays showing significant growth. The RVRT would be well positioned to serve this growing tourism market, and diversify tourism offerings in the region.



## 3. Policy and planning context

The RVRT aligns with a number of local, regional and state government policy and planning documents aimed at delivering increasingly sustainable and liveable communities and economies. This section outlines how the RVRT aligns with key State and local documents.

### 3.1 State government

#### 3.1.1 Hunter Regional Plan 2036

Published in 2016, the regional plan has been developed to guide the NSW Government's land use planning priorities and decisions over a 20 year period. It is intended as a framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions. The plan also identifies priorities for each council to guide further investigations and implementation. The RVRT aligns with several of the objectives of the plan and is specifically identified as an action to be advanced. The RVRT is expected to contribute to:

- **Goal 1 – The leading regional economy in Australia:** Direction 9 – Grow tourism in the region:
  - Enable investment in infrastructure to expand the tourism industry, including connections to tourism gateways and attractions.
  - Encourage tourism development in natural areas that support conservation outcomes.
- **Goal 3 – Thriving communities:** Direction 17 – Create healthy built environments through good design:
  - Enhance the quality of neighbourhoods by integrating recreational walking and cycling networks into the design of new communities to encourage physical activity.
- **Goal 3 – Thriving communities:** Direction 18 – Enhance access to recreational facilities and connect open spaces:
  - Facilitate more recreational walking and cycling paths including planning for the Richmond Vale Rail Trail and expanded inter-regional and intra-regional walking and cycling links, including the NSW Coastal Cycleway.

The plan identifies urban release areas closest to Newcastle as centred around Minmi, surrounding Blue Gum Hills Regional Park to the north, west and south, and extending into Glendale south off the Newcastle Link Road, connecting to the urban renewal corridor of Glendale to Cardiff. Of relevance to the RVRT, significant urban release areas are also located in Maitland just to the northwest of Tarro and Beresfield Figure 3-1.

The plan also identifies planning and delivery of regional cycleway links along the RVRT as one of the five priorities for the Lower Hunter.

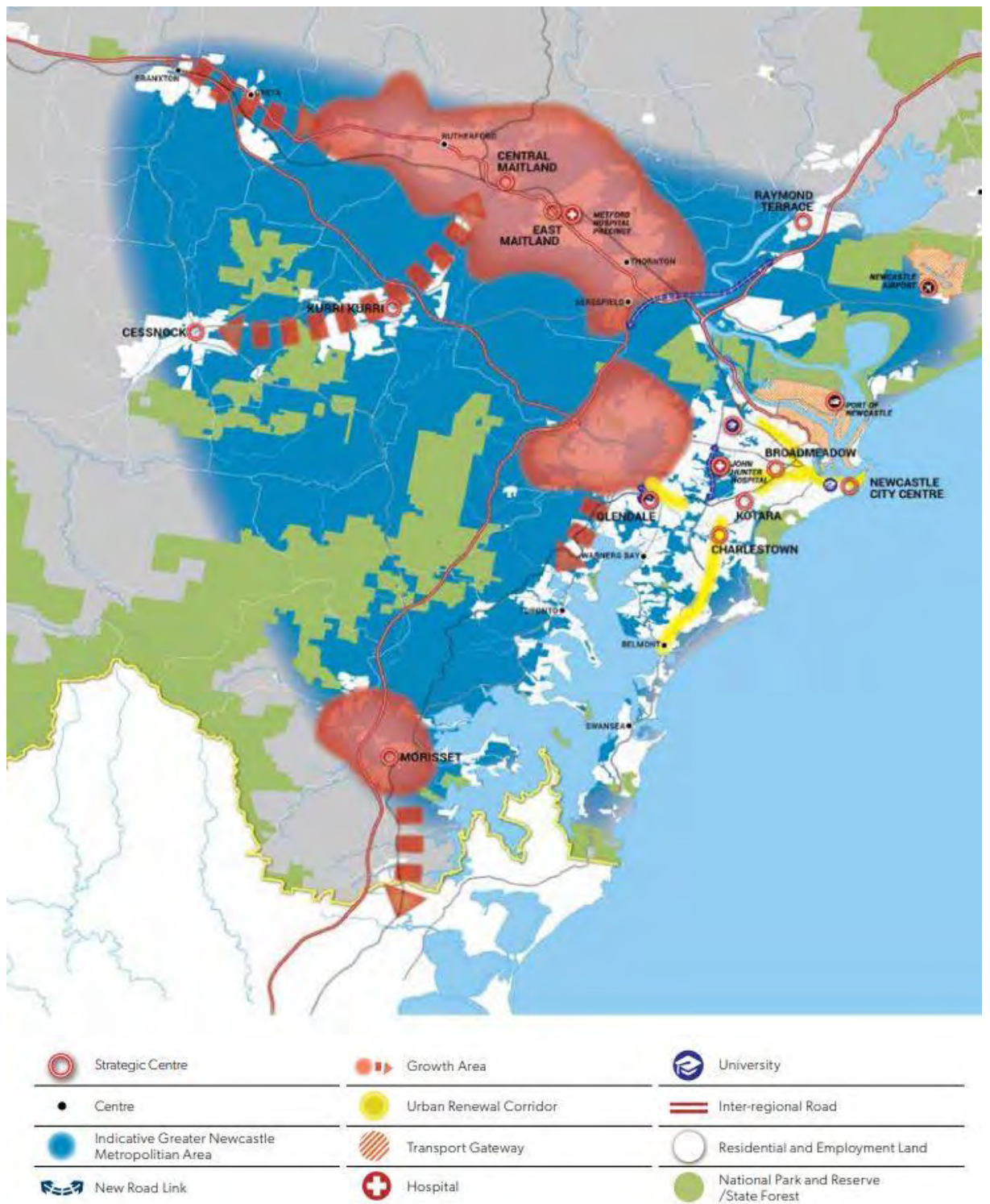


Figure 3-1 Hunter Regional Plan 2036 - urban release areas

Source: Hunter Regional Plan 2036

### 3.1.2 Greater Newcastle Future Transport Plan, 2018

The *Greater Newcastle Future Transport Plan* was developed to guide transport infrastructure planning that fosters sustainable travel behaviour over a 40 year period. The plan outlines specific actions to address the unique transport challenges for the Hunter Region, recognising that the key transport challenges include an ageing population, high levels of private car use, and balancing freight and passenger transport needs.

Of relevance to the RVRT, the transport plan outlines the importance of walking and cycling as a mode for travel, where currently 13 percent of all trips are made by walking or cycling. However, more than 50 percent of all travel in the region are trips under 5 km. Encouraging active transport through the strategic provision of infrastructure will lower dependence on vehicles, which is especially achievable for short-distances.

The transport plan identifies a number of actions to support walking and cycling, including:

- Creating more safe and connected cycling networks and more walkable places through collaboration with local councils.
- Ensuring public transport networks are accessible to walkers from points of interest, such as schools or shopping centres.
- Improving information about cycling and walking routes and facilities.

The transport plan also notes the importance of cycling infrastructure in supporting tourism. As the RVRT is expected to facilitate local travel, commuting and tourist use, it reflects the objectives of the active travel actions in the plan.

Supporting economies through connecting areas with growing populations and changes in land use, such as events and tourism, is a key part of the plan's customer outcomes, intended to inform Greater Newcastle transport planning. The RVRT serves to connect regional areas, as well as primes the region to continue cycleway networking.

## 3.2 Local government

This section reviews council policies, strategies and plans for each of the four councils in the region.

### 3.2.1 Community Strategic Plan – Newcastle 2030, 2018

Newcastle 2030 expresses the shared community vision for a smart, liveable and sustainable city and a ten-year strategic plan. The aim of this plan is for a better, more resilient Newcastle that builds on strengths and sets a positive future direction. The plan addresses social, environmental, economic and civic issues and goals in an inclusive framework.

The strategic plan outlines:

- The community's shared vision for a smart, liveable and sustainable city.
- Seven strategic directions for Newcastle.
- 23 objectives to be achieved over the next 10 years.
- Strategies and partnerships to fulfil these objectives.

The vision and strategic plan were developed through an extensive collaborative engagement process based on social justice principles to invite as many people as possible to be part of the ongoing conversation.

Elements of the strategic plan that relate to active travel, and are relevant to the RVRT include:

- Creating and developing transport networks that are well connected and convenient, with walking, cycling and public transport required to be viable options for the majority of trips.
- Cycling will play an increasingly important role in helping meet the goals of sustainable, connected and active communities.
- An active health and wellness program supported by three levels of government.

The strategic plan recognises the role of various agencies in increasing active travel, with the State Government playing a leading role in promoting the health benefits of active travel, and employers delivering important end of trip facilities for cyclists and walkers.

The RVRT would support the plan in connecting communities and providing infrastructure for more active communities.

### 3.2.2 Newcastle City Council Economic Development Strategy 2016-2019, 2015

The City of Newcastle developed the Economic Development Strategy with a vision that the city will have a healthy, diverse and resilient economy with strong industries that are linked to national and international markets.

The strategy focuses on five key areas:

- The role as the capital of the Hunter Region.
- The development of key infrastructure.
- Supporting business growth and employment.
- Encouragement of innovation and creativity.
- Developing the visitor economy of Newcastle.

The RVRT will assist the strategy to develop Newcastle's economy against all five key areas.

### 3.2.3 Newcastle Cycling Strategy and Action Plan, 2012

The Newcastle Cycling Strategy and Action Plan represents Council's commitment to enhance cycling in Newcastle. The overall objective of the plan is to make cycling a safe and attractive travel option to facilitate more people to cycle more often as their preferred mode of transport.

Strategies and actions included in the plan are to:

- Provide a safe, continuous and convenient bicycle network.
- Enhance support infrastructure, such as end of trip facilities.
- Promote cycling, special events and bike routes through a variety of media.
- Encourage and support cycling as a mode of transport for Council staff.
- Foster staff development.
- Advocate for improved bicycle accommodation on public transport and measures to support active transport.
- Facilitate active transport in new development.
- Develop measures to monitor implementation of actions and progress towards nominated targets.

The plan includes actions that directly relate to several segments of the proposed RVRT, including the Minmi to Hexham and Shortland to Tarro sections.



### 3.2.4 Community Strategic Plan 2027 – Cessnock City Council, 2017

Cessnock 2027 expresses the shared community vision for a thriving, attractive and welcoming Cessnock community. The plan outlines community values and key responsibilities for local government, state and federal government as well as the community itself. The strategic plan addresses social, economic, environmental, and civic issues. Some of the desired outcomes of the plan include:

- A connected, safe and creative community.
- A sustainable and prosperous economy.
- A sustainable and healthy environment.
- Accessible infrastructure, services and facilities.
- Civic leadership and effective governance.

The RVRT will assist the strategic plan to achieve its desired outcomes.

### 3.2.5 Cessnock Economic Strategy and Action Plan, 2014

The Cessnock economic strategy was developed by council and the community to drive positive economic development to:

- Initiate and promote growth and investment.
- Provide a diverse range of employment opportunities.
- Diversify the economic base of the LGA, reducing dependence on a few key activities.
- Assist in securing sustainability and social equity.
- Enhance and strengthen the overall amenity, resilience and liveability of the community.

Objective 2.3 of the strategy includes increasing tourism opportunities and visitation in the area, and identifies this objective as having a medium to strong growth potential. With relevance to the RVRT, the strategy also identifies the need to grow nature and activity based tourism.

### 3.2.6 Cycling Strategy - Cessnock City Council, 2016

The Cessnock Cycling Strategy outlines council's direction and framework to establish a bicycle friendly environment over the next 20 years.

The vision for cycling in Cessnock is to create a safe, attractive and accessible cycleway network that improves the community's connections with key destinations and each other, and encourages residents of all ages to use their bicycle for recreation and everyday transport.

The vision is supported by four strategic objectives to:

- Provide a cycling environment that is safe, secure and encourages residents to cycle without fear of accident or injury.
- Provide a cohesive and integrated bicycle network that is easy for cyclists to use.
- Integrate cycling into Council's planning processes.
- Promote awareness of cycling amongst the community, and road and path user groups.

The strategy recognises the central role of the RVRT in increasing connectivity between Cessnock, Newcastle and Lake Macquarie LGAs.

### 3.2.7 Community Strategic Plan 2017 – 2027, City of Lake Macquarie, 2017

The Community Strategic Plan 2017-2027 presents the main priorities of the Lake Macquarie community, and sets out the long-term strategies developed to respond to these priorities. Community members provided extensive input into the plan through a variety of engagement processes.

Some of the key strategic directions and objectives for the City of Lake Macquarie, as outlined in the plan include:

- Need to provide a balanced range of well-maintained and accessible recreation, community, education, sporting, arts and cultural facilities across the city.
- Ensure recreational facilities, services and programs meet the growing needs of the community.

The RVRT will assist the strategic plan to achieve its objectives.

### 3.2.8 Cycling Strategy 2021 – Lake Macquarie City Council, 2012

The Cycling Strategy 2021 outlines a vision for the Lake Macquarie community to have a stronger and more diverse cycling culture where cycling is no longer viewed as a marginal activity but rather a viable and attractive alternative for everyone, regardless of age, gender and ability.

The strategy sets a target for increasing cycling trips by residents from a 2012 level of one percent of all travel trips to five percent by 2022.

Strategies and actions included in the strategy that are relevant to the RVRT are:

- Ensuring there is a high level of awareness of cyclists on the roads and streets of Lake Macquarie.
- All road users are courteous and considerate to each other.
- A network of safe and comfortable bicycle routes connects Lake Macquarie residents with key destinations both within the municipality and adjoining municipalities.
- Good end-of-trip facilities at key destinations make cycling an easy and attractive form of transport.
- Providing children with a safe and familiar environment to develop the skills, knowledge and experience to make cycling an attractive form of transport throughout their lives.

### 3.2.9 Heritage Strategy – Lake Macquarie City Council 2017

The Heritage Strategy aims to increase community participation and proactive heritage management in the Lake Macquarie LGA. Some of the key objectives identified in the strategy that are relevant to the RVRT include to:

- Develop and implement programs and projects that aim to achieve pro-active heritage management in a positive manner.
- Identify sites where interpretative signage could be beneficial, such as heritage walks, archaeological sites, important cultural locations or conservation areas.
- Continue to promote and identify new opportunities for cultural heritage tourism (both Aboriginal and European) through the tourist information centre and/or historical societies, including heritage walks, tours, sites, etc.

### 3.2.10 Maitland Community Strategic Plan 2018– 2028, 2018

The Maitland Community Strategic Plan 2018-2028 was founded on sustainability principles. The purpose of the strategic plan is to meet the Maitland community's needs without compromising the ability of future generations to meet theirs.

Some of the key goals for Maitland, as outlined in the plan include:

- Connecting an active population to facilitate a growing population.
- Improve access to village and town centres.
- Achieving a balance between economic activities and conservation of the environment.
- Conserving biological diversity.
- Identify and explore key challenges and opportunities facing Maitland over the next ten years and beyond.
- Establish high level strategies for moving in the right direction.

The strategy also identifies the community's need for better connectivity from train stations, shops and rural areas. The RVRT will assist the strategic plan to achieve its goals.

### 3.2.11 Maitland Bicycle Plan and Strategy 2014

The *Maitland Bicycle Plan and Strategy 2014* expresses the importance of cycling from a sustainability perspective as a viable alternative to the use of private cars or public transport. Along with walking, cycling is the only readily available mode of transport that does not produce emissions. The plan and strategy envisions an improvement to amenity for all local residents and visitors to the LGA, as well as improvement to health, with increased cycle use.

The specific objectives for the plan are to:

- Provide an overarching strategy for provisions of bicycle facilities within the LGA.
- Increase use of bicycles within the community.
- Encourage alternative methods of transport.
- Improve community health and provide safer routes to school.
- Reduce the number of missing links and severance within the existing bicycle network.
- Reduce the number of bicycle accidents.
- Improve connectivity of the cycle network with other transport modes, primarily bus, car, train and pedestrians.
- Complement existing and planned cycleways.

The RVRT complies with all of the objectives for the plan.

## 3.3 Implications for the assessment

The RVRT is well supported by State and local government planning policies. It is consistent with the *Hunter Regional Transport Plan*, which includes multiple actions to facilitate and promote cycling, is a priority project in the *Cessnock Cycling Strategy* and would respond to multiple cycle routes noted in the *Newcastle Cycling Strategy and Action Plan*. The RVRT would also support many of the overall objectives in local government planning including community connectivity, healthier communities, more sustainable travel and recreational assets, improved access to natural areas and increased tourism.

## 4. Consultation

### 4.1 Overview

Consultation has been intrinsic to the development of the RVRT, with many stakeholders involved in the evolving concept and progression of the project. The socio-economic assessment has sought to capture information from key stakeholders and understand their expectations, concerns and ambitions for the project through a range of approaches. The key stakeholder groups engaged for the socio-economic assessment and the methods of engagement are summarised in Table 4-1.

Table 4-1 Consultation activities

Activity	Stakeholders	Detail
Phone/face to face interviews	Existing and potential user groups	<p>15 interviews, either face to face or via telephone were held with existing and potential users during November 2016, including:</p> <ul style="list-style-type: none"> <li>• National Parks and Wildlife Service</li> <li>• Richmond Vale Rail Museum</li> <li>• Newcastle University</li> <li>• Hunter Wetlands Centre</li> <li>• Towns with Heart/Kurri Kurri Visitor Centre</li> <li>• Kurri Kurri Business Chamber</li> <li>• Newcastle Cycleway Movement</li> <li>• Richmond Vale Rail Inc</li> <li>• Kurri Kurri Mongrels</li> <li>• Hunter Bird Observers Group</li> <li>• Kurri Kurri Motorcycle Club</li> <li>• Boomerang Bike Hire</li> </ul> <p>The interviews aimed to discuss the perceived socio-economic impacts (positive and negative), opportunities, and construction impacts of the project with potential user groups.</p>
Face to face meetings	Impacted landholders	<p>Six meetings were held with directly impacted landholders.</p> <p>Meetings provided residents with the opportunity to talk directly to the project team and provided an opportunity to discuss the potential impacts of the project.</p>
Survey	All	<p>A short survey, consisting of 14 quantitative questions, was prepared using SurveyMonkey® to gain a better understanding of the current activities of the local and regional community to understand how the project might be used in the future.</p> <p>The survey was available between 3 November and 1 December 2016 and 890 responses were gathered during this period.</p>
Workshop	Council staff from within the regional area and NPWS	<p>A workshop with local government staff was held on Tuesday 1 November 2016, 9:30 am – 12:00 pm Shortland Wetland Centre.</p> <p>The workshop provided a project overview and summary of social impact assessment findings to date.</p> <p>Between 20 and 30 representatives attended the workshop from the following organisations:</p> <ul style="list-style-type: none"> <li>• Newcastle City Council</li> <li>• Lake Macquarie City Council</li> <li>• Cessnock City Council</li> <li>• Maitland City Council</li> <li>• National Parks and Wildlife Service</li> </ul>



Activity	Stakeholders	Detail
Community information sessions	All	<p>Community information sessions were held at the following locations, dates and times:</p> <ul style="list-style-type: none"> <li>• Thursday 3 November 2016, 4:00 pm to 7:00 pm, Fletcher Community Centre</li> <li>• Tuesday 8 November 2016, 4:00 pm to 7:00 pm, Beresfield Public School</li> <li>• Wednesday 9 November 2016, 4:00 pm to 7:00 pm, Kurri Kurri Business Enterprise Centre</li> <li>• Thursday 10 November 2016, 4:00 pm to 7:00 pm, Shortland Wetland Centre</li> </ul> <p>The community information sessions provided residents and interested community members the opportunity to talk directly to the project team.</p> <p>Attendee numbers ranged from 6 to 43 at each session with 98 community members in total attending the information sessions. 21 completed feedback forms were received.</p>
Community contact and feedback	All	<p>Contact mechanisms were established to enable the community and stakeholders to provide feedback and ask us questions about the project via the information line: 1800 066 243 and email: <a href="mailto:contact@ghd.com">contact@ghd.com</a></p> <p>All contacts were recorded in a Consultation Manager® database set up for the project. 58 phone contacts were made and 67 emails received.</p>
Bulk mail out	Nearby residents	<p>A two page information brochure providing an overview of the project and the details of the public consultation process was mailed to over 500 households and properties in the suburbs of Shortland, Tarro, Fletcher, Minmi and Kurri Kurri, in advance of the community information sessions.</p>
Advertisement	All	<p>Advertisements were placed in:</p> <ul style="list-style-type: none"> <li>• Newcastle Weekly on 27 October 2016</li> <li>• Cessnock Advertiser on 26 October 2016</li> <li>• Newcastle Herald Weekender on 29 October 2016</li> <li>• Lower Hunter Star on 29 October 2016</li> </ul> <p>The advertisements provided information about the display locations and information sessions.</p>
Symposium with Newcastle University	University	<p>Council presented an overview of the project to the University at a Symposium.</p>
Council website	All	<p>Details of the project are provided on the Council website.</p> <p><a href="http://www.newcastle.nsw.gov.au/Council/News/Projects-Works/Richmond-Vale-Rail-Trail">http://www.newcastle.nsw.gov.au/Council/News/Projects-Works/Richmond-Vale-Rail-Trail</a></p>

## 4.2 Survey of potential users of the RVRT

### 4.2.1 Methodology

As outlined in Section 4.1, a brief online survey was distributed throughout the region to understand the likely users and uses of the RVRT as well as current behaviour related to active travel and outdoor activities. A summary of survey respondents is provided in Table 4-2.

Table 4-2 Overview of key survey respondents

	Local	Regional	Tourist
Number of respondents	86	467	337
Female respondents	22%	24%	35%
Average distance from the RVRT	2 km	13 km	N/A
Percent current cyclists	83%	90%	94%
Percent current walkers	93%	92%	93%
Percent current birdwatchers	50%	44%	49%

The survey was promoted through council social media channels and websites and shared through diverse interest groups including: local and regional cycling groups, bushwalkers, birdwatchers, and active travel interest groups from the University of Newcastle.

Respondents were asked about their current behaviour (frequency and purpose) with regard to walking/ running, cycling and birdwatching, provided with information about the proposed RVRT and asked to indicate their expected use of the RVRT. Data was also collected about respondent's place of residence, age and gender.

There were 890 responses to the survey, with almost 10 percent (86 responses) of those from postcodes within the local area and 52 percent from within the regional area. Respondents lived as far away as Perth. Local and regional respondents were defined by postcodes consistent with the local and regional study areas. Tourists were defined as those outside the regional area. Women represented 28 percent of respondents.

The survey cannot be considered representative of all potential users of the RVRT; however it does provide insight into some of the future users and their current and probable future behaviour. As cycling groups were some of the main distributors of the survey, they are heavily represented in the survey with 71 percent of local, 84 percent of regional and 93 percent of tourist respondents cycling at least monthly.

### 4.2.2 Local users

The majority of respondents in the local area were aged between 35 and 69 years (see Figure 4-1).

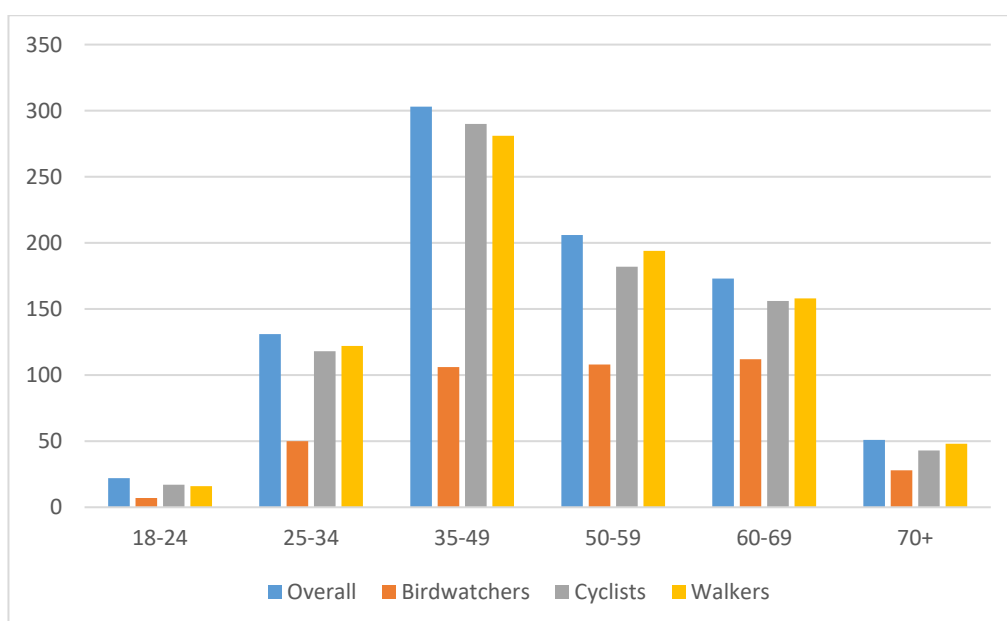


Figure 4-1 Age of local users

Most respondents participate in both walking/ running and cycling activities, at least rarely (see Table 4-3). The proportion of local users who also go birdwatching peaks in the 60-69 years age bracket (see Figure 4-1).

Table 4-3 Current frequency of activity by local residents

	Cycling	Walking
Often	46	25
Regularly	21	25
Irregularly/rarely	11	27
Never	2	2
<b>Total</b>	<b>80</b>	<b>79</b>

Table 4-3 indicates local respondents are more likely to regularly cycle than to regularly walk.

Local cyclists who cycle daily are expected to be younger (25-34 years old) and older (60 years and older) (see Figure 4-2). Most local users are expected to have weekly and to a lesser extent monthly cycling frequencies (Figure 4-2).

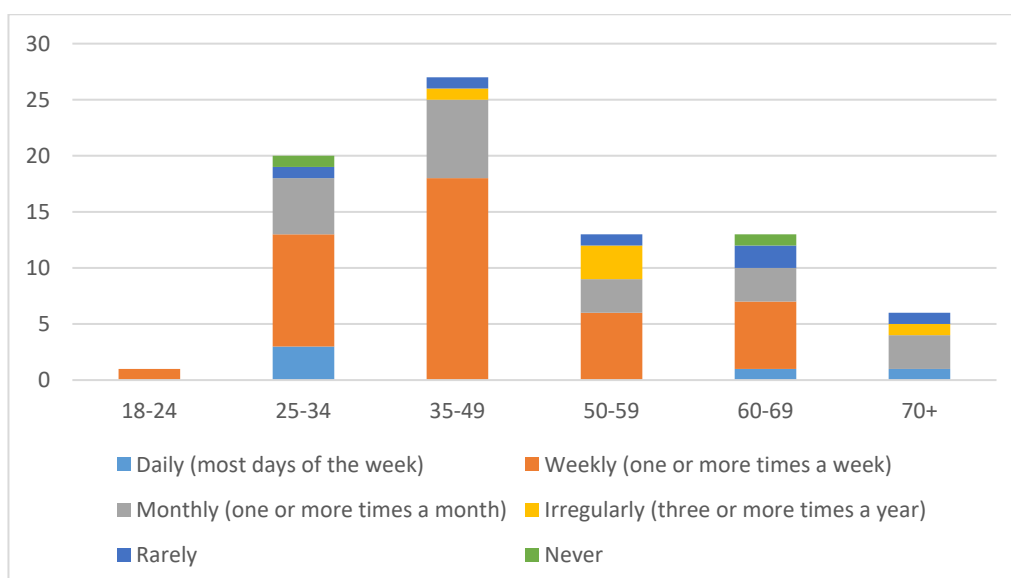


Figure 4-2 Local user cycling frequency with the RVRT

The main purposes for respondents walking/running or cycling in the local area was for fitness/exercise or recreation, with local travel the next most common response. Respondents indicate that with the RVRT there will be a small increase in commuting, local travel and training for competitive sports (see Table 4-4).

Table 4-4 Purpose for walking/running or cycling in the local area

	Current		Future
	Walking	Cycling	Cycling
Commuting	11	9	24
Recreation	57	63	63
Fitness/exercise	59	64	61
Competitive sport or sport training		9	16
Local travel	41	21	29
Walk a dog	28		
Don't walk	5		
Other		7	

#### 4.2.3 Users from within the regional area

The age distribution for regional users is shown in Figure 4-3. The age distribution in the local area (Figure 4-1) indicates a higher representation of younger users (25 – 34 years old) when compared the regional area (Figure 4-3), although in both the regional and local areas the majority of respondents were aged between 35 and 69.

The age data also illustrates that, like the local area, the majority of regional respondents participate in both walking/ running and cycling activities rarely or more (see Table 4-5).

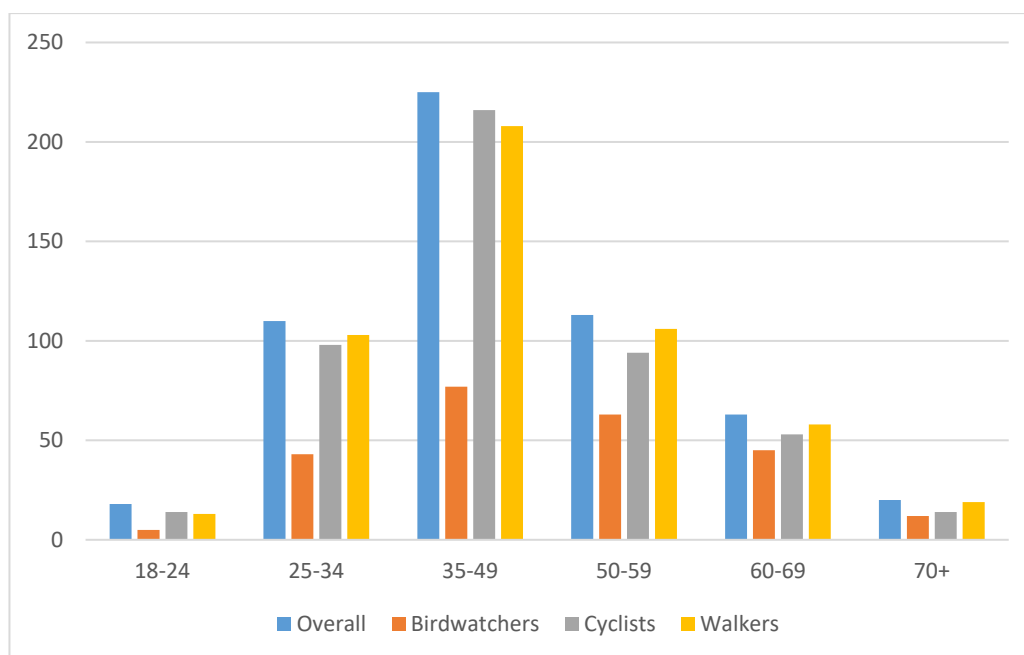


Figure 4-3 Age of regional users



Table 4-5 Frequency of future use of the RVRT by regional residents

	Cycling	Walking
Often	166	97
Regularly	147	89
Irregularly/rarely	123	207
Never	12	49
<b>Total</b>	<b>448</b>	<b>442</b>

Table 4-5 indicates regional respondents, as with local respondents (refer Table 4-3), would be more likely to regularly cycle the RVRT than to regularly walk it. Daily cyclists from the regional area are likely to be from more diverse age groups than local users. Most regional users expect to have weekly, and to a lesser extent monthly, cycling frequencies (Figure 4-4). This is similar to the local area (refer Figure 4-2), and facilitated by the proximity of the route and the unique riding experience it provides.

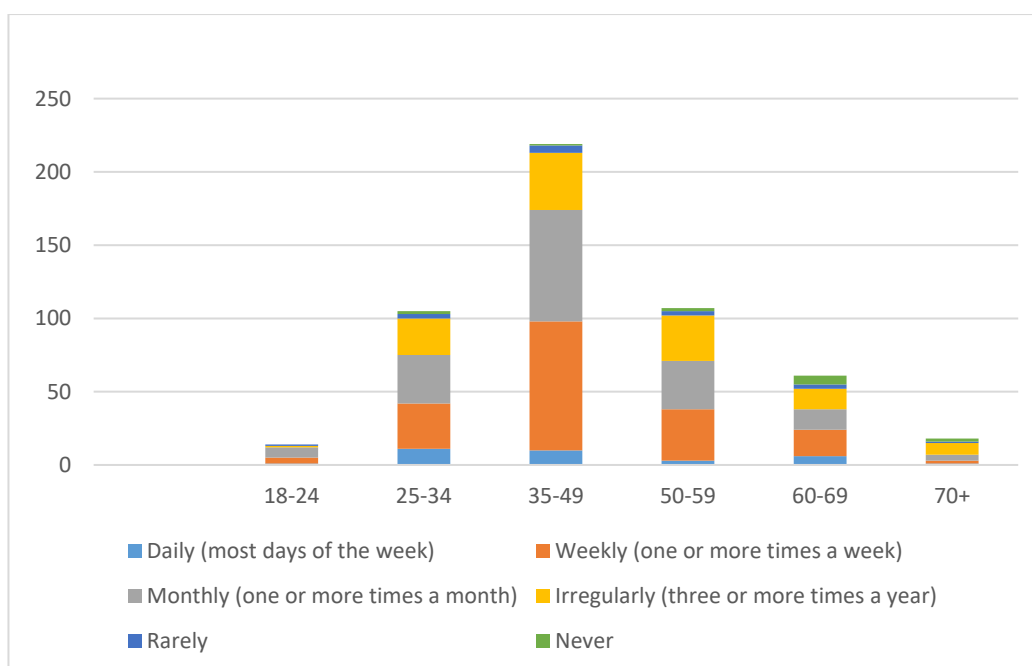


Figure 4-4 Regional user cycling frequency with the RVRT

The main purpose for respondents walking/ running or cycling in the regional area was for fitness/exercise or recreation, with local travel the next most common. A considerable number of respondents in the regional area also cycle for competitive sports or sports training (see Table 4-6).

Table 4-6 Purpose for walking/ running or cycling in the regional area

	Current		Future
	Walking	Cycling	Cycling
Commuting	98	52	198
Recreation	339	368	379
Fitness/ exercise	332	368	388
Competitive sport or sport training		127	162
Local travel	255	71	213
Walk a dog	182		
Don't walk	24		
Other		7	

Responses summarised above indicate that with the RVRT rates of commuting would almost quadruple. Cycling for local travel would almost triple and significant increases in the number of people undertaking or training for competitive cycle sports are also likely.

#### 4.2.4 Visitors

The age distribution for visitor users is shown in Figure 4-5. The largest age group of 'potential visitor' respondents was 60 to 69 years, however there was also a significant response from people from age 35 to 49. Table 4-7 indicates that while most respondents both walked and cycled (at least rarely), close to a half undertook birdwatching, with this likelihood increasing with age.

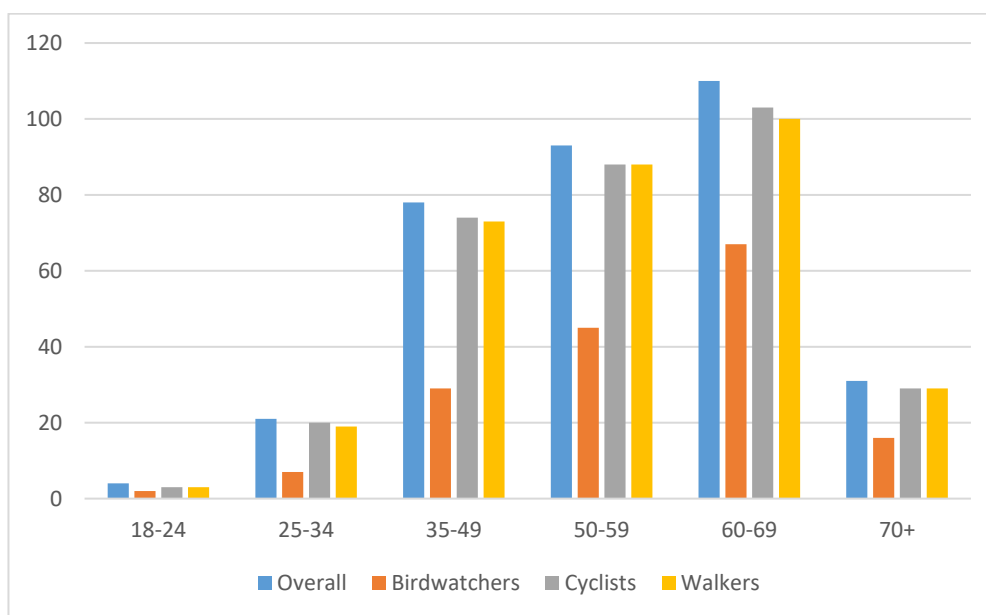


Figure 4-5 Age of visitor users

Table 4-7 Frequency of use of the RVRT by visitors

	Cycling		Walking
Frequency of use	Current	On RVRT	On RVRT
Daily (most days of the week)	157	2	1
Weekly (one or more times a week)	140	10	7
Monthly (one or more times a month)	17	39	18
Irregularly (three or more times a year)	2	195	123
Rarely	1	67	89
No response or none	0	4	79
	317	313	238

Visitors from outside the regional areas are likely to use the area less frequently, as indicated by the results in Table 4-7. More than one in five respondents are likely to cycle the route monthly, with the majority of respondents expecting to use the route at least three times a year.

Whilst most respondent visitors noted recreation and fitness/exercise as the main purpose for cycling, many also noted tourism and cycling with a group/club as the main purpose. Given that cycling enthusiasts were strongly represented in the survey, this result largely reflects the nature of potential future cycling tourism.

#### 4.2.5 Cycling

The survey indicates that respondents have a high incidence of very regular cycling (daily or weekly) for local and regional users (see Figure 4-6).

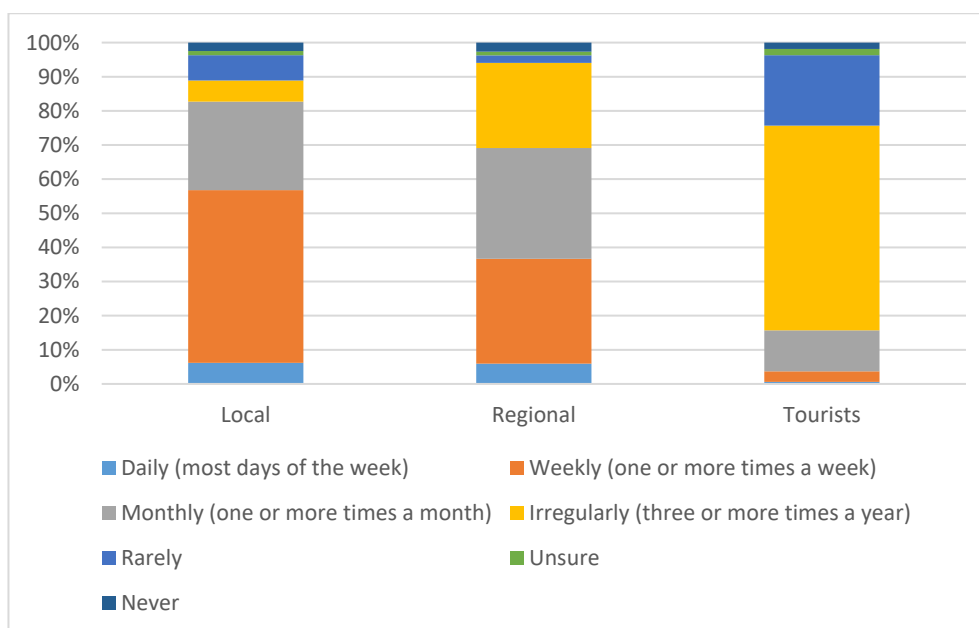


Figure 4-6 Anticipated future cycling frequency with the RVRT

Table 4-8 summarises indications of future cycling activity, which demonstrates that a variety of regional visitors can be expected to use the RVRT with most use weekly, monthly or several times a year. As expected the trail will draw much use from cyclists who are already very regular cyclists (daily or weekly) in the region. Responses from the local area indicate a decline in very frequent cycling but an increase in regular monthly cycling. The reasons for this are unclear. Potential tourists indicated a clear intention to visit the RVRT, with the majority expecting to visit three or more times a year.

Table 4-8 Current and future cycling

	Current			Future		
	Local	Regional	Tourists	Local	Regional	Tourists
Often (Daily/ Weekly)	50	348	297	46	166	12
Regularly (Monthly)	11	43	17	21	147	39
Irregularly/ rarely	10	31	3	11	123	262
Never	11	29	5	2	12	6
Total	82	451	322	80	448	319

The reasons for cycling by local, regional and visitor respondents is shown in Table 4-9. The survey reinforces the key role the RVRT would play as a mechanism for active recreation for all users (local, regional and tourists). The length of the trail also lends itself to use as a regional route for competitive cycle training and activities.

Both local and regional users also noted their intention to cycle the route to facilitate birdwatching and to attend cycle racing activities in Kurri Kurri, and for regional respondents, as part of bike group activities and family and social activities. Respondents were also asked to provide written responses if they would use the RVRT for other uses and these included tourism and bike tours.

Table 4-9 Reasons for cycling the RVRT

	Local	Regional	Tourist	Grand Total
Commuting	24	198	129	351
Recreation	63	379	303	745
Fitness/ exercise	61	388	281	730
Competitive sport or sport training	16	162	64	242
Local travel	29	213	200	442

#### 4.2.6 Walking, running and jogging

Survey results indicate that future use of the RVRT for walking/running/jogging may not be taken up by the most active walkers in the local area (see Table 4-10), with less than half of the most active expecting to use the RVRT on a daily or weekly basis.

Table 4-10 Current behaviour and likely future walking on the RVRT

	Current			Future		
	Local	Regional	Tourists	Local	Regional	Tourists
Often (Daily/Weekly)	68	374	284	25	97	8
Regularly (Monthly)	6	39	14	25	89	18
Irregularly/rarely	6	18	14	27	207	212
Never				2	49	68
	80	431	312	79	442	306

This low result for future walking use is likely influenced by a number of factors (see Table 4-11):

- The survey was not completed extensively by respondents in the local areas closest to the route.
- Respondents likely had limited information at the time of the survey in regard to specific recreational, environmental or heritage features, facilities, rest areas, and access points.
- Very regular walking is most often undertaken in close proximity to people's homes so travelling for appropriate routes is less likely at this frequency.

Table 4-11 Current reasons for walking/running

	Local	Regional	Tourist	Total
Commuting	11	98	86	195
Recreation	57	339	254	650
Fitness/ exercise	59	332	216	607
Local travel	41	255	197	493
Walk a dog	28	182	97	307
Don't walk	5	24	11	40

For all respondents the main reasons for walking/ running was for recreation, fitness/ exercise and local travel.



#### 4.2.7 Birdwatching

The Hexham wetlands are a bird watching location of state significance, drawing birdwatchers from within the region and beyond. The survey indicates that around 22 percent of all survey respondents (total survey respondents 890) birdwatch at least three times a year, with slightly more birdwatching at least rarely (see Table 4-12). Survey results indicate an increase in both local and regional birdwatching is expected with the construction of the RVRT, and a comparable increase in birdwatching rarely by visitors from outside the region.

It is possible that intention to visit the area may not be exclusively for the purpose of birdwatching. However it may be an activity that has the potential to gain popularity through exposure to the RVRT.

Table 4-12 Current and likely future birdwatching activity

	Current		Future	
	More than three times a year	Rarely	More than three times a year	Rarely
Local	27	16	37	18
Regional	98	106	133	126
Tourist	77	89	74	111
	202	211	244	255

Section 6.4.3 discusses the health benefits of the RVRT and how the greatest health gains would be achieved by inactive or underactive people becoming more active. In the survey, 77 respondents, or 8.6 percent, indicated that they either do not currently cycle, or do not currently walk. However, of these, 22 percent indicated that the RVRT would encourage them to cycle or walk at least monthly, with a higher proportion of local residents likely to indicate this level of frequency. Although almost 40 percent of people expected either that they would not cycle, or they would not walk on the RVRT, most would do at least one of these, even if rarely, with only four respondents indicating they would neither cycle nor walk.

#### 4.2.8 Likely modes of travel to the RVRT

The mode of travel to the RVRT indicated by survey respondents is depicted in Figure 4-7. The survey indicates the dominant form of transport by local users is expected to be cycling, followed by driving, then walking. For regional users, driving would represent a larger portion, whereas for tourists, driving and public transport are expected to be the dominant modes.

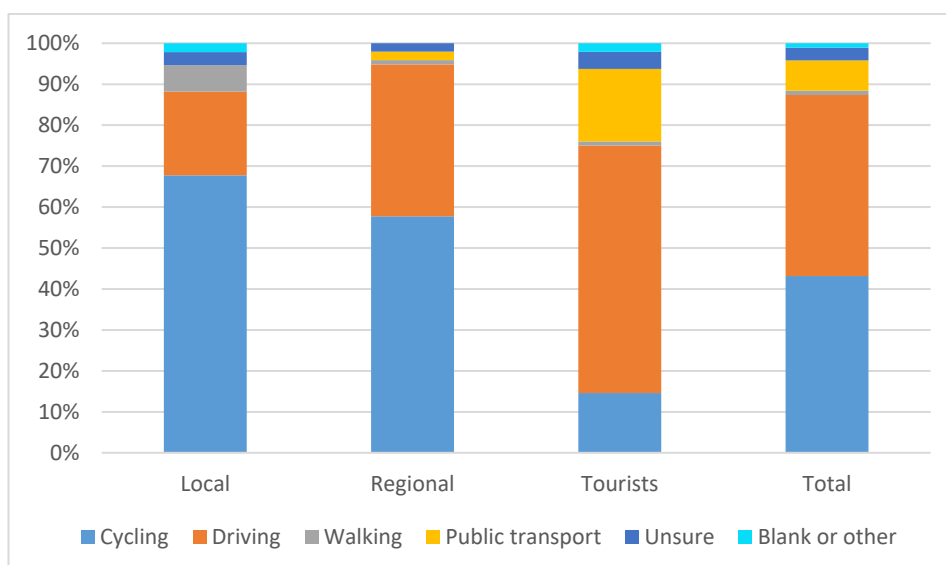


Figure 4-7 Mode of travel to the RVRT

### 4.3 Issues raised during consultation

The key issues raised and outcomes of the consultation undertaken are outlined below.

#### 4.3.1 Benefits

Key benefits expressed include:

- Tourism potential – diversify tourism offerings and attract new visitors.
- Improved access to wetlands for bird watching.
- Opportunity to boost the profile of Kurri Kurri and enhance its offerings.
- More visitors to the Hunter Wetlands Centre and the wetlands, and greater awareness of the value and nature of the wetlands and reserves along and adjacent to the trail.
- Provision of a substantial contribution to the networking of ‘cycle towns’ in the region, which will encourage future networking, and ultimately promote the status of the Hunter Region as a cycleway attraction.
- Economic benefits for nearby businesses – Wetland Centre (including café and bike and canoe hire), food and beverage stores in Shortland, Kurri Kurri, West Wallsend and potentially Minmi.
- Health benefits both locally and regionally, but especially in the growth area of Fletcher-Minmi.
- Offset the negative impacts of mine closures in the region by diversifying the economy through tourism related economic activities.
- Increased safety for Maitland commuters who could avoid dangerous Hexham intersection.
- Commuting from Kurri Kurri a more desirable and safer alternative to the Hunter Expressway, also potential for people in Tarro and Beresfield.
- Route is in close proximity to the university; a connection to the university could be good for student commuting.
- Boost profile and visitor numbers to Richmond Vale Rail Museum.
- Construction employment.
- Proximity to rail trail expected to enhance property values.

#### 4.3.2 Opportunities

Key opportunities expressed include:

- Associated services – cycle shops, hire, repairs/parts, luggage delivery for cyclists etc.
- Potential to cooperatively promote cycle tourism throughout the region and activate local spaces.
- Bring focus and resources to the heritage management of Richmond Vale Rail Railway.
- Financial opportunities related to integration with mountain bike tourism in the local area.
- Opportunities for Seahampton being close to one of the most scenic points.
- Accommodation (including farm stays and RV friendly sites) linked to/close to the RVRT.
- Tourism opportunities related to horse riding near some parts of the trail.
- Fixed or mobile food and beverage or cycle services related to the track.

- Events such as fun runs, distance, family and endurance races and events.
- School environmental education and learn to ride route.
- Collaborative marketing of local businesses with the RVRT.
- Provision of loop tracks – multiple suggestions for Martins Road/Kooyang, within Minmi and Fletcher, to BGHRP etc.
- Potential for links and connections to other areas – onwards to vineyards, Cessnock, Maitland, the BGHRP, to Glendale and Fernleigh tracks.
- Opportunities to integrate mountain bike tourism opportunities with the RVRT and expand tourism numbers.
- Signage to reduce straying off the track, also to interpret and raise awareness of the value and nature of the wetlands and of the historical and heritage values along the route.
- Provision of shelters and resting spaces along the route – to support users travelling shorter distances, promote observation and enjoyment of the environment.

#### 4.3.3 Issues

Potential issues expressed include:

- Emergency access, especially in the wetlands and tunnels.
- Waste management.
- Continued access for bird surveys.
- Impacts to cultural heritage through the usage of the rail trail.
- Distances to walk/cycle may discourage a largely older demographic bird watching community (local and regional/interstate visitors) who currently access by vehicle.
- Need accessible amenities.
- Manage frequency and timing of events to avoid impacts to neighbours.
- Privacy and property impacts for nearby neighbours.
- Costs of maintenance and mechanisms for management of the trail.
- Managing unauthorised access – threats to users safety and to nearby neighbour impacts.
- Opportunity lost for rail reinstatement on old line.
- Construction transport and noise impacts.
- Impacts to users of the Hunter Wetlands Centre and Log of Knowledge park during construction.
- Access/use for dog walking and horse riding.

#### 4.4 How consultation has informed the assessment

The evolution of the RVRT has been a process that has been cooperatively driven by local government and members of local communities over many years. Consultation for this socio-economic impact assessment has drawn on these evolving consultations, as well as engaging key stakeholders, including those who currently use or have an interest in the area where the route will traverse and those who may have in the future.

These consultations have significantly informed the understanding of the local and regional area and potential users, and the impact identification and quantification process. Consultation has also input to the development of mitigation and opportunity enhancement strategies presented in Section 7.

The survey of potential users has specifically provided a detailed snapshot understanding of some likely future use of the RVRT, with particular insight into the likely future use by the local and regional cycling community and cycling tourism.



## 5. Existing and future users of the trail

### 5.1 Existing users and uses in the area

Consultation has indicated that the RVRT will traverse diverse habitat and landholdings with some existing uses and users of the trail and adjacent lands being potentially impacted by construction and operation of the trail. Current use of the route includes:

- **Walkers/joggers** – commonly in areas close to Minmi and Kurri Kurri, where accessible.
- **Cyclists and mountain bikers** – commonly in areas close to Kurri Kurri as far as is accessible.
- **Motorcycle riders** – recreational use by the Kurri Kurri Motorcycle Club at Stockrington. The club has a membership of around 100, however, use of the area is limited by lack of legal access. The RVRT may divide parts of the land used for these activities.
- **Birdwatchers and nature enthusiasts** – particularly in the Hexham wetlands, but also in Pambalong Nature Reserve. There is currently limited access to the Stockrington and Werakata State Conservation Areas for these activities. The Hunter Bird Observers Group is the main local and regional user group with around 330 members of a primarily older demographic. Seasonal rare migratory shore birds in Hexham wetlands commonly attract birdwatchers regionally and from interstate.
- **Rural land uses including small farms** – a number of rural land holdings in the Hexham wetlands along the Tarro extension and in Lenaghan and Stockrington, some of whom use the route for stock grazing and incidental uses. The approved southern haulage route to Buttai gravel quarry also crosses part of the RVRT route.
- **Residential land developers** – a number of urban residential land release areas are adjacent to the route in Minmi, with some directly impacted individual properties potentially reducing their yield potential.
- **Four wheel drive vehicles** – illegal use of bushland tracks.
- **Illegal waste dumpers** – extensive illegal dumping of waste, primarily commercial building materials, along accessible areas of the route.
- **Existing use by cyclists** - existing walking and cycling is evident along sections of the RVRT alignment and within the local area from informal sources such as web based user recorded mapping system Strava (see Appendix D).
- **Illegal access**- public access varies along the route, many users do not access areas legally, as many access points are across private land.

### 5.2 Expected future use

#### 5.2.1 Methodology

Estimating the demand of active transport (cyclists and pedestrians) and other users involves a degree of uncertainty and is difficult to define, particularly for a completely new off-road facility. The anticipated number of users will determine the level of expected benefits for the RVRT. In order to estimate demand for the RVRT, a combination of techniques have been adopted, as described in Section 6.2.4. Using this approach, it is estimated that the RVRT will generate 250,030 trips per annum.

The *Richmond Vale Rail Trail Feasibility Analysis* (Mike Halliburton Associates et al 2014) reviewed experience from rail trails in other parts of Australia. Key comparative findings from this report are provided below, together with relevant local and regional tourism and population data to understand potential future usage trends for the RVRT. It also provides additional context with regard to local cycle trails, recent research in cycle tourism, and current and potential commuter use.

#### 5.2.2 Local and regional use

##### *Trails in Australia*

The *Richmond Vale Rail Trail Feasibility Analysis* (Mike Halliburton Associates et al 2014) cites research into urban and peri-urban trails in other parts of Australia. Whilst monitoring and measurement of trails is limited and not all trails are comparable, in Mundaring Shire in Western Australia, which supports a number of rail and other trails, it was found that only 10 percent of users of the trails were local or regional residents, with the remainder being tourists. Local or regional residents, however, represented 63 percent of all visits, meaning they undertook an average of 75 trips per year on the trails (an average of almost 1.5 times a week). Even though Mundaring provides an extensive network of trails, rather than a specific segment such as the RVRT, the relative proportions of users and use can be demonstrative for the proposal.

The Mundaring study also found that local users, whilst spending less than tourists, averaged \$1.44 per person per trip, primarily on food and drinks. This expenditure is consistent with the social nature of a large proportion of recreational cyclists and walkers, where coffee shops and café are frequent conclusion points.

##### *Trails in the region*

The Fernleigh Track is a rail trail developed jointly by the City of Newcastle and Lake Macquarie City Council. The Track is 16 km long between Adamstown and Belmont, traversing both suburban and dense bushland areas, including the Glenrock State Recreation Area and wetland areas. Whilst it is not directly comparable, it is demonstrative of high local and regional demand for quality off-road cycle facilities.

Traffic count data for the Fernleigh Track was commissioned specifically for the RVRT at two sites on the Fernleigh Track. The seven day averages were used to estimate the average week day usage of the Fernleigh Track at the two sites. These are depicted in Figure 5-1 and Figure 5-2. The sites at which data was collected are:

- Site 1 - Fernleigh Track at the end of the car park adjacent to Railway Parade (eastbound and westbound).
- Site 2 - Fernleigh Track 30 m north of Burwood Road (northbound and southbound).

Data was collected over a seven day period in May 2017 at hourly intervals and shows a consistent usage on weekdays with higher patronage on the weekends. Usage is fairly evenly spread between the hours of 5:00 am – 6:00 pm.

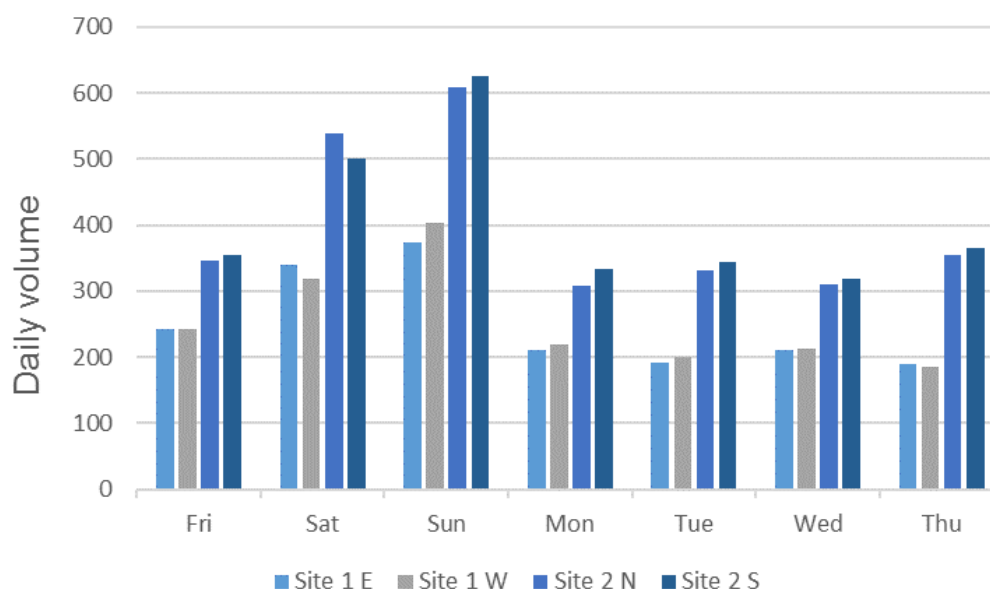


Figure 5-1 Traffic count data for Fernleigh Track – daily volume

In March 2016, the Bicycle Network undertook counts (in cooperation with Lake Macquarie City Council and the Newcastle Cycleway Movement) on the Fernleigh Track during weekday peak hours (7:00 am to 9:00 am) which recorded over 245 bicycle riders. User numbers had increased in the first two years of operation of the track but have been relatively stable since 2018. Approximately one in five cyclists is female. This count does not include other users (e.g. pedestrians, dog walkers etc.). Data recorded over four hours on a weekend (9:00 am to 1:00 pm) in March 2016 noted 489 users, which includes cyclists (who make up about 80 percent of users), walkers (10 percent) and runners (4 percent). Dog walkers and others make up the remaining six percent.

Whilst the bulk of trips on the Fernleigh Track are expected to be by local users, it also attracts day trippers from within the region and beyond<sup>2</sup>. The track also hosts events such as the Fernleigh 15 fun run and an electric vehicle race, and is a venue for personal training sessions and wedding photography (particularly at the tunnels).

The Fernleigh Track is a popular track with a very high number of users. Recent traffic count data reveals that the Fernleigh Track receives 2,800 trips per week (~145,000 per year), see Figure 5-1 and Figure 5-2. The high volume and diversity of use of the Fernleigh Track suggests that uptake and growth in use of the RVRT may be readily achieved.

<sup>2</sup> Pers comm, Newcastle Cycleways Movement, 19 October 2016

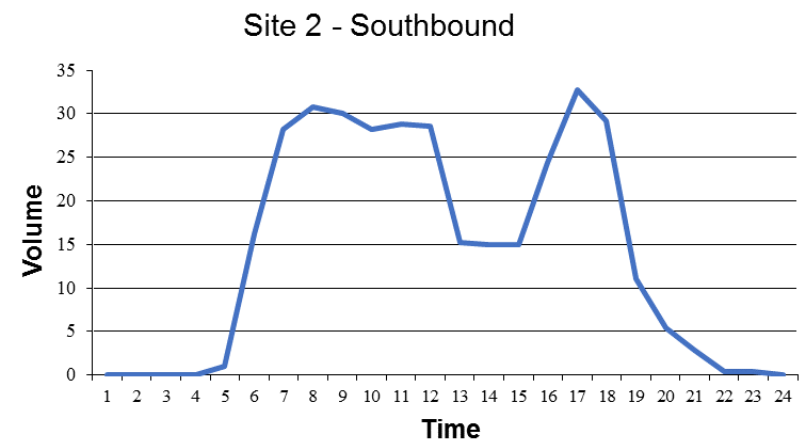
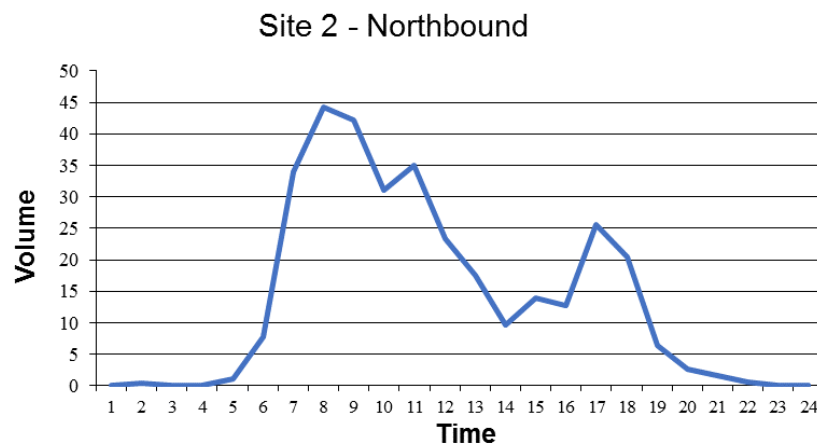
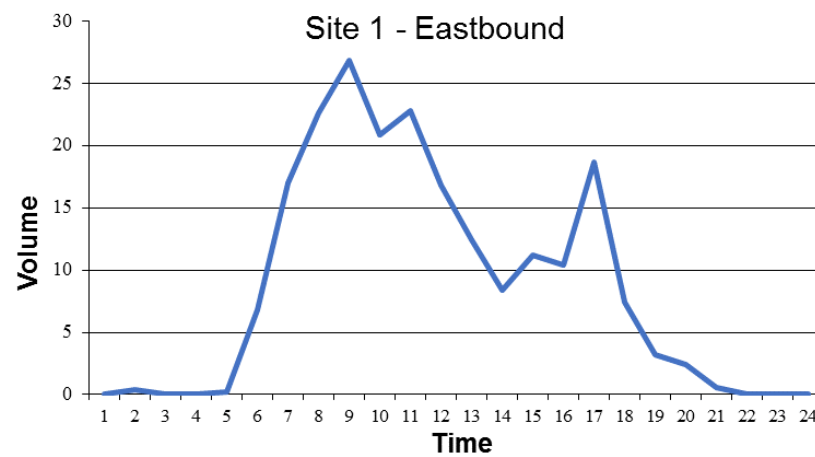


Figure 5-2 Traffic count data for Fernleigh Track (7-day average)



### *Population growth*

As discussed in Section 2, the regional area is expected to experience significant growth in the coming decades, with estimates that the Hunter Region will grow from 732,400 in 2016 to 862,250 in 2036, an increase of 17.8 percent. Much of this growth would be close to the RVRT, including the Blue Gum Hills planning district, areas to the east of Kurri Kurri and just to the northwest of Tarro and Beresfield near Thornton in Maitland LGA. Fletcher-Minmi is expected to experience the greatest growth with an average 4.65 percent per annum, or a more than three-fold increase by 2036 (Forecast.id 2013).

The significant population growth in the local and regional area would provide an increased pool of potential users for the RVRT for both recreation and commuting from adjacent areas.

#### 5.2.3 Tourism

The RVRT is expected to diversify the tourism offering in the area, attracting additional tourism and extending the stay of the existing visitor market.

A study of rail trail impacts on tourism in regional Victoria has indicated that cycle tourists are high yield visitors, regularly exceeding expenditure of other visitors in regional areas (Tourism Research Australia, 2015). This is reinforced by surveys for a 2009 study that found average per person expenditure was \$244 per day, with half of this on food and beverages (Beeton 2009). Indirect expenditure was also significant with the overall economic contribution of visitors during the period of \$447 per person per day.

As noted in Section 2, there has been significant recent growth in overnight domestic stays in the Hunter and increasing traveller preference for active and nature-based tourism activities. The RVRT would be well placed to attract this growing tourism market and further diversify the tourism offerings in the region, attracting guests to stay longer.

A study into the market for cycle tourism for Victoria (Tourism Research Australia, 2015) found that:

- The market is small (15 percent of respondents) but those who participated are highly engaged and take multiple trips per year.
- Although Victoria, with significant cycle tourism infrastructure was ranked first as a destination, NSW (with limited cycle tourism infrastructure) ranked second.
- Nearly 30 percent of respondents would consider taking a trip including cycling in the next five years, including 21 percent of people who had no previous cycle tourism experience.

Consultation with cycling groups and the results of the potential user surveys (see Section 4) further support the potential for the RVRT as a cycle tourism destination. The RVRT would have the potential to host cycling events and would attract cycling club tours and independent cyclists from outside the regional area. There are a number of successful events in the region that demonstrate this potential including the annual Fernleigh 15 run, the Loop the Lake ride in Lack Macquarie and the Port to Port four day ride from Port Stephens to Lake Macquarie. Over twelve hundred runners participated in the Port to Port October 2018 race.

#### 5.2.4 Enhanced commuting routes

The RVRT lies largely between the Hunter Expressway to the south and John Renshaw Drive to the north, with the Tarro extension also crossing the New England Highway to the north. Traversing multiple scenic natural and rural areas, and skirting both new and established settlements, the trail would provide a long distance recreational route between Kurri Kurri and Newcastle and present opportunities for commuter use along the entire route and in specific segments.

The trail from Tarro to Shortland would provide the most significant benefit for riders, as the current route via the New England Highway has seen a number of cyclist fatalities in recent years (refer to Section 6.4.2 for further discussion on cyclist safety). The RVRT would therefore likely attract current cyclists from Maitland and the Newcastle communities of Tarro and Beresfield to this section of the route. It is also expected that it would draw new commuters from these areas by providing a safer route alternative. With residential development also expanding in nearby Thornton, there is a strong potential for future growth in commuting for this segment. Together with a potential future link to the University of Newcastle campus, this active travel link could enhance the desirability of Tarro and Beresfield as more affordable student accommodation.

Traffic count data commissioned for this project revealed that on average 23 people cycle between Tarro and Shortland as part of their daily commute (see Figure 5-3). It is expected that the number of daily commuters would significantly increase if the safety of cyclists was improved through the creation of a new separated off-road cycleway.

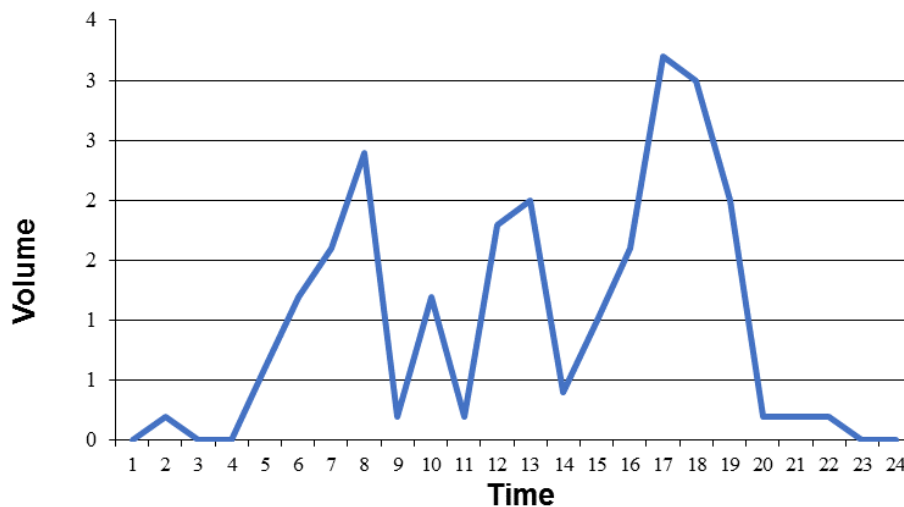


Figure 5-3 Traffic count data for west of Tarro Rail bridge on New England Highway (7-day average)

Public transport between Newcastle and Kurri Kurri currently involves a bus service of about one hour or a mixed bus and train service via Maitland taking about one and a half hours. Commuting the route would likely take between an hour and half and two hours. Whilst commuter numbers may be small initially, as cycling and familiarity with the route grows, mode transfer to cycling may increase for Kurri Kurri residents. The trail may also provide an option for students studying at Kurri Kurri TAFE campus.

Lighting of the route would enhance safety, and thus desirability of the route for commuters and recreational users throughout the evenings and early mornings.

Consultation with councils, cycling organisations and review of cycling websites (see Appendix D) provides anecdotal feedback that existing tracks and trails are well utilised. The survey results also confirm a likely increase in cycle commuting (refer Section 4). Cycle commuting in Newcastle varies with rates as high as 5.2 percent in Maryville (close to the Throsby cycleway) and as low as zero in Minmi – Fletcher. Redhead and Dudley, on the Fernleigh Track have rates of 0.9 and 1.27 percent (ABS, 2011) respectively, providing a potentially indicative rate for the RVRT. It is considered reasonable that cycle commuting rates with the RVRT could double, resulting in 70 commuting cyclists on the trail per day, see Table 5-1.

Table 5-1 Current and estimated future cycle commuting on the RVRT

Area	Cycling rate (%) ^	Commuters to Newcastle*		Estimated cycle commuters	
		%	Number	Current	Potential doubling
Beresfield-Tarro	0.3 to 0.5	42	1,669	7	14
Maitland (SA3)	0.4	23	6,355	25	50
Kurri Kurri	0.3	15	376	1	2
Fletcher - Minmi	0.0	60	260	2	4
<b>Total</b>			<b>8,607</b>	<b>35</b>	<b>70</b>

Source: ^ABS Census date 2011, \*Bureau of Transport Statistics. Journey to Work 2016. GHD estimates.

Data from the University of Newcastle indicates that in the order of 2,700 students and staff live within the RVRT local area (University of Newcastle, 2016). Adapting the current rates of cycle commuting at the Callaghan campus of four percent to this figure, around 110 commuters to the campus could also utilise the RVRT. Together with the work commuters summarised in Table 5-1, commuting numbers could total 180 cyclists per day.

Whilst the number of commuters may be low when compared to driving and other commuters, it is estimated that the benefits to the economy for each commuter kilometre cycled is \$1.43 (Australian Government, 2013). Accordingly commuter cycled distances both on and off the RVRT would make significant contributions to the economy.

The key benefit of the RVRT for commuters, however, is increased safety. The New England Highway in the vicinity of the RVRT has had three cyclist fatalities over the last five years. The RVRT would provide a safe alternative to this dangerous section of road and is expected to draw existing cycle traffic from the New England Highway.

### 5.3 Predicted trips and users

It difficult to predict the mode and frequency of use of the trail. However, exploring the existing and potential users' characteristics outlined in the preceding sections assists to predict the experiences that may attract or deter particular usage of the trail. There are a number variables that determine how a user may utilise the trail, these include:

- Grade of the trail.
- Fitness and skill of the rider.
- Facilities such as toilets and rest areas.
- Attractions such as wetlands, tunnels, and bridges.

The RVRT has great potential to attract a broad range of user groups, owing to the variety of experiences that the trail can offer. To explore this potential use, the types of trail use and potential experiences summarised in Figure 5-4 and Table 5-2 have been incorporated in the design.

The design for the RVRT caters for a wide range of users, such as people with reduced mobility, recreational walkers and cyclists. Access points have been located so that users, either walking or cycling, can choose shorter trip of between 30 minutes to one hour if desired.



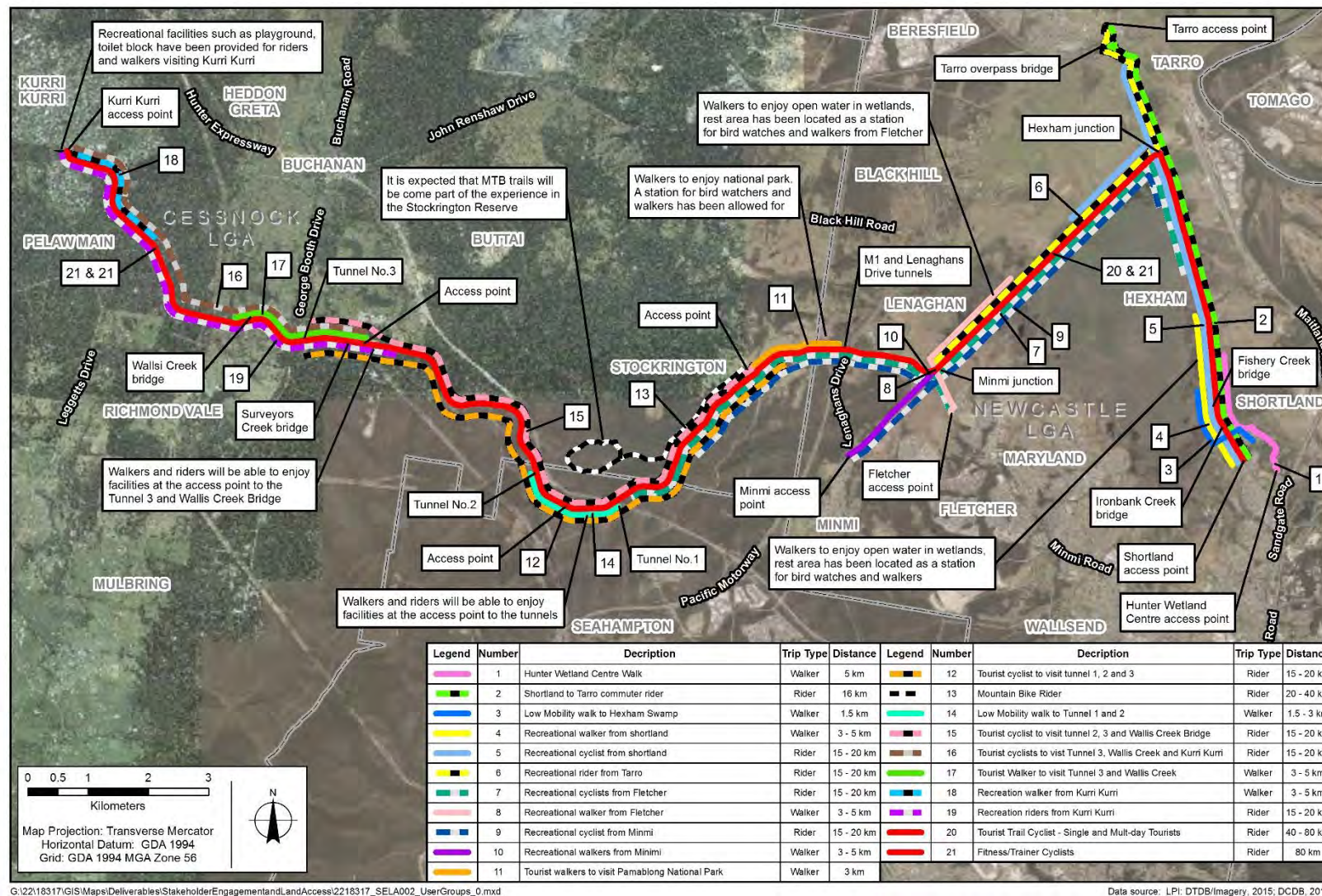





Figure 5-4 Predicted trip types









Table 5-2 Summary of trip types and users

Item	Description	User type	Estimated distance
1	<p><b>Hunter Wetland Centre Walk</b></p> <p>Users would connect to the RVRT via the Hunter Wetland Centre. The connecting path leads along the Wetland Centre where users can enjoy the available facilities and activities, such as toilets, and bird watching opportunities.</p> <p>The users will enter the Hexham National Park via Ironbark Creek and Fishery Creek Bridge where users can enjoy vistas of the wetland, as well as the conveniences of toilet facilities and sheltered rest areas</p> 	Walker	5 km
2	<p><b>Shortland to Tarro commuter ride</b></p> <p>Users will use the connection between Tarro and Shortland to commute from Maitland city to Newcastle city, including the university. This route allows current cyclist users to avoid the New England Highway, instead using a faster and safer route.</p> 	Cyclist	16 km
3	<p><b>Low Mobility walk to Hexham Swamp</b></p> <p>Low mobility users will be able to enjoy the Hexham National Park accessed via a carpark at Blanch Street. This allows people with low mobility to enter the national park safely, while being able to appreciate water views, as well as bird and fish wildlife. Users will experience the convenience of universal access grades, toilet facilities (with change table), and viewing platforms.</p>	Walker	1.5 km




Item	Description	User type	Estimated distance
4	<p><b>Recreational walker from Shortland</b></p> <p>Local users will be able to enjoy a walk into the Hexham National Park where they can admire the views and wildlife offered by the park. Toilet facilities, viewing platforms and sheltered rest areas have been provided along the track to promote usage.</p> 	Walker	3-5 km
5	<p><b>Recreational cyclist from Shortland</b></p> <p>A safe and flat pathway will allow users to exercise while enjoying the wetland. Separate lanes for cyclists and walkers will assist to avoid clashes.</p> 	Cyclist	15-20 km
6	<p><b>Recreational cyclist from Tarro</b></p> <p>A safe and flat pathway will allow users to exercise while enjoying the wetland. Separation lanes for cyclists and walkers will assist to avoid clashes</p>	Cyclist	15-20 km
7	<p><b>Recreational cyclist from Fletcher</b></p> <p>A safe and flat pathway will allow users to exercise while enjoying the wetland. A 120 metre long boardwalk has been provided to allow users to pass over the wetland and join onto the old railway trail line. Users will have the option to either continue riding along the wetland to Shortland/Tarro, or connect to Stockrington where they will also visit Pamablong National Park. This trail flaunts historical tunnels and rock cuttings in the Stockrington Conservation Area.</p> <p>The Fletcher community facility is located within 1 km and is connected via an existing pathway. This facility is expected to provide car parking, toilets and café facilities for this connection.</p> 	Cyclist	15-20 km






Item	Description	User type	Estimated distance
8	<p><b>Recreational walker from Fletcher</b></p> <p>Users will be able to safely access the wetland via wheelchair ramp compliant grades and a 120 metre long boardwalk. Rest areas with water views are offered along the walk.</p> <p>Fletcher community facility located within 1 km along a concrete pathway from the entrance will provide car parking, toilets and café facilities.</p> 	Walker	3-5 km
9	<p><b>Recreational cyclist from Minmi</b></p> <p>A safe and flat pathway will allow users to exercise while enjoying the sites along the trail. Users will have the option to either continue riding along the wetland to Shortland/Tarro or connect to Stockrington where they will also visit Pamablong National Park. This trail flaunts historical tunnels and rock cuttings in the Stockrington Conservation Area.</p> <p>Future connections will allow the trail continue to Blue Gum Tree park. An allowance for car parking and toilet facilities at the entry has been provided.</p> 	Cyclist	15-20 km
10	<p><b>Recreational walker from Minmi</b></p> <p>Users will be able to safely access the wetland via wheelchair ramp compliant grades and a number of small bridges. Rest areas with water views are offered along the walk.</p> <p>Future connections will connect the trail to Blue Gum Tree park. Car parking and toilet facilities at the entry will be provided.</p> 	Walker	3-5 km

Item	Description	User type	Estimated distance
11	<p><b>Tourist walkers to Pamablong National Park</b></p> <p>Walkers can enjoy the convenience of the car park and facilities at the Dog Hole Road entry and take a short 1.5 km walk into Pamablong National Park. A covered rest area will allow users to relax and take in the sights of the wetland. A feature of the park is the beautiful display of flowering melaleuca forest.</p> 	Walker	3 km
12	<p><b>Tourist cyclist to visit Tunnel 1, 2 and 3</b></p> <p>Cyclists can enjoy the convenience of the car park and facilities at the Dog Hole Road entry. From this point, riders will be able to enjoy a flat ride into Stockrington Conservation Area, which boasts three historical brick lined tunnels and numerous rock cuttings.</p> 	Cyclist	15-20 km
13	<p><b>Mountain Bike Rider</b></p> <p>It is expected that the RVRT will benefit the accessibility to current and future mountain bike trails and facilities in the Stockrington Conservation Area. The predicted popular access points will be via Dog Hole Road or George Booth Drive car parks.</p> 	Cyclist	20-40 km



Item	Description	User type	Estimated distance
14	<p><b>Low Mobility walk to Tunnel 1 and 2</b></p> <p>An access point has been provided between Tunnel 1 and 2 along George Booth Drive. This is a short, flat 3 km trip, and will give opportunity to people with low mobility to view the steep rock cuttings and historical brick lined tunnels.</p> <p>Toilet facilities are conveniently located at the carpark.</p> 	Walker	3 km
15	<p><b>Tourist cyclist to visit Tunnel 2, 3 and Wallis Creek Bridge</b></p> <p>Cyclists will be able to enter the trail via George Booth Drive carpark and toilet facilities. From this point, riders will be able to enjoy a flat ride through Stockrington where they can visit two historical brick lined tunnels and large span suspension bridge proposed to cross Wallis Creek.</p> 	Cyclist	15-20 km
16	<p><b>Tourist cyclist to visit Tunnel 3, Wallis Creek and Kurri Kurri</b></p> <p>Cyclists will be able to enter the trail via car parking provided along George Booth Drive, near Surveyor's Creek. Starting from this point, riders will be able to cross Surveyor's Creek over a 50 metre long bridge, and through the historical brick-lined tunnel. Cyclists will then cross Wallis Creek via a suspension bridge, and traverse Watekata National Park. At the conclusion of this trail, users can enjoy the facilities and recreational offerings at Kurri Kurri. Upgrades are provided at The Log of Knowledge Park to create an appealing destination for riders entering Kurri Kurri.</p> 	Cyclist	15-20 km



Item	Description	User type	Estimated distance
17	<p><b>Tourist Walker to visit Tunnel 3 and Wallis Creek</b></p> <p>Users will be able to utilise parking at George Booth Drive, located near Surveyor's Creek, to access the trail. From this point, walkers will be able to cross Surveyor's Creek over a 50 metre long bridge; make passage through the historical brick lined tunnel, and finally pass over Wallis Creek via a suspension bridge.</p> 	Walker	5 km
18	<p><b>Recreation riders from Kurri Kurri</b></p> <p>A recreational rider will enter the site via Kurri Kurri and will be able to enjoy the vistas of Watekata National Park, cross 70 metre span suspension bridge and visit the historical brick lined tunnel at George Booth Drive.</p> 	Rider	15-20 km
19	<p><b>Recreational walker from Kurri Kurri</b></p> <p>Walkers will enter the site via Kurri Kurri, and immediately enjoy the views of Watekata National Park. A wide range of users will benefit from the availability of toilet facilities, upgrades to playground facilities and public art proposed for the Log of Knowledge Park.</p> 	Walker	3-5 km
20	<p><b>Tourist Trail Cyclist – Single and Multi-day Tourists</b></p> <p>The trail in its entirety displays an assortment of appealing trips for the cycling tourist, where all the above expands on the attractions of each trip. A range of affordable and luxury accommodation on offer within Newcastle and Kurri Kurri, will welcome multi-day users of the trail.</p>	Cyclist	40-80 km

Item	Description	User type	Estimated distance
21	<b>Fitness/Trainer Cyclist</b> The trail is expected to attract a high number of fitness riders who will benefit from the safety of the trail. These users will also be attracted by the long distance trips, paved surfaces and high visibility along the trail.	Cyclist	80 km

## 6. Economic assessment

This section provides the economic assessment of the RVRT. The approach undertaken uses benefit-cost analysis (BCA), which in part, is used as the justification for public expenditure for the project. The approach adopted in this analysis is consistent with the *NSW Government Guide to Cost-Benefit Analysis* (TPP17-03) and *Transport for NSW – Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives* (2016).

The assessment provides an economic evaluation of the societal costs and benefits likely to be accrued as a result of the RVRT. Where possible, attempts have been made to quantify all of the benefits and costs for the preferred option. It is difficult to obtain economic data on non-market costs and benefits, which contribute to the full economic assessment of the RVRT. Qualitative indications of possible benefits have been provided for these non-market valuations.

The average trail distance referenced in the economic assessment is based on estimates that are a result of usage variables explored in Section 5.

### 6.1 Purpose of the benefit-cost analysis

BCA is a method used to identify and value all benefits and costs involved in the allocation process. It aims to determine a resource allocation leading to an improvement in community welfare. The benefits are reflected in a community's willingness to pay and the costs are reflected in the opportunity cost of production (i.e. value of the next best alternative foregone). A BCA is commonly used to appraise projects to see if they are economically worthwhile (i.e. the project provides an economically efficient use of resources).

The steps involved in a BCA are broadly:

- Define the objective.
- Define and describe the base case.
- Develop and identify the project options.
- Assess the costs and benefits.
- Undertake benefit cost analysis.
- Calculate the decision criteria.
- Perform sensitivity analysis.
- Reporting.

The decision rules most commonly used in BCA to test the economic justification of a project are the net present value (NPV) and the benefit-cost ratio (BCR).

#### 6.1.1 Decision rules

A project is deemed economically worthwhile if the NPV is positive (i.e., the present value of the benefits of the project exceeds the present value of the costs).

$$NPV = PV (Benefits) - PV (Costs)$$

Alternatively, a project is economically worthwhile if the BCR is greater than 1 (i.e. the present value of the benefits divided by the present value of the costs is greater than 1).

$$BCR = PV (Benefits)/PV (Costs)$$

Projects can also be ranked according to their NPV or BCR, with projects with the highest NPV or BCR being preferred from an economic point of view. Both criteria can be used to assess projects according to their economic acceptability.

### 6.1.2 Quantifying costs and benefits

Some benefits and costs are more easily quantified than others for a BCA. Market values have been used where markets exist and therefore values can easily be quantified. The situation is more difficult for environmental and social costs and benefits because markets rarely exist, and indicative values for these costs and benefits must be estimated. Benefit transfer is an approach that can be used to provide an estimate of non-market values. Where possible, the BCA aims to quantify the market and non-market costs and benefits of each option. Broadly, the benefits and costs associated with the proposed RVRT are listed in Table 6-1.

Table 6-1 Costs and benefits considered in relation to the RVRT

Costs	Benefits
Site preparation & establishment	Improvements in cyclist safety
Clearing and grubbing	Health benefits
Demolition	Congestion cost savings
Bulk earthworks [all areas]	Vehicle operating cost savings
Pavement	Public transport fare cost savings
Drainage & erosion protection	Air pollution
Structures	Greenhouse gas emission
Fencing	Noise
Signage and line marking - signs to include posts	Water pollution
Landscaping and trail entry treatments	Journey ambience
Property acquisition	Average Spend per trip
Recurrent costs	Avoided costs
	Property prices*

The costs and benefits identified in Table 6-1 are referred to as first round effects. A project may also, however, lead to second round effects, where income created by the project generates further income and employment in the regional economy. Consistent with NSW Treasury Guidelines (TPP17-03), these second round benefits are not included in a BCA. However the generation of such second round effects may be an important consideration for decision makers.

Second round impacts of the RVRT include flow on benefits from construction, tourism and local business opportunities. In particular, there is likely to be a short term boost to employment and income throughout the construction period of the project, as well as longer term flow on benefits arising from the expected increase in tourism, including the potential for fitness and recreational based events, and opportunities for local businesses to provide services to RVRT users. These are further discussed in section 6.5.3.

### 6.1.3 Classification of valuation methods

The RVRT will generate benefits and costs that are not readily exchanged in markets and therefore are not readily be priced. Some of the unpriced benefits that relate to this project include the additional recreational benefits from the rail trail or the increased opportunities for bird watching by enabling access to the wetlands.

As these unpriced benefits and costs change the overall net benefit to society, an attempt should be made to value and include them where possible. Table 6-2 outlines various methods that could be used to provide a monetary estimate. In undertaking this assessment, we have primarily used benefit transfer adopting rates recommended by Transport for NSW (2016) as the RVRT will likely produce benefits that are similar in magnitude to those resulting from other active transport use projects that have been previously quantified. The specific rates applied are further discussed in Section 6.4.



Table 6-2 Economic quantification techniques

Valuation Techniques	Strengths	Weaknesses
<b>Travel Cost Method</b> Uses observed travel and visitation behaviour to a site to derive a demand curve. Quite often used in the valuation of terrestrial and aquatic recreation, fishing and visit to the beaches.	Based on observed behaviour of visitors to different costs of travel.	Based on a number of assumptions. To estimate the demand function, there needs to be enough difference between distances travelled to affect travel costs. Values sensitive to changes in cost assumptions. Measures current demand only. Interviewing visitors on site can introduce sampling biases to the analysis.
<b>Contingent Valuation Method</b> Directly asks people how much they are willing to pay for a change in environmental goods. It asks people to state their willingness to pay, 'contingent' on a specific hypothetical scenario and description of the environmental service. Can be used to measure use and non-use values. Some common applications are for native vegetation, flora and fauna and wetlands.	Consistent with theory and widely used. Can be used to estimate current and prospective values. Can be used to assign dollar values to non-use values of the environment.	Open to biases and misinterpretations as people have practice making choices with market goods but are often unfamiliar with placing dollar values on environmental goods and services. Strategic bias could arise, if the respondent provides a biased answer to influence a particular outcome. Can be very expensive and time-consuming due to extensive pre-testing and survey work required.
<b>Benefit Transfer</b> Borrows values from 'study site' to apply to 'policy site.' It is only limited by the availability of relevant studies.	Avoid delays in preparing complex surveying techniques More cost effective approach than conducting an original valuation study.	May not accurately reflect chosen site, except for making gross estimates of recreational values, unless the site shares all of the site, location and user specific characteristics.

## 6.2 Assumptions

In preparing the BCA, the following assumptions have been used in the model.

### 6.2.1 Discounting

Discounting is used to stream future costs and benefits to a present value using a discount factor based on an estimate of the social cost of capital. Consistent with NSW Treasury Guidelines (TPP17-03), cash flows are projected over a 30-year time period and were discounted back to a present value (2016 dollars) using a real discount rate of seven percent. Sensitivity analysis was carried out to investigate the effects of adjusting the discount rate to 4% and 10%.

Discounting is explained in further detail as follows:

### ***The Concept of Discounting***

*The costs and benefits flowing from an investment decision are spread over time. Initial investment costs are borne up front while benefits or operating costs may extend far into the future. Even in the absence of inflation, a dollar received now is worth more than a dollar received at some time in the future.*

*Conversely, a dollar's cost incurred now is more onerous than a dollar's cost accruing at some future time. This reflects the concept of time preference which can be seen in the fact that people normally prefer to receive cash sooner rather than later and pay bills later rather than sooner. The existence of real interest rates reflects this time preference.*

*In order to compare the costs and benefits flowing from a project it is necessary to bring them back to a common time dimension. This is done by discounting the value of future costs and benefits in order to determine their present value. The process of discounting is simply compound interest worked backwards.*

*NSW Treasury (2007) NSW Government Guidelines for Economic Appraisal*

#### 6.2.2 Timing of benefits

Benefits and costs are allocated to the year in which they fall due. The future stream of benefits and costs have been calculated to depict the most likely outcomes. It was assumed that construction would be staged over three years with the benefits accruing as the various stages are opened. Alternative outcomes have been tested using sensitivity analysis.

#### 6.2.3 Estimating demand

Estimating the demand of active transport users (cyclists and pedestrians) for the RVRT is one of the key parameters for economic justification of this project. The prediction of future use for the RVRT involves the most uncertainty and is difficult to define, particularly for a completely new off-road facility. The anticipated number of users will determine the level of expected benefits for the RVRT.

In order to estimate demand for the RVRT we have used a combination of techniques. The first approach (Approach A) uses the low/low scenario from the *Richmond Vale Rail Trail Feasibility Analysis* (Haliburton and Associates 2014) and has been calculated based on 10 percent of the combined population within 20 minutes of the RVRT making 10 visits per year to the RVRT. This equates to 313,286 annual trips.

The second method (Approach B) to calculate the estimated demand is to rely on experiences at 'similar' facilities. One 'similar' facility is the Fernleigh Track as outlined in Section 5.2. A seven day average count data was used for the Fernleigh Track to observe existing number of users and to use this as a basis to estimate demand for the RVRT. It is necessary to also recognise that this approach may have some limitations due to the different preferences of active transport users. This approach leads to an estimate of 145,000 annual trips.

The third approach (Approach C) used to estimate demand for cycling and walking projects has been adopted by the New Zealand Transport Agency. This method is based on a similar model developed in the United States for the 'twin cities' of St Paul and Minneapolis, Minnesota. This approach uses census population data for designated buffer areas surrounding the cycling/walking facility. Buffer areas are assigned for different areas and assigned different weights. This assumes that the further away someone lives from the facility, the less likely they are to use the facility.





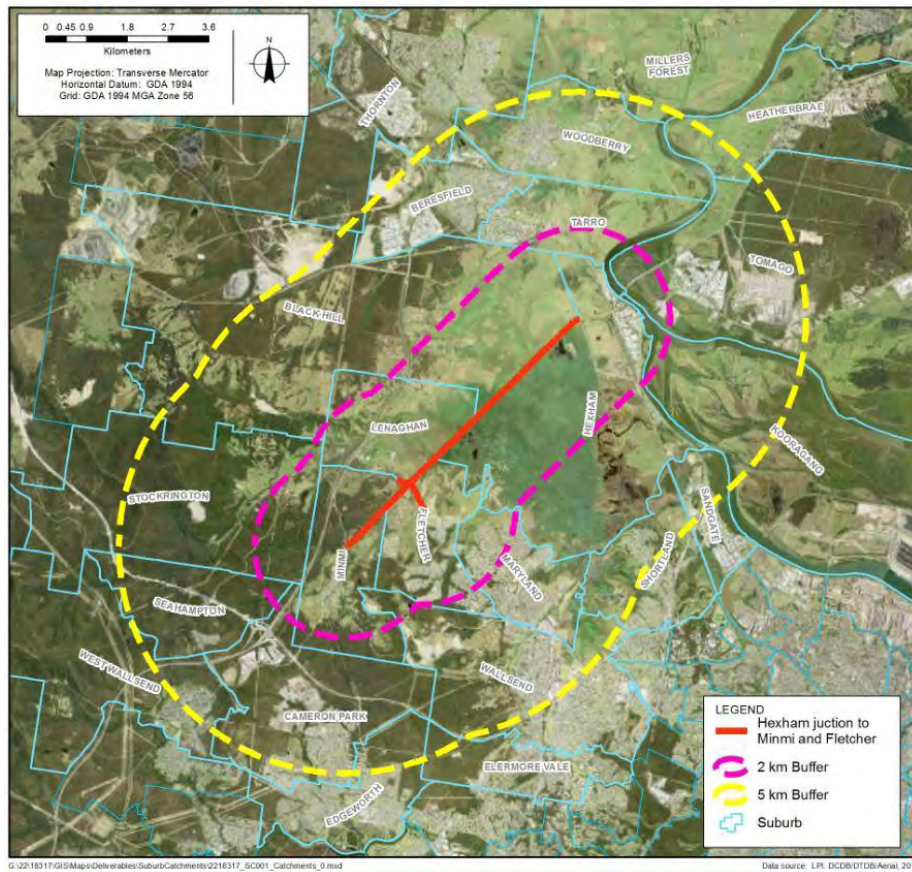


Figure 6-2 Hexham Junction to Minmi and Fletcher

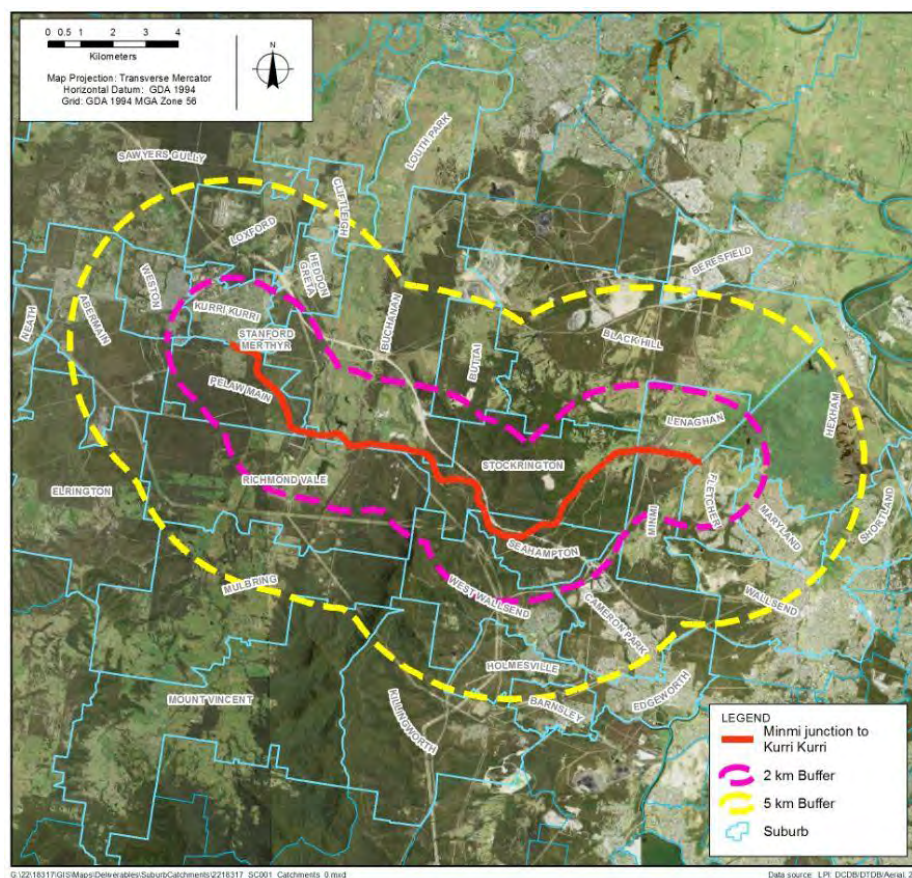


Figure 6-3 Minmi Junction to Kurri Kurri



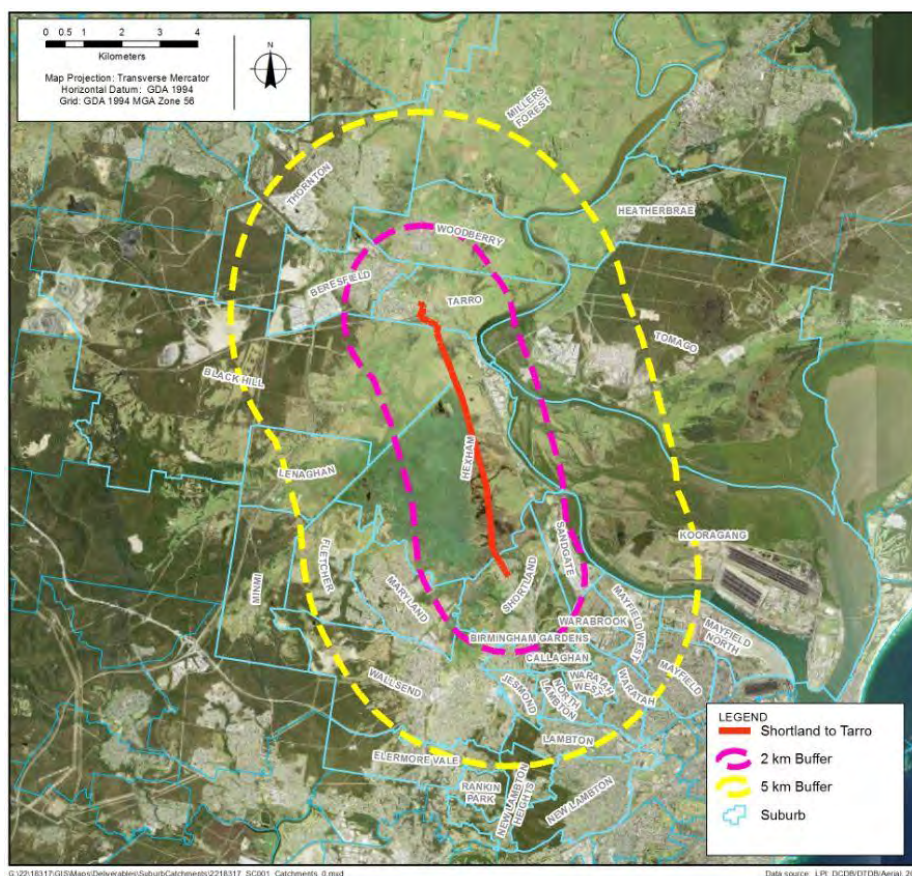


Figure 6-4 Shortland to Tarro

Using the traffic count data for the Fernleigh Track, the percentage of the population within a 2 km and 5 km buffer for the three sections of the RVRT was analysed. Multipliers of 1.3 for the 2 km and 0.53 for the 5 km buffer were applied, which generated an annual usage for the RVRT of 348,020 (see Table 6-3).

Table 6-3 Census population data approach (Approach C)

Route	Number of suburbs within 2 km	Population	Number of suburbs within 5 km	Population
<b>Fernleigh Track (FT)</b>				
Total FT	28	109,771	80	274,929
<b>Richmond Vale Rail Trail - Sections</b>				
Hexham Junction to Minmi and Fletcher	13	37,093	37	143,939
Minmi Junction to Kurri Kurri	2	3,760	46	111,116
Shortland to Tarro	14	38,834	58	206,129
Total RVRT	29	79,687	141	461,184

Source: Population data compiled for suburbs from 2016 Census of Population and Housing – State Suburb Profiles (ABS 2017).

The fourth approach used (Approach D) estimated demand based on the results of the survey undertaken for the project (refer Section 4.2), with 22% of respondents indicating that they would use the track at least once a month. This estimate was applied to residents within 2 km of the RVRT who will use the facility at least once a month. This equates to 193,813 annual trips. As discussed in Section 4.2, this survey cannot be considered representative of all potential users of the RVRT; however it provides insight into future users and probable future behaviour.

The fifth and final approach (Approach E) applies the average of approaches A-D to estimate annual demand for the RVRT. Given the variability in the results using the four approaches described above, Approach E is used for the BCA (i.e. 250,030 trips per annum) with sensitivity analysis undertaken on lower and higher estimated annual usage rates (sensitivity analysis is described further in Section 6.5.2).

The estimated demand calculated using all approaches is summarised in Table 6-4, which demonstrates the variability of the results. Based on Transport for NSW guidelines, an annual growth rate of 1.1 percent is applied for active transport users, which is also the same as the NSW population growth rate.

Table 6-4 Estimated demand

Approach	Annual estimated demand
A). Richmond Vale Rail Trail Feasibility Analysis (Haliburton Associates) – Low usage scenario	313,286
B). ‘Similar track’ Scenario based on Traffic Count	145,000
C). Census population data scenario	348,020
D). Survey results data	193,813
E). Average estimated demand scenario	250,030

#### 6.2.4 Estimating usage parameters

The assumptions in Table 6-5 were used to estimate the split between commuting and recreation and those who would use the RVRT for either walking or cycling and the expected distances they would cover.

Table 6-5 Assumptions for estimating use

Parameter	Figure adopted	Notes
Total distance of RVRT	40 km	Including connecting routes to Tarro, Minmi and Fletcher
Split between cycling : walking / running	60:40	GHD assessment based on survey data from traffic count data for Fernleigh Track.
Average cycling distance per user (recreation)	15 km	GHD assessment based on average trip destinations, refer to section 5
Average walking / running distance per user	5 km	GHD assessment based on average trip destinations, refer to section 5
Percentage of users who use the RVRT as part of their daily commute	6%	Australian Government – Department of Infrastructure and Regional Development, Bureau of Infrastructure, Transport and Regional Economics <i>Australia’s commuting distances: cities and regions</i>
Average cycling distance per user (daily commuter)	15 km	Australian Government – Department of Infrastructure and Regional Development, Bureau of Infrastructure, Transport and Regional Economics <i>Australia’s commuting distances: cities and regions</i>

Parameter	Figure adopted	Notes
Estimated number of events held along the RVRT	1	Estimated for an annual sporting event being held along the RVRT similar in nature to the Fernleigh 15 (refer to section 2.8).
Annual growth rate	1.1%	Annual growth rate of 1.1% assumed which is the same as NSW population growth. An alternative growth rate scenario has also been modelled which increased patronage over the first 10 years at 2.2% annual growth rate and then returning to 1.1% thereafter.

## 6.3 Costs

Costs can be categorised as either capital or recurrent costs.

### 6.3.1 Capital costs

Capital costs are those costs that must be spent initially and include both construction and project costs. The individual infrastructure components of the RVRT are set out in Table 6-6 and were prepared by GHD during concept design development. As our analysis includes sensitivity testing of the results (including increase or decrease in capital costs) allowances for contingency have been excluded from this analysis. Inflation has also been removed to ensure that it does not bias the results, as benefits and costs that appear later would appear higher in cash terms. Capital costs have been allocated over a three year construction period.

Biodiversity credits would be required in order to offset impacts of the RVRT in accordance with the Biodiversity Assessment Methodology. These costs have not been included in this analysis as they are estimates only and subject to change as credit payment prices are reviewed by the Biodiversity Conservation Trust quarterly.

Table 6-6 Infrastructure capital costs

Cost item	Cost
Site preparation and establishment	\$1,661,900
Clearing and grubbing	\$140,400
Demolition	\$257,400
Bulk earthworks [all areas]	\$1,611,200
Pavement	\$8,580,200
Drainage and erosion protection	\$941,800
Structures	\$6,057,400
Fencing	\$1,395,400
Signage and line marking - signs to include posts	\$390,800
Landscaping and trail entry treatments	\$2,859,100
Property acquisition	\$5,610,000
Design	\$2,213,900
Project management	\$1,475,300
<b>Total</b>	<b>\$33,194,800</b>

Source: GHD estimates

### 6.3.2 Recurrent costs

Recurrent costs include all the annual operating and maintenance (O&M) costs associated with the RVRT after construction has been completed. In the absence of available data relating to the annual O&M costs for the RVRT, a default estimate of one percent of the capital costs of construction has been adopted (Transport for NSW, Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives March 2016).

## 6.4 Benefits

### 6.4.1 Estimating benefits

The economic benefits of the RVRT will largely arise from improved safety for cyclists. Almost 25 cyclists commute daily from Tarro to Shortland via the New England Highway. There have been three fatalities over a five year period on this stretch of road. The project will provide a separated off-road cycleway that will improve the safety of commuters.

In addition to improvements in cyclist safety, Table 6-7 outlines the other benefits that have been investigated and quantified based on the number of potential users described in Table 6-4. These benefits have been measured as dollars per kilometre (\$/km), with the exception of average spend per trip which is calculated as dollars per visit (\$/visit).

Table 6-7 Parameters for active transport users

Benefits <sup>1</sup>	Cycling	Walking
Health benefits (\$/km)	\$1.16	\$1.74
Congestion cost savings (\$/km)	\$0.36	\$0.36
Vehicle operating cost savings (\$/km)	\$0.34	\$0.34
Public transport fare cost savings (\$/km)	\$0.10	\$0.10
Air pollution (\$/km)	\$0.0316	\$0.0316
Greenhouse gas emission (\$/km)	\$0.025	\$0.025
Noise (\$/km)	\$0.010	\$0.010
Water pollution (\$/km)	\$0.0048	\$0.0048
Journey ambience <sup>2</sup> (\$/km)	\$0.13	\$0.13
Average Spend per trip <sup>3</sup> (\$/visit)	\$2.15	\$2.15

Sources: <sup>1</sup>Transport for NSW (2016) *Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives*, Garcia, C., Chandra, P. & Yi, M. (2010) *Inner Sydney Regional Bicycle Network*, <sup>2</sup>Demand Assessment and Economic Appraisal. Prepared by AECOM for City of Sydney, and <sup>3</sup>Mike Halliburton Associates and Transplan Pty Ltd (2014), *Richmond Vale Rail Trail Feasibility Analysis*

Improvements in cyclist safety and the other benefits summarised in Table 6-7 are discussed further in the following sections.

### 6.4.2 Improvements in cyclist safety

A number of studies have valued the cost of a statistical life and serious and minor injuries. Valuing the statistical cost of a human life relating to road crashes is challenging. A vehicle can often be replaced or repaired (using market demand prices) – a human life cannot be replaced.

The Bureau of Infrastructure, Transport and Regional Economics (2010) published a paper that estimated the social cost of road crashes in Australia as \$17.85 billion in 2006 (1.7 percent of gross domestic product). This approach uses a human capital approach, which values the most significant human component of the costs.



The willingness to pay (WTP) approach uses stated preference (surveys) or revealed preference (observed behaviour) to determine the value of specific safety improvements and estimate the statistical cost of a human life. Respondents are asked to choose between hypothetical scenarios that are systematically varied for safety, travel time and cost.

The human capital approach is conservative when estimating the statistical cost of a human life and therefore the WTP is the preferred basis for policy analysis. In particular, the WTP approach is used by government agencies (United States, Canada, United Kingdom and New Zealand) to estimate the statistical cost of a human life. The human capital approach is based on lost productivity (future year's productivity and income) and does make allowance for pain and suffering or apply to fatalities for non-working individuals.

The WTP approach values the statistical cost of a human life in NSW at \$6.7 million and the value of a statistical life year at \$331,775 (indexed to 2017 figures). In particular, the WTP approach recognises that road crashes with cyclists generally affect a younger cross section of the population compared to other causes of death, therefore a higher statistical cost of a human life is applied. Between June 2010 and April 2015, there have been three fatalities<sup>3</sup> on the New England Highway where cyclists currently use the Highway as part of their daily commute between Tarro and Shortland. For the purpose of this study, it is assumed that the RVRT would result in the avoidance of one fatality every five years or six fatalities over a 30 year period. This estimate is considered conservative when compared against actual deaths for the corresponding stretch of the New England Highway over the past five years. The statistical cost of a human life has been annualised in line with the Transport for NSW Guidelines (2016) relating to accident costs.

#### 6.4.3 Health benefits

The RVRT would generate health benefits for all users of the trail. These benefits can be physical, social and physiological and are discussed below.

##### **Physical health benefits**

Inadequate physical activity, as a health behaviour, is a major factor contributing to high levels of obesity and rates of hospitalisation for health behaviour related conditions. As discussed in Section 2.2, over two thirds of adult residents in the Hunter do not meet the recommended amount of weekly physical activity, and seven in ten are overweight or obese. Research globally indicates that the per capita health care costs of physically active people are approximately half the costs of their inactive counterparts (Shephard and Tudor-Locke, 2016). The greatest health benefits therefore are to be derived from increasing the activity of the currently inactive or underactive people of the local and regional communities.

Research has shown that physical activity is declining worldwide, and this is partly attributable to a reduction in active commuting, where people incorporate cycling or walking as part of their daily commute and incorporate more physical activity into their daily routine.

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<sup>3</sup> Source: Transport for NSW Detailed Crash Report – Hunter Region 29/06/2010 – 09/04/2015

Health benefits are extremely difficult to quantify in an economic capacity, partly due to the lack of research and information available in this area (WHO 2014). However, good health on a population level is ubiquitously associated with economic productivity, through fewer days of employment lost to injury or poor health. Additionally, good health contributes to reducing or avoiding out-of-pocket medical costs to consumers (WHO 2001). Some health benefits include a reduction in the likelihood of heart disease, stroke, some cancers, and some mental health conditions (WHO 2014). The full health benefits produced by 'newly induced physical activity take around five years to come into effect (WHO 2014). These individual benefits are faster to come into effect than the longer-term, population level goal of reduced mortality rates, however there is currently very little scope to account for the reduction in disease accurately in economic estimates of health benefits. Ker (2012) estimated the health and fitness benefits of cycling to equate to 49 cents per kilometre.

Garcia *et al* (2010) made an estimate of benefits from a new cycle path in Sydney of 16.7 cents per kilometre, incorporating a reduction of sick days and increased worker productivity.

A major study recently published in the British Medical Journal (Celis-Morales *et al* 2017) found that people who are less physically active are both more likely to develop health problems like heart disease and Type 2 diabetes, and have a higher risk of dying younger. This study found that active commuting was associated with a lower risk of adverse cardiovascular outcomes. The study adds that commuting by cycling was associated with lower risk of all causes of mortality and adverse cardiovascular disease and cancer outcomes and for walking, commuting was associated with lower risk of cardiovascular disease incidence and mortality.

Transport for NSW (2016) have defined a number of parameters to be used in economic evaluations and have estimated that health benefits attributed to cycling and walking can lead to improved health outcomes and reduced morbidity and mortality. As walking has been estimated to result in greater health benefits than cycling the figure adopted (per km) is roughly 1.5 times higher.

The conclusion of the Celis-Morales *et al* (2017) study suggests that the health of a community may be improved by policies that increase active commuting, particularly cycling. This could be achieved through 'creation of cycle lanes, cycle hire or purchase schemes, and better provision for cycles on public transport.'

The RVRT would attract existing active users and potentially generate some use by currently sedentary residents who would be attracted to the new facility. The physical benefits would vary across age groups. However the RVRT provides the opportunity to match these diverse abilities and needs. The low gradient of the RVRT makes it navigable for all ages and abilities. Results of the survey (see Section 4.2) indicate that existing activity and future use of the RVRT by local and regional users would include many aged over 60 years. Starting and keeping older Australians active can increase their length and quality of life and reduce health costs.

The RVRT also provides a safe and accessible route for young riders to gain confidence cycling, which could increase their participation in cycling beyond the trail. This is particularly desirable in Fletcher where consultation data indicates that far fewer primary school students cycle or walk to school, compared to students in Minmi. As links to Fletcher and Minmi are provided by the RVRT, there is a good opportunity to increase physical activity and make walking and cycling more prevalent in these growing communities. Improving health behaviours in younger age groups has been associated with positive life-long habits, demonstrating the long-term health benefits in encouraging active lifestyles with primary school aged children (NSW Ministry of Health 2013).

Cycling participation rates generally indicate a fall in cycling for young adults from 18 to 24. This is likely due to the recent attainment of driving licences creating a mode shift and the move from being school students to being in the work force and the change in leisure and travel activities this entails. It is expected that the RVRT would appeal to adults in this cohort for whom the trail may represent an opportunity to meet their changing needs for local or commuter travel or recreation and assist in meeting their physical activity requirements.

It is likely that the majority of users of the rail trail would be those that are already active. To maximise the mobilisation of currently sedentary or mildly active residents and visitors, the following is recommended:

- **Availability of easily accessible (automated) bike hire services at key points.** A key location for a bike station would be the Hunter Wetlands Centre, capitalising on tourist numbers at the trail head. Other key locations would be at Kurri Kurri trail head and at Fletcher (potentially at the Fletcher Community Centre). Stations may not initially be heavily used but should be considered as an enhancement measure to initiate local active travel behaviour. The stations could have bikes available for hire with helmets and water bottles, and also have an air pressure hose for public use. Consideration should also be given to the potential for provision of baby seats and or trailers. This is particularly relevant at Fletcher where the residential population in the area is expected to more than triple by 2036, and where neighbourhoods are being planned to integrate with the cycle network. At Kurri Kurri, provision would create the opportunity for hire by visitors at this end of the route.
- **Bike skills workshops and courses.** These should be aimed at various age groups, including school aged children, mature adults and retirees. Such events could be timed with other events and programs, such as Ride to School Days and Seniors Weeks. Similar programs are already implemented by the City of Newcastle and could be expanded to the RVRT.

### *Psychological and social benefits*

The psychological benefits of contact and exposure to nature and natural areas are well documented. The benefits include improved mood, lower levels of anxiety, lower stress levels and lower levels of depression. Whilst important across the community, these benefits are especially relevant for children and older people. Research indicates reduced prevalence of depression and anxiety and higher levels of cognitive function and self-worth in children who have higher levels of contact with nature (Deakin University 2010). Social contact facilitated during enjoyment of natural areas is likely to reduce the risk of developing chronic diseases, such as depression and cardiovascular disease, in older people with high or very high levels of physiological distress (Deakin University 2010). Long term health benefits to users of the RVRT are therefore likely.

#### 6.4.4 Congestion cost savings

Congestion cost savings have only been modelled for those users who use either cycling or walking as their daily commute to replace vehicle commutes. Therefore, the annual benefit is considered negligible in reducing congestion on roads. As the RVRT is expanded to include other areas and the safety of active transport users is guaranteed, then it is expected that there would be an increase in the benefits arising due to congestion cost savings.

#### 6.4.5 Vehicle operating cost savings

As for congestion cost savings, this benefit is also only attributed to those active transport users where cycling/ walking replaces vehicles commutes and recognises that cyclists save on motor vehicle costs by switching to cycling.

#### 6.4.6 Public transport fare cost savings

This benefit has only been attributed where active transport replaces public transport trips where daily commuters save public transport fares. It has also only been applied to cyclists/walkers who use the RVRT as part of their daily commute.

#### 6.4.7 Air pollution, greenhouse gas emission, noise and water pollution

The above factors are predominately urban issues and relate to population density and vehicle distances driven. For active transport users, the above factors have been modelled to reflect the benefits arising as users switch from cars to more active forms of transport like cycling and walking. These parameters have been modelled using a WTP approach and have been adopted from the Transport for NSW (2016) guidelines for active transport.

#### 6.4.8 Journey ambience

Journey ambience refers to the additional enjoyment that cyclists derive from the use of safer facilities. In relation to the RVRT, journey ambience could include:

- Views experienced by the traveller as the RVRT traverses relatively undisturbed vegetation, iconic wetlands and heavily forested sections.
- Reduction of traveller stress, frustration, fear of potential accidents and route uncertainty.
- Quality and cleanliness of facilities and information provided.

The above factors will apply to users of the RVRT, which will be a highly scenic route with improved safety due to separation from the road. In particular, improvements in journey ambience will be significant for the trail from Tarro to Shortland, which has seen a number of cyclist fatalities on the New England Highway in recent years (three in the past five years). Wardman *et al* (2007) and Hopkinson & Wardman (1996) have undertaken research in the UK on journey ambience to forecast trends in urban commuting and predict the impacts of different measures to encourage cycling (e.g. separated cycle ways, wider lanes etc.). Garcia *et al* (2010), in a study for the Inner Sydney Regional Bicycle Network, reviewed the research from Wardman (2007) and Hopkinson & Wardman (1996) and adopted a value of 13 cents per cycle km for separated cycleway travel including travel along shared paths. This figure has been updated to reflect 2017 dollars.

#### 6.4.9 Regional spend per trip

Cyclists have been demonstrated to be a high spending market, with cyclists on the Murray to Mountains Rail Trail recorded as spending significantly more per night (\$244 vs \$159) over the Easter period than the average tourist (Beeton 2009). Tourists typically spend money on accommodation, food and beverages, fuel and transport, and bicycle goods and services (Beeton 2009). Therefore hospitality and transport industries are the most likely to benefit from this project.

The Warburton Rail Trail in Victoria, Australia, has many similarities to the RVRT. The Warburton Trail is a similar length (40 km), connects two small local centres, and is situated along a scenic disused railway line. This trail contributes \$206.40 (in 2003) per day to the local economy (Beeton, 2006), demonstrating the significant value of shorter rail trails that are easily accessible. This economic value was comparable to longer rail trails attracting multiple day trips necessitating overnight accommodation.

Birdwatching tourism is a growing area with an affluent, well-educated market (Jones & Buckley 2001). The position of the Hunter Valley Wetland Centre allows for an increase in this area, with new access tracks to the centre via the bike trail.



The *Richmond Vale Rail Trail Feasibility Analysis* (Mike Halliburton Associates 2014) reported that for similar types of rail trails (e.g. Mundaring Shire Trail Network in Western Australia), locals still remain the largest group of users (63%). As the majority of users are local, the expenditure per individual visit would be expected to be less. However the cumulative impact and flow on benefits to the community were significant. A similar outcome is likely for the RVRT as there would be a high proportion of local users with lower travel costs and expenditure per individual visit. Local users for the Mundaring Shire Trail Network spent an estimated \$2.11 per visit (present value).

#### 6.4.10 Avoided costs

The RVRT would benefit from the avoided costs (i.e. the expenditures that would no longer be incurred) of maintaining the closed rail line and pipeline corridor. Examples of avoided costs include expenditure on weed and feral pest control, vegetation management, illegally dumped rubbish and maintenance of structures.

Due to the number of land management authorities involved in the management of the RVRT route, it is difficult to estimate the avoided costs and this is not included.

#### 6.4.11 Property prices

Although not quantified in this study, it is expected that properties adjoining or within close proximity to the RVRT would yield higher values than those further away as this project will enhance liveability and other neighbourhood attributes. Local real estate agents have indicated that proximity to cycle trails is a desirable feature highlighted in property sales advertisements along with other key social infrastructure. Living in close proximity to the RVRT is expected to yield benefits for home owners as they get a long term premium in house value, with local and state government earning higher revenue through higher stamp duty and other property related tax income.

A recent research report into Melbourne property found that land next to park land showed stronger sales prices. Property with direct park views and in close proximity, out-performed most other properties in a given suburb, even those that enjoy proximity without a view (Australian Financial Review 2016).

Further studies are currently being undertaken to quantify the non-financial benefits of green infrastructure including those associated with health, amenity, liveability and sense of community. Hedonic pricing is the economic approach used to link a good traded in the market place (e.g. real estate) with an environmental good (e.g. amenity or green infrastructure) that is not traded in the market at a point in time. The increase in property prices has not been quantified in this study.

#### 6.4.12 Access and connectivity

##### **Overview**

The RVRT has been conceived and designed to deliver extensive socio-economic benefits related to access and connectivity, tourism and the economy, and health outcomes. The following sections outline the scope of these likely benefits and their beneficiaries.

Consistent with the *Hunter Regional Plan*, the RVRT would enhance access to recreational facilities and connect open spaces, supporting thriving communities (Goal 3 in the plan). Additionally, the RVRT is expected to provide greater accessibility for residents and visitors within Newcastle and between Newcastle and the Maitland and Cessnock LGAs, connecting not only recreational and natural areas, but education, health and employment facilities.

Key to this improved accessibility is the safety of the route (being off road and thus free of vehicular traffic risks), and its usability (i.e. a relatively low gradient path making it easily navigable by, and attractive to, people of varied abilities).

The RVRT is likely to be used primarily for recreational purposes (including sporting, fitness, nature and bird watching, tourism and general recreation), but also for commuting. As such, the trail is expected to benefit a diverse cross section of the community, with people at different life stages, and of varied common interests likely to benefit.

The key accessibility benefits for the projects (which are discussed further below) include:

- Equity and diversity of access.
- Enhanced access to natural areas.
- Active travel links and infrastructure for communities along the route.
- Enhanced commuting routes.

### *Diverse and universal access*

Key to the appeal and utility of a rail trail is the diverse range of interests and uses it supports and the diverse cross section of people who use it. The RVRT would aim to maximise this diversity creating a rich and inclusive environment for local, regional and broader communities to use. Potential users of the trail are expected to include (also discussed in Section 5):

- **Cyclists** – for fitness, recreational users (to explore the route and area), for local travel, work and education commuters, endurance and racing cyclists in training and competition, mountain bikers, children learning to ride, cycle clubs and informal groups and hand cyclists.
- **Walkers/runners/joggers** – localised fitness and social walkers and runners, local residents walking between communities (especially Minmi and Fletcher), recreational walkers, fun runners, dog walkers, family walkers, older walkers, personal trainers.
- **Nature and heritage enthusiasts** – bushwalkers, bird watchers, those interested in local history, Aboriginal heritage and in rail and coal history.
- **Less mobile visitors** – those in wheel chairs, motorised scooters/chairs or other walking aides, and families with children in prams.
- **Photographers** – wedding photographers (especially at tunnels and bridges), nature photographers, amateur recreational photographers.

There is also a potential for use of the route for events such as fun runs/ walks and cycle events, as is the case at the Fernleigh Track.

The inclusion of viewing and rest points, regular access points, a connection to Tarro, and universal access and toilet facilities at the Hunter Wetlands Centre enhances accessibility for a diversity of users. In addition, the RVRT provides the opportunity for new or enhanced recreation, outdoor and fitness-related activities for people with a disability. This diverse and universal access would also generate health benefits for users, as discussed in Section 6.4.3.

Prohibiting some existing informal uses (such as four wheel driving, trail and quad biking and horse riding) may displace users into surrounding bushland areas, and/ or create conflict with trail users and operators. Management of trail heads to restrict and discourage illegal access is include in the project design. However activation of the trail by approved users is likely to create a substantial deterrent to these conflicting uses through passive surveillance.

### **Access to natural areas**

As noted in Section 1.3, the RVRT will traverse and link several natural areas along its route, from the state significant Hunter Wetlands National Park at Hexham, via Pambalong Nature Reserve, the Stockrington State Conservation Area and the Werakata State Conservation Area in the west. Access to these areas (with the exception of Pambalong Nature Reserve) is currently very limited. With habitat restoration over recent years the Hunter Wetlands National Park now represents a significant wetland environment, which regularly provides a breeding ground for rare and endangered migratory shore birds. Access to the Hunter Wetlands National Park is currently very limited with informal access primarily in the east along the pipeline route. The trail will represent improved access to the western areas of the Hunter Wetlands National Park, making it more accessible for a greater diversity of users. Improved access to these natural areas would support the conservation goals of enhanced awareness and appreciation of conservation and natural areas.

It is expected that this increased visitation would also complement and benefit the Hunter Wetlands Centre. The trail would augment the environmental offerings currently provided by the Hunter Wetlands Centre, which hosts in the order of 30,000 visitors per annum. Visitors to the centre include schools, preschools, government agencies, environmental and community groups and corporate organisations, as well as individuals. These visitors would have universal access beyond the centre into the National Park, with a direct connection linking paths in the Centre to the RVRT.

It is likely that the route would facilitate increased access to natural areas for field visits for local schools and preschools in Shortland, Kurri Kurri/Pelaw Main and Fletcher given the safe and easy access and affordability.

Potential future connections to BGHRP would further this connection of natural areas and enhance visitation to both areas. Given that the BGHRP is somewhat out of the way (located along Minmi Road), current visitation indicates a strong demand for local and regional facilities in natural areas and a significant future synergy, particularly given the urban expansion and renewal in the vicinity of the park. It is expected that a large proportion of visitors to this park would also be attracted to the RVRT as an active recreational area in a natural environment.

The socio-economic impact of increased access to natural areas would accrue to local and regional users, and visitors. It would deliver a greater quality, diversity and accessibility of natural and recreational areas, contribute to the achievement of the 'thriving communities' goal of the *Hunter Regional Plan*, and comply with the objectives of local government community strategies, which include providing access to open space and recreational areas.

### **Access to social and recreational infrastructure and communities**

As a local recreational resource, the RVRT would provide increased opportunities for active recreation, primarily through localised return trips along the route. These trips may be walking, jogging, cycling, skating or scooting. Whilst much local use of the RVRT may not be destination based, the route is expected to enhance and develop existing destinations along the route. This would be beneficial for all communities along the route including Shortland, Tarro/ Beresfield, Fletcher, Lenaghan, Minmi, Seahampton and Stockrington, where access is provided to and between them and their facilities, in addition to access to recreational facilities at the route end points. As discussed in Section 2.2.1, the population of this local area in 2011 was 28,185, and by 2036 this is expected to increase by at least 8,000, primarily through further residential development in the Blue Gum Hills planning district, which is expected to triple in size. New developments in this area are being planned to include cycleways and to integrate with the RVRT to enhance and facilitate local active travel. In this way the RVRT would contribute to increased connectivity within and between communities on the route.

Whilst commuter cycling is expected, recreational use of the route would likely dominate. The potential user survey (see Section 4.2) highlighted that recreation and fitness/exercise were the most common reasons for both current cycling and walking and anticipated future cycling of the RVRT.

Access to active travel and recreational infrastructure is an important requirement for healthy and sustainable communities. The diversity and equity of access that is integral to the RVRT would be particularly valuable for both the young families of new communities in the area and for our ageing population.

The route would also enhance local access. Destinations and attractors in the Blue Gum Hills area may include activities at the community centre and adjacent sports fields in Fletcher (the end point for the Fletcher RVRT link). The potential future private development of a café opposite the Fletcher community centre would also enhance this destination for both local and regional users of the RVRT. The primary school and small selection of shops and hotel at Minmi would be readily accessible from the route, and particularly so if a further connection to new Minmi residential developments is created. Seahampton residents may also benefit from alternative access to Minmi and Fletcher, facilitating expanded social networks. In addition to these smaller improvements in local connectivity, there is potential for onward connections to recreational facilities in Kurri Kurri, such as shopping, sports grounds, restaurants etc., and to Shortland and beyond, including the University of Newcastle. It is likely that greater connectivity would be particularly beneficial to residents of Tarro and Beresfield in accessing the University of Newcastle and Newcastle City via Shortland.

Further, as already discussed, the route provides access to numerous places of natural and heritage interest (e.g., Hunter Wetlands, Pambalong Nature Reserve, Stockrington and Werakata State Conservation Areas), with rest and viewing points along the route, which would attract local and regional recreational users.

It is estimated that 10 to 30 percent of residents within a 20-minute travel time of the trail would visit the trail between 10 and 30 times per year, resulting in visits by local residents ranging from 313,286 to 2,819,574 (see Section 5.2). It is likely there would be a greater diversity of uses and levels of use of the route ranging from daily to rare or irregular use. Local respondents to the potential user survey indicated that they would cycle the route more frequently.

Whilst the RVRT would be broadly accessible, uptake of use of the route is expected to vary considerably, with greater use by people who are already active. Section 6.4.3 and Section 2.3 discusses the implications of uptake for health benefits.

The RVRT is expected to have a regional impact on recreational infrastructure, with the transfer of some current usage of the Fernleigh Track to the RVRT, resulting in improved amenity for users of the Fernleigh Track.

#### 6.4.13 Place activation and social capital

Use of the RVRT would activate local spaces both along the route, its start and end points, and areas near to the access points along the route, as visitors explore these areas and beyond.



Active travel infrastructure also creates the opportunity for formal and incidental social interaction. The formation or growth of common interest groups such as walking groups, birdwatching, cycling or dog walking groups builds social networks and cohesion, avoiding the negative impacts of social isolation. Even informal incidental use of the trail would expose users to potential social interactions and reduce social isolation. These interactions are particularly valuable for the RVRT as it would draw a diverse range of users of different ages and interests, providing opportunities for intergenerational social interaction. Such interaction is an important contributor to social capital and is particularly important in growth areas, where new social networks (both within new residents and between existing and new residents) need to be developed to support healthy communities.

For younger local residents, the RVRT provides an opportunity for a greater sense of personal independence, with access to a safe and navigable trail for recreation and local travel.

## 6.5 Results

### 6.5.1 Benefit-cost analysis

The results of the BCA for the RVRT are outlined in Table 6-8. The core evaluation results shown in the table are calculated at a seven percent discount rate. The assumptions used in the modelling have been described in Section 6.2.

Table 6-8 NPV and BCR for the RVRT

	Present value cost	Present value benefit	NPV	BCR
RVRT	\$31,923,949	\$76,625,897	\$44,701,948	2.40

As outlined in Section 6.2, the NPV is the amount that is generated over the 30 year evaluation period calculated in today's dollars:

$$NPV = PV (Benefits) - PV (Costs)$$

Alternatively, this project is economically worthwhile as the BCR is greater than 1 (i.e. the present value of the benefits divided by the present value of the costs is greater than 1):

$$BCR = PV (Benefits)/PV (Costs)$$

The results of the economic evaluation indicate that a NPV of \$44.7 million would be achieved by the RVRT project. The BCR of 2.40 indicates that the level of expected benefit provided by the RVRT is close to two and a half times the level of expected costs.

A summary of the quantified benefits and costs is shown in Table 6-9. Benefits that were unable to be quantified have been qualitatively discussed in section 6.5.3 below.

Table 6-9 Summary of costs and benefits

Benefit or cost	Value
<b>Costs</b>	
Site preparation & establishment	\$1,453,753
Clearing and grubbing	\$122,781
Demolition	\$225,134
Bulk earthworks [all areas]	\$1,409,427
Pavement	\$7,505,706
Drainage & erosion protection	\$823,847
Structures	\$5,298,868
Fencing	\$1,220,674
Signage and linemarking - signs to include posts	\$341,878

Benefit or cost	Value
Landscaping and trail entry treatments	\$2,501,051
Property acquisition	\$4,907,471
Design	\$1,935,794
Project management	\$1,290,530
Annual O&M costs	\$2,887,033
<b>Total</b>	<b>\$31,923,949</b>
<b>Benefits</b>	
Improvement in cyclist safety	\$24,702,100
Health benefits	\$43,188,645
Congestion cost savings	\$837,711
Vehicle operating cost savings	\$791,171
Public transport fare cost savings	\$232,697
Air pollution	\$1,078,475
Greenhouse gas emission	\$853,224
Noise	\$341,290
Water pollution	\$163,819
Journey ambience	\$4,436,765
Regional spend per trip	\$7,385,992
<b>Total</b>	<b>\$76,625,897</b>
<b>BCR</b>	<b>2.40</b>

### 6.5.2 Sensitivity analysis

Sensitivity tests were carried out to investigate the effects of adjusting key variables within the analysis, and to see what effect this had on the base result. A number of key areas of uncertainty were identified and provide the basis for the sensitivity analysis, these included:

- Capital and maintenance costs e.g. construction costs (increase and decrease of 20%).
- Changes to the project evaluation discount rate (4% and 10%).
- Changes to estimated number of users including results using different approaches to estimating demand.
- An accelerated annual growth rate (2.2% annual growth rate) for the first 10 years and then reverting back to 1.1% thereafter.

The results of sensitivity to changes in the key parameters are outlined in Table 6-10. The resulting NPVs range from \$23 million to \$72 million, with BCRs ranging from 1.72 to 3.05. The results indicate that while the analysis is sensitive to changes in key parameters, even with the highest level of costs and lowest patronage estimates, the project still delivers a positive NPV and BCR ratio greater than 1. This is particularly the case using a very conservative approach for estimating demand of total annual trips. Importantly, even with a 20% increase in costs, the NPV is still significantly positive at \$38.9 million and maintains a BCR of close to 2.03.

Table 6-10 Sensitivity analysis

	Present value cost	Present value benefit	NPV	BCR
Construction costs decrease by 20%	\$26,116,565	\$76,625,897	\$50,509,331	2.93
Construction costs increase by 20%	\$37,731,332	\$76,625,897	\$38,894,565	2.03
4% discount rate	\$34,988,473	\$106,778,399	\$71,789,927	3.05

	Present value cost	Present value benefit	NPV	BCR
10% discount rate	\$29,563,636	\$58,211,248	\$28,647,612	1.97
Increase in annual usage by 20%	\$31,923,949	\$87,010,656	\$55,086,707	2.73
Decrease in annual usage by 20%	\$31,923,949	\$66,241,137	\$34,317,189	2.07
Approach A	\$31,923,949	\$89,762,287	\$57,838,339	2.81
Approach B	\$31,923,949	\$54,814,288	\$22,890,340	1.72
Approach C	\$31,923,949	\$96,975,506	\$65,051,558	3.04
Approach D	\$31,923,949	\$64,951,297	\$33,027,349	2.03
Alternative annual growth rate	\$31,923,949	\$76,625,897	\$44,701,948	2.40

### 6.5.3 Secondary benefits

As outlined in Section 6.1.2, the RVRT is create a number of second round benefits that are not calculated by a BCA<sup>4</sup>. As these benefits may still be of relevance to decision makers, they are further discussed below.

#### **Construction and flow-on benefits**

Construction of the RVRT may continue over about 60 months, with up to 100 workers at any time. The workforce is expected to be sourced from within the region. The direct impact of construction creates a flow-on effect caused by the spending of construction firms and their employees in the local economy. These flow-on impacts are either indirect (business-to-business) or induced (business-to-household) impacts. Indirect (business-to-business) impacts are goods and services purchased by construction firms from other firms in the local economy. Induced or business-to-household impacts are goods and services purchased by employees of the construction firms or by indirect support industries.

#### **Tourism benefits**

A key objective of the RVRT is to create a recreational facility for use by local and regional communities and visitors, and in doing so, diversify the current tourism offerings in the region. The contribution of tourism to the economy in the region varies, with only 4.8 percent of jobs in Newcastle LGA derived from tourism, compared with 15.8 percent in Cessnock. However, tourism generates proportionally more jobs than it contributes to overall economic output, meaning tourism expenditure in the region is likely to generate a higher proportion of jobs than construction or manufacturing, primarily through employment in the accommodation and food service industries. Research on Australian rail trails also indicates this is the main area of expenditure for cycle tourists, for whom the largest portions of their expenditure are food and beverages, with generally less spent on accommodation (Section 6.4.9).

Rail trails have the potential to become significant destinations for tourists and local users. A segment of this market would be specific cycle tourists. This is particularly evident in Victoria, the number one cycle tourism destination in Australia, where rail trails are reinvigorating the economies of many drought challenged rural towns and are being pursued strategically through initiatives such as *Growing Cycling Tourism in Victoria* (Tourism Research Australia, 2015).

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<sup>4</sup> The distinction between first and second round effects for the purposes of conducting a BCA is further described in New South Wales Treasury (2017) *NSW Government Guide to Cost-Benefit Analysis* (TPP17-03).

Although NSW ranks second as the destination of choice, NSW is far behind Victoria in terms of rail trail infrastructure<sup>5</sup>. Of relevance to the RVRT, Tourism Research Australia (2015) found that the cycle tourism market is rather small (15 percent of respondents in the survey for the report), those involved often take multiple trips over time, and many who had not taken cycling holidays before also indicated they would consider them in the future. The report also found that cycle tourists engage in a broad range of activities, and whilst the capital cities are most visited, regional areas are also popular.

Results of the potential user survey for the RVRT (see Section 4.2) reinforce these findings, with more than three quarters of visitor respondents indicating they would cycle the route more than three times a year, and only four of the 313 respondents indicating they would not cycle the route. Importantly, the survey found that visits by cycle tour groups would be common.

The RVRT would therefore be well positioned as a tourism offering, in the mix of coastal, urban, natural and vineyard experiences already drawing visitors to the area.

The Lower Hunter also hosts a number of other popular cycleways including the Fernleigh Track, Tramway Track and routes around Lake Macquarie that, if collaboratively promoted with the RVRT, would further enhance the cycle tourism offering for the region.

The RVRT is expected to draw extensive use by general tourists. As noted in Section 2.8, domestic holiday travel has been increasing in Australia, with a growth in overnight stays and a significant shift away from sedentary activities to outdoor, active and nature-based activities. The RVRT is well positioned as a destination for such travellers, especially as it represents a shared path that complements existing routes in the area, offering a longer trail through extensive natural areas. Key to the attraction of the RVRT would be the activated start and end points. The facilities and tourism offerings of the Hunter Wetlands Centre at Shortland would create a synergistic attraction at the eastern end of the route. At Kurri Kurri, existing facilities and attractions such as the Richmond Vale Rail Museum and the Towns with Heart murals would be further enhanced by the trail and demonstrate opportunities for further connection. At the Log of Knowledge Park, Cessnock City Council proposes to undertake an upgrade and expansion of facilities, including an amenities block, updated playground and an information board with a map of activities and attractions in Kurri Kurri. An RV overnight camping site is also close by and would enhance tourism opportunities for overnight stays in Kurri Kurri.

Increasing tourism in the Cessnock economy is particularly important for the profile and evolving identity of Kurri Kurri. Kurri Kurri has experienced a major shift in their local economy when the main aluminium smelter, Hydro Aluminium, was decommissioned in 2014. The smelter had contributed to employment in the region since the late 1960s, and since the closure, the collapse in local accommodation services linked to the facility has negatively impacted the overall economy. Hydro has made concerted efforts with the local council to plan for this change, with site remediation and future use to be in keeping with Kurri Kurri's growing public domain, in particular tourism attracted by its reputation as a 'mural town'. Additionally, Kurri Kurri has been identified as a strategic centre within the *Hunter Regional Plan 2036*. Direction 18 of the plan specifies a recreation link between Newcastle and Kurri Kurri via the RVRT, which would be a conduit to tourism and recreation across the Hunter region. Kurri Kurri and its surrounding villages require appropriate strategic planning and action to ensure retail, government, medical and professional services are adequate for a growing population and higher volumes of visitors. The future use of the smelter site, Kurri Kurri's ongoing effort to maintain its tourist appeal as a 'mural town', and Kurri Kurri's strategic position in the *Hunter Regional Plan 2036*, will compliment and be complimented by the RVRT.

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<sup>5</sup> <http://www.railtrails.org.au/trail-descriptions/nsw-and-act> Accessed 18 November 2016



In the future, there would also be opportunities to extend cycling routes into the Hunter Valley and have a cluster of cycling towns generating economic benefits for businesses right across the region. The Hunter region experienced over 3.8 million domestic overnight visitors in 2018 (Destination NSW 2018) and extending cycling routes into the Hunter Valley would open up the area to new users and provide unique user experiences.

The RVRT would provide access to places of interest along the route such as the rail heritage tunnels, retained or re-developed bridges and places of natural beauty and environmental interest, making the route an overall attraction, not only to cycle tourists. The overall length of the trail would attract cyclists and long distance walkers traversing the entire distance, and the well-spaced access points would facilitate return cycle or walking trips along the route, particularly to key points of interest (i.e. the tunnels, wetlands, forested areas).

Studies from other rail trails (see Section 5.2) indicate that while local and regional users are often a small proportion of the total number of users, they are more frequent visitors. Similarly, although their expenditure may also be low, it is considerable due to its frequency, and is usually related to consumption of food and drinks.

Using the most conservative estimates from the business case, it is estimated that the RVRT may generate in the order of \$3.2 million in tourism expenditure per year including:

- Local expenditure of \$626,000 per year from regional users<sup>6</sup>.
- Regional expenditure by tourists converted from day tripping to overnight stays – \$1,290,000 per year<sup>7</sup>.
- Regional expenditure by tourists attracted to stay additional night - \$1,290,000 per year<sup>8</sup>.

### **Local business**

Development and use of the rail trail would bring benefits to existing business and create opportunities for diversification and new businesses. Expenditure by trail users in the local area would not only support those businesses but also create opportunities for new enterprises.

Existing local businesses/operations expected to benefit from the RVRT include:

- **Hunter Wetlands Centre** – visitor numbers to the wetland centre are expected to increase significantly, from the current levels of approximately 30,000 per year. This would increase demand for all current services at the centre, including bike and segway hire, the café and kayak hire. With a direct link onto the trail from its northern extent, the centre is likely to develop as a key origin and destination point, providing related services and facilities.
- **Richmond Vale Rail Museum** – relatively close and accessible to the route, it is expected that many RVRT users would visit the museum and ride the train to Pelaw Main, possibly with their bikes to cycle the return leg. The RVRT would likely enhance the exposure of the museum to trail users and conversely draw museum visitors onto the trail. The museum suffered significant material and financial damage after the bushfires of 2017, with damage estimated at \$1 million. Increasing potential visitors to the museum will assist in recovering the losses incurred. The museum also hosts a number of events such as the Steam Fest, the Cranky Handle Rally and as part of the Kurri Kurri Nostalgia Festival. Potential extensions to the museum and to the Pelaw Main Colliery would further enhance this synergistic benefit. Operation of the RVRT would however prevent realisation of the long term ambitions of the museum to reinstate a circuit of the old rail line.

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<sup>6</sup> Based on 313,000 visits per year and an average spend of \$2 per visit

<sup>7</sup> Based in 10,000 visitor conversions and an increase in expenditure of \$129 based on Cessnock average spend data in 2016, which was more conservative than inferred from the Hunter Region.

<sup>8</sup> as above

- **Local food and beverage businesses** – At both the start and end points in Sandgate and Kurri Kurri and also the access points such as Fletcher and Minmi and Tarro, food and beverage expenditure by RVRT users is expected to positively impact local businesses. Multiple businesses along Sandgate Road at Shortland, and businesses in Kurri Kurri town would benefit. There is also the potential for the small retail businesses at Minmi and the hotel to attract additional patronage from the trail and for any future café opposite the Fletcher community centre. Use of the Tarro extension would also likely increase patronage of businesses along Anderson Drive in Tarro.

Opportunities for new and or diversified businesses are also likely as a result of the RVRT. Cycle tourists are more likely than other visitors to participate in activities like eating out, visiting art galleries and shopping, creating local economic opportunities. Opportunities identified during consultation include:

- Provision of accommodation/camping on rural properties along the route.
- Enhanced demand for horse riding activities near Stockrington.
- Mobile café services at various access points along the route.
- Mobility scooter rental.
- Bike hire services.
- Bike servicing and parts.
- Transport services for riders and their luggage between end points and/or accommodation.

Accessible information and appropriate marketing of rail trails is essential to their success as tourism destinations and activities (Tourism Research Australia 2015). Collaborative themed promotion of the route with associated services and attractions would enhance awareness and uptake of use of the trail and of associated businesses and attractions. The development and promotion of events on the RVRT is expected to further enhance business and tourism benefits related to the trail and more broadly to regional tourism attractions in Newcastle and the Cessnock vineyards. Consultation indicates that proximity to cycle trails is a desirable feature highlighted in property sales advertisements along with other key social infrastructure.

The desirability of active travel resources can also have a positive impact on sense of place for both individuals and the business community. Particularly for Kurri Kurri, economic stimulus through tourism and the associated improvement in sense of place and pride would be a significant positive impact.

## 7. **Impact assessment and mitigation**

This section identifies potential negative impacts that will require management, and opportunities to enhance and expand the socio-economic benefits of the project. The impact assessment has been extensively informed by consultation with relevant stakeholders (as summarised in Section 4), by an understanding of the local and regional communities and their planning contexts (see Sections 2 and 3), and from relevant experience in similar trails (see Section 5).

### 7.1 Privacy and safety

#### 7.1.1 Privacy

Passing through primarily rural and natural areas, the increase in users along the route has the potential to negatively impact on the privacy of nearby neighbours in some locations. While the small volume of users on a daily basis and the fact that they would pass directly through without stopping on most occasions would limit the extent of these privacy concerns, when larger events are held with higher volumes of users, privacy issues would be more likely. Fencing or screening of private properties close to the route would minimise privacy impacts. The nature and type of screening along the route would be determined during detailed design in accordance with relevant Australian Standards and design specifications, and in consultation with affected landowners where relevant.

#### 7.1.2 Safety

The presence of users along the route would generate a degree of safety through passive surveillance, which would largely prevent use of the route by unauthorised motorised vehicles (such as trail/ quad bikes and four wheel drives) and significantly reduce or prevent illegal dumping that currently occurs in the area. Passive surveillance would be a key tool to maintain privacy and safety for users and neighbours.

The use of rest areas for social gatherings could occur, including at night. Adequate waste facilities would be provided to avoid nuisance to other users through littering.

Lighting of the trail in some areas would enhance user safety, especially for potential commuters who may use the RVRT in the early morning or evening. This must also consider other impacts, such as to native fauna. Safety issues will be addressed in the detailed design in accordance with relevant Australian Standards and design specifications and would include:

- Emergency vehicle access
- Hours of operation
- Intersections with roads and footpaths
- Lighting placement
- Use of vandal resistant materials
- Signage

## 7.2 Heritage and cultural impacts

The RVRT is located in predominantly previously disturbed corridors resulting in few direct impacts to Aboriginal heritage, however the locality is significant to local Aboriginal people. The route traverses the archaeologically significant landforms surrounding the Hexham Swamp as well as the ridge crests and creek valleys near Mount Sugarloaf and Black Hill. The Hexham Swamp was a significant source of plant and animal resources for Aboriginal people before the wetland was partially drained and converted to pasture for grazing, and the landscape and sites retain archaeological heritage. The ridgelines and spur crests of Mount Sugarloaf and Black Hill were used as pathways for Aboriginal people to travel across country, and summits were often sites of cultural significance. Representatives of the Awabakal Local Aboriginal Land Council, Mindaribba Local Aboriginal Land Council and the Awabakal and Guringai people native title claimants participated in the archaeological survey for the project and have provided input to the assessment completed for the project to date. Engagement with Aboriginal stakeholder will be ongoing as the project progresses.

The rail line itself has non-Aboriginal heritage value and there are several others sites of significance in proximity to the route. Impacts to these heritage sites and values will be assessed as part of the process of seeking approval, and relevant mitigation implementation to avoid or reduce any impacts.

Recognition and interpretation of the Aboriginal and non-Aboriginal heritage significance of areas along and within the route will be incorporated into the final design at appropriate locations. The locations and nature of Aboriginal cultural recognition will be developed in cooperation with local Aboriginal stakeholders.

## 7.3 Property impacts

Much of the land required for the RVRT is currently under the ownership or management of the government or utility organisations. There are several locations where land required for the RVRT is owned or leased by private individuals or organisations, and others where informal use will be made of government land.

In some instances, the RVRT dissects adjacent land holdings. Ongoing consultation will be conducted with these landholders to determine necessary mitigation measures to ensure continued use of these lands is not compromised. If continued use would be compromised, acquisition of both the trail area and any 'orphaned'<sup>9</sup> land would be pursued. The socio-economic impact of such acquisitions is not expected to be significant as they would not compromise the viability of the remaining land for continued rural use or development, with some property owners noting that the RVRT may provide an opportunity to them to develop supporting services or facilities, such as accommodation.

Other property impacts relate to informal users of land over which they have no rights. There are a number of property owners using adjoining Crown land for various residential and rural uses. Cessation of use of the affected land would be required, however this is not expected to alter the viability of use of the remaining properties.

Privacy, safety and construction impacts for property owners are discussed in Section 7.1 and 7.4.

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<sup>9</sup> Orphaned land is that which is made unviable for ongoing use due to separation from any remaining property holding.



## 7.4 Construction impacts

Construction is expected to last for many months, although work will be undertaken progressively along the route and/or in stages so activity at any one location would be significantly less. Construction times would be within standard hours of 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm Saturdays, with no work on Sundays or public holidays.

### 7.4.1 Access and connectivity

During construction, access to the route would be restricted, affecting any current recreational use of the alignment (birdwatchers, walkers, cyclists).

Access for construction vehicles would be via proposed entry points spread along the route, which would disperse the distribution of construction traffic and reduce potential impacts. Existing traffic networks are expected to readily support the temporary increase in construction vehicle traffic.

Traffic management/control plans would consider transport routes that minimise or avoid impacts on sensitive social infrastructure such as the Minmi and Tarro Public Schools and parking at the Fletcher Community Centre.

Cumulative construction traffic impacts could occur if construction coincides with that of new residential areas in Minmi and of M1 extensions near Tarro. Effective project planning and communication would reduce these impacts.

### 7.4.2 Amenity and aesthetics (noise/vibration/visual)

Properties close to the RVRT route may experience temporary amenity impacts during construction including increases in noise, vibration and dust from construction activities, and visual changes. These impacts are not expected to have any significant socio-economic ramification and would be managed through the implementation of standard construction practices.

The linear nature of the project means that in most locations works would proceed over only a few weeks, and any amenity impacts associated with these works would thus be short lived. The areas most likely to be impacted are around Minmi, properties adjoining the trail on King Street at Shortland, Stockrington and Pelaw Main. Engagement with and notification of effected landowners and residents would assist to minimise potential impacts.

## 7.5 Summary of impacts and mitigation

Socio-economic impacts and opportunities generated by the RVRT have been outlined in the impact assessment and are compiled below in Table 7-1. The table notes benefits and associated enhancement measures in normal font. Negative impacts and mitigation measures are highlighted in bold.

Table 7-1 Summary of benefits and impacts, enhancements and mitigations

Category	Benefit or impact	Enhancement or mitigation
<b>Access</b>	Enhanced access to natural areas, for recreational use and allows users to understand the heritage significance of the site	
	Attract unintended users, such as motor bike, quad bike, four wheel drives and horse riders	Self-moderation via passive surveillance, which can be supported by activation along the trail by approved users

Category	Benefit or impact	Enhancement or mitigation
	Equity of access—navigable for users of varied mobility	Promote the accessibility features of the RVRT in promotional materials and signage
	<b>Discourage existing birdwatchers (regional and visitors) and other less mobile users due to return trip distances</b>	<b>Rest areas and trail interpretation locations and content be developed in consultation with local and regional bird observers.</b> <b>Permit use of motorised cycles/scooter/chairs (adequate to carry birdwatching equipment) or limited vehicle access and hiring facilities for these at some access points</b>
	Tarro connection improves active accessibility for Maitland residents	
	Local recreation option for communities along and adjacent to the route	
	Active local travel along the route, with benefits particularly for Minmi, Seahampton and Stockrington	
	Connectivity for social infrastructure and commercial services such as Fletcher Community Centre, University of Newcastle, shops and services in Minmi and Kurri Kurri	
	Increased cycle commuting both locally and regionally, especially along the Tarro to Shortland section of the trail <b>Limitations on the utility of the trail as a safe commuter cycling route</b>	Consider lighting of the route in tunnels to enhance safety
	Enhanced desirability of Tarro/ Beresfield for student accommodation	
<b>Tourism / economy</b>	Increase tourism by capitalising on demand for active and nature-based domestic tourism	
	Attract the high expenditure cycle tourism specific tourist market with benefits primarily in food and beverage sectors and accommodation	Regional cycle tourism promotion - capitalise on existing and evolving cycle networks in the region to market the region as a cycle tourism destination
	Local and regional employment growth due to tourism expenditure	
	Increased demand for accommodation, including for the new RV overnight parking site close to the trail at Kurri Kurri	

Category	Benefit or impact	Enhancement or mitigation
<b>Local business</b>	Enhanced activation, and synergistic visitation of the Hunter Wetlands Centre, Richmond Vale Rail Museum and attractions and services in Kurri Kurri including the Towns with Heart murals	Joint marketing of the trail and associated 'RVRT friendly' businesses to maximise benefits to local business and make users feel welcomed
	Increased revenue for organisations such as the Hunter Wetlands Centre and the Richmond Vale Rail Museum	
	Stimulation of food and beverage businesses along and close to the route, in Tarro/ Beresfield, Shortland, Minmi and Kurri Kurri, also existing accommodation, cultural and retail businesses	Run events that bring large diverse user groups, e.g. fun runs, endurance bike races etc. Explore and promote accommodation options along the trail, including RV friendly site at Kurri Kurri and potentially elsewhere on the route
	New business opportunities including: <ul style="list-style-type: none"> <li>• Bike hire services</li> <li>• Bicycle repairs and sales</li> <li>• Accommodation/camping on rural properties</li> <li>• Horse riding activities near Stockrington</li> <li>• Mobile café services at access points</li> <li>• Mobility scooter/chair/electric bike rental</li> <li>• Transport for riders and their luggage between end points and/ or accommodation</li> </ul>	
<b>Health</b>	Increased physical activity of the already active population	
	Accessible and navigable path for all age groups and life stages	Enhance cycling of the route by local residents and visitors – for place activation, health and social capital by providing easily accessible (automated) bike hire services at key points along the route (e.g. Hunter Wetlands Centre, Kurri Kurri, Fletcher)
	Uptake of more regular cycling and walking by the less active and sedentary population, with benefits to overall health including mental health and savings in health care	Bike skills workshops and courses aimed at various age groups, including school aged children, mature adults and retirees. These events could be timed with other events and programs such as Ride to School Days and Seniors Weeks
	Positive impacts for mental health due to improved access to natural areas	

Category	Benefit or impact	Enhancement or mitigation
<b>Place activation</b>	More people in public spaces, creating active, vibrant places. Simultaneously this can increase safety through passive surveillance	Support the formation of new common interest groups or activity groups such as Heart Foundation walking groups, parent/family cycle or walking groups, birdwatching or seniors walking or cycling groups
	Creates opportunities for social interaction and development and strengthening of social networks, whilst addressing feelings of isolation	
	Loss of privacy for nearby properties due to trail use	Fencing or screening of private properties close to the route to minimise overlooking and privacy impacts
	Safety in remote rest areas	Provision of adequate waste facilities to avoid nuisance to other users (from litter) if areas used for social gatherings
<b>Property impacts</b>	Some property acquisition required, however no socio-economic impacts expected with fair compensation	Property acquisition would be negotiated with affected land owners in order to reach fair compensation and acquisition arrangements

## 8. Conclusion and recommendations

The RVRT will be a unique and iconic multi-use recreational trail, with health, social, educational, tourism, safety, and other non-motorised travel benefits. A rigorous BCA undertaken for this assessment generated a NPV of \$44.7 million and a BCR of 2.4, which shows that the level of expected benefits provided by the RVRT is close to two and half times the level of expected costs.

The RVRT is expected to become a significant tourist attraction within the region, diversifying the already favourable tourism offerings and attracting expenditure, which would benefit local communities through increased employment and economic output. As a recreational resource for local and regional communities, the RVRT would also play an important role in facilitating active recreation for communities along the route and beyond, including key growth areas in the Blue Gum Hills planning district. The links would also enhance active local travel, increasing connectivity between communities and their social infrastructure along the route. The route is expected to stimulate local enterprises, particularly in the tourism, and food and beverage sectors, as well as create new opportunities for businesses and services related to the trail.

The RVRT would provide a venue for recreation for active members of the community, and also increase the activity and frequency of activity for those less active members of the local and regional community. With high rates of inactivity and obesity in the region, potential health benefits, particularly in the local community, are considerable. Enhancing recreational use of the trail by the most sedentary members of the community could generate even greater health benefits. Increasing accessibility to natural areas would also be of benefit to the mental health of users.

The RVRT would create a space where diverse users would share infrastructure, creating opportunities for social interaction, both structured and incidental. Increasing familiarity and/or interaction between users can alleviate feelings of isolation in individuals and increase the feeling of connectedness, simultaneously increasing social capital within communities (both spatial communities and communities of users). With appeal to diverse user groups, this social interaction is expected across generations. The RVRT would increase safety and security through passive surveillance and enhance the sense of place and identity, which are particularly important in the changing town of Kurri Kurri and the evolving communities of Minmi and Fletcher.

Some properties close to the route would face privacy, safety, and property impacts. Appropriate design and management measures would reduce or avoid these impacts.

Construction of the trail would generate short term noise, vibration, dust, traffic and visual impacts in the local area. In the most part, these would be temporary (in the order of less than a month) as works progress along the route. Standard construction management measures would reduce or avoid these impacts.

In order to enhance local and regional benefits, include those with the greatest potential to benefit from the project, and avoid or ameliorate negative impacts from the RVRT, a number of mitigation and enhancement measures are suggested as follows:

### **Recommended mitigation measures are:**

- Rest areas and trail interpretation locations and content be developed in consultation with local and regional bird observers, Aboriginal stakeholders, railway historians, and other key members of the community or management authorities.
- Motorised cycles/scooter/chairs (adequate to carry birdwatching equipment) and hire facilities for these to be provided at some access points.



- Lighting of the route to be provided to enhance safety.
- Fencing or screening of private properties close to the route to be implemented to minimise overlooking and privacy impacts.
- Adequate waste facilities would be provided to avoid nuisance to other users from litter in areas that might be used for social gatherings.
- Property acquisition would be negotiated with affected land owners in accordance with legal requirements to reach fair compensation and acquisition arrangements.

**Recommended enhancement measures are:**

- Accommodation options along the trail would be explored and promoted, including the existing RV friendly site at Kurri Kurri and other potential sites along the route.
- Existing and evolving cycle networks in the region to be used to market the region as a cycle tourism destination.
- Joint marketing of the trail and associated 'RVRT friendly' businesses be undertaken to maximise benefits to local business and make users feel welcomed.
- Accessibility features of the RVRT to be promoted in promotional materials and signage.
- Bike hire services (automated) to be provided at key points along the route (e.g. Hunter Wetlands Centre, Kurri Kurri, Fletcher).
- Bike skills workshops and courses would be conducted, aimed at various age groups, including school aged children, mature adults and retirees. Such events could be timed with other events and programs such as Ride to School Days and Seniors Week.
- Formation of new common interest groups or activity groups would be supported such as Heart Foundation walking groups, parent/family cycle or walking groups, birdwatching or seniors walking or cycling groups.
- Opportunities for future connections to and from the RVRT would be explored to encourage tourism into other parts of the region, e.g. Hunter Valley.

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# Appendices



# Appendix A – Demographic indicators

	Basic Community Profile File Name (Incl File Extension .xls or .xlsx)	GCP_LGA11720.xls			GCP_LGA14650.xls			GCP_LGA15050.xls			GCP_LGA15900.xls			Regional Area	
	SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	Cessnock			Lake Macquarie			Maitland			Newcastle				
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	%
	Population:														
G04	Total Persons	55560	100.0%	11.4%	197371	100.0%	40.6%	77305	100.0%	15.9%	155411	100.0%	32.0%	485,647	100.0%
	Age groups:														
G04	0 to 4 years	3792	6.8%	12.4%	11845	6.0%	38.8%	5761	7.5%	18.9%	9113	5.9%	29.9%	30,511	6.3%
G04	5 to 11 years	5511	9.9%	12.8%	17190	8.7%	39.9%	8056	10.4%	18.7%	12319	7.9%	28.6%	43,076	8.9%
G04	12 to 17 years	4178	7.5%	12.1%	14579	7.4%	42.3%	6160	8.0%	17.9%	9571	6.2%	27.8%	34,488	7.1%
G04	18 to 24 years	4786	8.6%	10.7%	15595	7.9%	34.8%	6677	8.6%	14.9%	17806	11.5%	39.7%	44,864	9.2%
G04	25 to 34 years	7154	12.9%	11.3%	21739	11.0%	34.3%	10575	13.7%	16.7%	23897	15.4%	37.7%	63,364	13.0%
G04	35 to 49 years	10479	18.9%	11.3%	36650	18.6%	39.7%	15310	19.8%	16.6%	29939	19.3%	32.4%	92,378	19.0%
G04	50 to 59 years	7104	12.8%	11.3%	26518	13.4%	42.3%	9534	12.3%	15.2%	19581	12.6%	31.2%	62,737	12.9%
G04	60 to 69 years	6651	12.0%	12.0%	24971	12.7%	45.2%	7941	10.3%	14.4%	15707	10.1%	28.4%	55,270	11.4%
G04	70 to 84 years	4852	8.7%	10.4%	22604	11.5%	48.3%	6018	7.8%	12.9%	13337	8.6%	28.5%	46,811	9.6%
G04	85 and over years	1050	1.9%	8.6%	5680	2.9%	46.7%	1278	1.7%	10.5%	4145	2.7%	34.1%	12,153	2.5%
G04	Under 18 years	13481	24.3%	12.5%	43614	22.1%	40.4%	19977	25.8%	18.5%	31003	19.9%	28.7%	108,075	22.3%
G04	15 years and over	44184	79.5%	11.2%	161262	81.7%	40.8%	60404	78.1%	15.3%	129204	83.1%	32.7%	395,054	81.3%
G02	Median Age (years)	38			42			36			37			39	
	Cultural Diversity:														
G01a	Indigenous persons	4007	7.2%	18.5%	8032	4.1%	37.2%	4087	5.3%	18.9%	5476	3.5%	25.3%	21,602	4.4%
G09e/	Persons born in Non Main														
G09f	English Speaking countries	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	-	0.0%
G13f	Language spoken at home	1055	1.9%		8752	4.4%		3065	4.0%		15386	9.9%		28,258	5.8%
G13e	Speaks English Only	49842	89.7%		180098	91.2%		70392	91.1%		131814	84.8%		432,146	89.0%
G11c	Speaks other language and														
	speaks English very well or	647	1.2%		5252	2.7%		1868	2.4%		9392	6.0%		17,159	3.5%
	well														
	Household Characteristics:														
G31	Family households	14,021	72.4%	11.1%	53,698	73.5%	42.3%	20,758	75.9%	16.4%	38,386	64.0%	30.3%	126,863	70.6%
G31	Lone person household	4,827	24.9%	10.5%	17,610	24.1%	38.4%	5,948	21.7%	13.0%	17,490	29.2%	38.1%	45,875	25.5%
G31	Group household	514	2.7%	7.3%	1764	2.4%	25.0%	659	2.4%	9.4%	4109	6.9%	58.3%	7,046	3.9%
G02	Average household size														
	(number of persons)	2.6			2.5			2.7			2.4			2.5	
	Family Characteristics:														
G25	Total families	14,392		11.1%	55,032		42.4%	21,220		16.4%	39,068		30.1%	129,712	
G25	Couple family with children	5,869	40.8%	10.8%	23,096	42.0%	42.3%	9,533	44.9%	17.5%	16,046	41.1%	29.4%	54,544	42.1%
G25	Couple with children under 15	3,986	27.7%	10.8%	14,981	27.2%	40.8%	6,627	31.2%	18.0%	11,153	28.5%	30.4%	36,747	28.3%
G25	Couple with children over 15	1,883	13.1%	10.6%	8,115	14.7%	45.6%	2,904	13.7%	16.3%	4,892	12.5%	27.5%	17,794	13.7%
G25	Couple family without children	5,256	36.5%	10.6%	21,711	39.5%	43.8%	7,558	35.6%	15.3%	15,018	38.4%	30.3%	49,543	38.2%
G25	One parent family	3,057	21.2%	12.9%	9,566	17.4%	40.4%	3,840	18.1%	16.2%	7,198	18.4%	30.4%	23,661	18.2%
G25	One parent with children under	1,779	58.2%	14.8%	4,646	48.6%	38.6%	2,158	56.2%	17.9%	3,447	47.9%	28.7%	12,030	50.8%
	15 years														
G25	One parent with children over	1,275	41.7%	11.0%	4,920	51.4%	42.3%	1,681	43.8%	14.5%	3,755	52.2%	32.3%	11,631	49.2%
	15 years														
G25	Other family	211	1.5%	10.7%	661	1.2%	33.4%	291	1.4%	14.7%	817	2.1%	41.3%	1,980	1.5%
	Other characteristics:														
G18	Need for assistance	4,001	7.2%	13.0%	13,085	6.6%	42.6%	4,448	5.8%	14.5%	9,197	5.9%	29.9%	30,731	6.3%
	Dwellings:														
G32	Separate house	17,418	81.3%	11.9%	62,390	77.9%	42.6%	23,848	81.0%	16.3%	42,634	64.1%	29.1%	146,290	74.1%
G32	Semi-detached, terrace house,	1482	6.9%	7.3%	7106	8.9%	35.1%	2435	8.3%	12.0%	9215	13.9%	45.5%	20,238	10.2%
	townhouse														
G32	Flat, unit or apartment	293	1.4%	2.6%	2788	3.5%	24.6%	607	2.1%	5.4%	7644	11.5%	67.5%	11,332	5.7%
G32	Other dwellings	57	0.3%	5.7%	630	0.8%	62.5%	108	0.4%	10.7%	213	0.3%	21.1%	1,008	0.5%
G32	Not stated	116	0.5%	12.5%	162	0.2%	17.4%	381	1.3%	41.0%	271	0.4%	29.1%	930	0.5%
G32	Total occupied private	19368	90.4%	10.8%	73075	91.2%	40.6%	27374	92.9%	15.2%	59974	90.2%	33.4%	179,791	91.1%
	dwellings														
G32	Unoccupied private dwellings	2047	9.6%	11.6%	7031	8.8%	39.8%	2078	7.1%	11.8%	6499	9.8%	36.8%	17,655	8.9%
	Tenure Type:														
G33	Fully owned	6,380	34.2%	10.7%	27,599	39.1%	46.1%	7,902	29.9%	13.2%	17,928	30.9%	30.0%	59,779	34.4%
G33	Owned with a mortgage	6,839	36.7%	11.0%	26,186	37.1%	42.0%	10,479	39.6%	16.8%	18,773	32.4%	30.1%	62,277	35.5%
G33	Rented (Total)	5,416	29.1%	10.5%	16,794	23.8%	32.6%	8,073	30.5%	15.7%	21,295	36.7%	41.3%	51,578	29.7%
G33	Real estate agent	3,505	64.7%	11.5%	9,175	54.6%	30.2%	5,137	63.6%	16.9%	12,537	58.9%	41.3%	30,354	58.9%
G33	State or territory housing														
	authority	624	11.5%	7.2%	3,215	19.1%	0.0%	1,349	16.7%	#REF!	3,449	16.2%	#REF!	8,637	16.7%
G33	Person not in same household	1,003	18.5%	10.5%	3,326	19.8%	0.0%	1,094	13.6%	0.0%	4,174	19.6%	0.0%	9,597	18.6%
G33	Housing co-														
	operative/community/church	56	1.0%	5.6%	414	2.5%	0.0%	91	1.1%	0.0%	432	2.0%	0.0%	993	1.9%
	group														
G33	Other land/ro type	128	2.4%	9.9%	413	2.5%	0.0%	318	3.9%	0.0%	437	2.1%	0.0%	1,298	2.5%
G33	Land/ro type not stated	101	1.9%	14.4%	244	1.5%	0.0%	87	1.1%	0.0%	268	1.3%	0.0%	700	1.4%
G33	Other Tenure Type	133	2.5%	8.2%	798	4.8%	49.1%	257	3.2%	15.8%	437	2.1%	26.9%	1,625	3.2%
G33	Not stated	601	11.1%	13.2%	1741	10.4%	38.2%	666	8.2%	14.6%	1552	7.3%	34.0%	4,560	8.8%
	Individual Income:														
G02	Median Individual Income														
	(\$/week)	540			609			644			660			623	
G17b	Negative/Nil Income	3,419	7.7%		12,221	7.6%		4,818	8.0%		9,749	7.5%		30,207	7.6%
G17b	\$1-\$149	1,705	3.9%		6,939	4.3%		2,690	4.5%		5,216	4.0%		16,550	4.2%
G17b	\$150-\$299	3,611	8.2%		11,664	7.2%		4,527	7.5%		9,924	7.7%		29,726	7.5%
G17b	\$300-\$399	5,122	11.6%		17,222	10.7%		5,894	9.8%		11,970	9.3%		40,208	10.2%
G17b	\$400-\$499	4,694	10.6%		16,807	10.4%		5,448	9.0%		11,906	9.2%		38,853	9.8%
G17b	\$500-\$649	3,611	8.2%		13,553	8.7%		4,853	8.0%		10,202	7.9%		32,619	8.3%
G17b	\$650-\$799	3,546	8.0%		12,961	8.0%		4,896	8.1%		9,827	7.6%		31,230	7.9%
G17b	\$800-\$999	3,343	7.6%		13,275	8.2%		5,314	8.8%		10,538	8.2%		32,470	8.2%
G17b	\$1,000-\$1,249	3,129	7.1%		13,546	8.4%		4,998	8.3%		10,854	8.4%		32,525	8.2%
G17b	\$1,250-\$1,499	1,870	4.2%		8,595	5.3%		3,355	5.6%		7,581	5.9%		21,311	5.4%
G17b	\$1,500-\$1,749	1,468	3.3%		7,287	4.3%		2,846	4.0%		6,087	5.0%		18,007	4.6%
G17b	\$1,750-\$1,999	1,056	2.4%		5,179	3.2%		2,087	3.5%		4,561	3.5%		12,883	3.3%
G17b	\$2,000-\$2,999	1,754	4.0%		7,096	4.4%		3,137	5.2%		6,831	5.3%		18,818	4.8%
G17b	\$3,000 or more	693	1.6%		3,371	2.1%		1,266	2.1%		3,645	2.8%		8,975	2.3%
G17b	Individual income not stated	5,166	11.7%		11,227	7.0%		4,281	7.1%		9,907	7.7%		30,581	7.7%
	Household Income:														
G02	Median Household income														
	(\$/week)	1,177			1,313			1,415			1,368			1,331	
G29	Negative/Nil income	229	1.2%		731	1.0%		250	0.9%		744	1.2%		1,954	1.1%
G29	\$1-\$149	107	0.6%		434	0.6%		159	0.6%		357	0.6%		1,057	0.6%
G29	\$150-\$299	447	2.3%		1,341	1.8%		465	1.7%		1,431	2.4%		3,684	2.0%
G29	\$300-\$399	706	3.6%		2,272	3.1%		763	2.8%		2,185	3.6%		5,926	3.3%

2016	Basic Community Profile File Name (Incl File Extension .xls or .xlsx) SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	GCP_LGA11720.xls			GCP_LGA14650.xls			GCP_LGA15050.xls			GCP_LGA15900.xls			Regional Area	
		Cessnock			Lake Macquarie			Maitland			Newcastle			No	%
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	%
G48a	Clerical and administrative	2,402	11.1%	8.4%	12,170	14.3%	42.4%	4,586	13.2%	16.0%	9,555	13.1%	33.3%	28,713	13.4%
G48a	Sales	2,200	10.2%	10.4%	8,597	10.1%	40.8%	3,547	10.2%	16.8%	6,715	9.2%	31.9%	21,059	9.8%
G48a	Machinery operators and drivers	2,838	13.1%	18.0%	5,768	6.8%	36.5%	3,408	9.8%	21.6%	3,781	5.2%	23.9%	15,795	7.4%
G48a	Labourers	3,009	13.9%	14.1%	8,395	9.8%	39.2%	3,696	10.7%	17.3%	6,305	8.6%	29.5%	21,405	10.0%
G48a	Not Stated	358	1.7%	11.3%	1,253	1.5%	39.6%	516	1.5%	16.3%	1,034	1.4%	32.7%	3,161	1.5%
	Key Industry:														
G48b	Agriculture, Forestry and Fishing	251	2.2%	25.6%	218	0.5%	22.2%	280	1.5%	28.5%	233	0.6%	23.7%	982	0.9%
G48b	Mining	1,856	16.3%	25.4%	2,014	4.6%	27.5%	2,217	12.3%	30.3%	1,227	3.3%	16.8%	7,314	6.6%
G48b	Manufacturing	1,230	10.8%	11.6%	4,382	10.0%	41.2%	1,940	10.7%	18.2%	3,093	8.3%	29.1%	10,645	9.7%
G48b	Electricity, Gas, Water and Waste Services	237	2.1%	9.5%	1,096	2.5%	44.1%	399	2.2%	16.1%	751	2.0%	30.2%	2,483	2.3%
G48b	Construction	1,560	13.7%	9.3%	7,764	17.7%	46.4%	2,584	14.3%	15.5%	4,814	13.0%	28.8%	16,722	15.2%
G48b	Wholesale Trade	313	2.7%	9.8%	1,347	3.1%	42.6%	532	2.9%	16.8%	972	2.6%	30.7%	3,164	2.9%
G48b	Retail Trade	799	6.8%	8.8%	3,551	8.1%	40.6%	1,470	8.1%	16.8%	2,949	8.0%	33.7%	8,739	7.9%
G48b	Accommodation and Food Services	798	7.0%	11.4%	2,429	5.5%	34.7%	958	5.3%	13.7%	2,817	7.6%	40.2%	7,002	6.3%
G48b	Transport, Postal and Warehousing	684	6.0%	9.9%	2,865	6.5%	41.5%	1,216	6.7%	17.6%	2,141	5.8%	31.0%	6,906	6.3%
G48b	Information Media and Telecommunications	64	0.6%	5.1%	506	1.2%	40.7%	148	0.8%	11.9%	525	1.4%	42.2%	1,243	1.1%
G48b	Financial and Insurance Services	83	0.7%	3.7%	960	2.2%	42.8%	274	1.5%	12.2%	927	2.5%	41.3%	2,244	2.0%
G48b	Rental, Hiring and Real Estate Services	139	1.2%	9.0%	592	1.4%	38.5%	246	1.4%	16.0%	560	1.5%	36.4%	1,537	1.4%
G48b	Professional, Scientific and Technical Services	348	3.1%	5.4%	2,363	5.4%	36.6%	804	4.5%	12.4%	2,947	8.0%	45.6%	6,462	5.9%
G48b	Administrative and Support Services	398	3.5%	12.4%	1,311	3.0%	41.0%	502	2.8%	15.7%	990	2.7%	30.9%	3,201	2.9%
G48b	Public Administration and Safety	549	4.8%	7.5%	2,808	6.4%	38.2%	1,174	6.5%	16.0%	2,813	7.6%	38.3%	7,344	6.7%
G48b	Education and Training	275	2.4%	5.1%	2,159	4.9%	39.7%	616	3.4%	11.3%	2,392	6.5%	44.0%	5,442	4.9%
G48b	Health Care and Social Assistance	441	3.9%	5.9%	2,898	6.6%	38.5%	770	4.3%	10.2%	3,418	9.2%	45.4%	7,527	6.8%
G48b	Arts and Recreation Services	136	1.2%	9.8%	532	1.2%	38.2%	153	0.8%	11.0%	571	1.5%	41.0%	1,392	1.3%
G48b	Other Services	637	5.6%	12.8%	1,998	4.6%	40.1%	919	5.1%	18.5%	1,423	3.8%	28.6%	4,977	4.5%
G48b	Inadequately described/Not stated	624	5.5%	12.6%	1979	4.5%	39.9%	865	4.8%	17.4%	1,490	4.0%	30.1%	4,958	4.5%
	Educational attainment:														
G16	Completion of Year 12 (or equivalent)	11,990	27.1%	7.5%	61,387	38.1%	38.2%	22,310	36.9%	13.9%	64,900	50.2%	40.4%	160,587	40.6%
B40b	Without post-school qualifications	44184	100.0%	11.2%	161262	100.0%	40.8%	60404	100.0%	15.3%	129204	100.0%	32.7%	395,054	100.0%
	Educational institution attending:														
G15	Total	16,844			54,344			23,334			49,427			143,949	
	Pre-school attending:														
G15	Pre-school	1,073	6.4%		3,836	7.1%		1,685	7.2%		2,837	5.7%		9,431	6.6%
	Infants/Primary education attending:														
G15	Government	3,691	74.6%		12,191	74.8%		4,968	66.7%		8,341	71.9%		29,191	72.4%
G15	Catholic	742	15.0%		2,345	14.4%		1,751	23.5%		2,195	18.9%		7,033	17.4%
G15	Other Non Government	515	10.4%		1,763	10.8%		729	9.8%		1,066	9.2%		4,073	10.1%
G15	Total	4,950	29.4%		16,304	30.0%		7,451	31.9%		11,599	23.5%		40,304	28.0%
	Secondary education attending:														
G15	Government	2,390	71.2%		8,746	68.9%		3,122	59.9%		5,583	65.2%		19,841	66.5%
G15	Catholic	452	13.5%		2,036	16.0%		1,348	25.9%		1,671	19.5%		5,507	18.5%
G15	Other Non Government	517	15.4%		1,911	15.1%		741	14.2%		1,306	15.3%		4,475	15.0%
G15	Total	3,357	19.9%		12,691	23.4%		5,210	22.3%		8,557	17.3%		29,815	20.7%
	Technical or Further Educational Institution(a):														
G15	Full-time student:													-	
G15	Aged 15-24 years	158	15.8%		514	14.1%		287	16.8%		571	16.0%		1,530	1.1%
G15	Aged 25 years and over	79	7.9%		358	9.8%		154	9.0%		564	15.8%		1,155	0.8%
G15	Part-time student:													-	
G15	Aged 15-24 years	323	32.3%		1,265	34.6%		539	31.5%		916	25.7%		3,043	2.1%
G15	Aged 25 years and over	428	42.8%		1,490	40.8%		705	41.3%		1,474	41.4%		4,097	2.8%
G15	Full/Part-time student status not stated	5	0.5%		20	0.5%		25	1.5%		36	1.0%		86	0.9%
G15	Total	1,000	5.9%		3,652	6.7%		1,709	7.3%		3,560	7.2%		9,921	6.9%
	University or other Tertiary Institution attending:														
G15	Full-time student:													-	
G15	Aged 15-24 years	371	2.2%		2,980	45.4%		953	39.6%		6,541	51.7%		10,845	7.5%
G15	Aged 25 years and over	168	1.0%		1,057	16.1%		421	17.5%		2,734	21.6%		4,380	3.0%
G15	Part-time student:													-	
G15	Aged 15-24 years	101	0.6%		558	1.0%		228	1.0%		792	1.6%		1,679	1.2%
G15	Aged 25 years and over	333	2.0%		1,951	3.6%		798	3.4%		2,544	5.1%		5,626	3.9%
G15	Full/Part-time student status not stated	3	0.3%		19	0.3%		3	0.1%		36	0.3%		61	0.3%
G15	Total	977	5.8%		6,568	12.1%		2,406	10.3%		12,649	25.6%		22,600	15.7%
	Other type of educational institution attending:														
G15	Full-time student	69	0.4%		243	0.4%		126	0.5%		218	0.4%		656	0.5%
G15	Part-time student	191	1.1%		752	1.4%		322	1.4%		621	1.3%		1,886	1.3%
G15	Full/Part-time student status not stated	11	4.0%		20	2.0%		3	0.7%		23	2.7%		57	2.2%
G15	Total	278	1.7%		1,012	1.9%		450	1.9%		862	1.7%		2,602	1.8%
G15	Type of educational institution not stated	5,222	11.8%		10,285	6.4%		4,419	7.3%		9,353	7.2%		29,279	7.4%
	Mobility:														
B38	Lived at same address 1 year ago	42,279	76.1%		158,538	80.3%		59,698	77.2%		116,905	75.2%		377,420	77.7%
B39	Lived at same address 5 years ago	28,491	51.3%	11.2%	111,090	56.3%	43.7%	37,789	48.9%	14.9%	76,554	49.3%	30.1%	253,924	52.3%
	Transport:														
G30	Households without a motor vehicle	1,002	5.4%	8.3%	4,186	5.9%	34.5%	1,387	5.2%	11.4%	5,550	9.6%	45.8%	12,125	7.0%
G30	One motor vehicle	6,329	34.2%	10.3%	24,083	34.1%	39.1%	8,593	32.4%	14.0%	22,573	38.9%	36.7%	61,578	35.5%
G30	Two motor vehicles	7,133	38.5%	10.6%	27,986	39.6%	41.6%	10,989	41.5%	16.3%	21,177	36.5%	31.5%	67,285	38.8%
G30	Three motor vehicles	2,584	14.0%	12.0%	9,419	13.3%	43.6%	3,614	13.6%	16.7%	6,006	10.4%	27.8%	21,623	12.5%
G30	Four or more motor vehicles	1,463	7.9%	13.3%	4,943	7.0%	45.0%	1,923	7.3%	17.5%	2,651	4.6%	24.1%	10,980	6.3%
	Journey to work (by one method only):														
B46	Train	86	0.5%	3.8%	957	1.3%	42.6%	445	1.5%	19.8%	757	1.2%	33.7%	2,245	1.2%
B46	Bus	103	0.6%	3.2%	965	1.3%	29.7%	208	0.7%	6.4%	1,972	3.1%	60.7%	3,248	1.7%
B46	Ferry	7	0.0%	6.5%	7	0.0%	6.5%</								

\*Socio-Economic Indexes for Areas (SEIFA) 2011 Census

	Basic Community Profile File Name (Incl File Extension .xls or .xlsx) SEIFA FILE File Name (Incl File Extension .xls or .xlsx)	GCP_SSC10301.xls			GCP_SSC11533.xls			GCP_SSC11898.xls			GCP_SSC12221.xls			GCP_SSC12514.xls			GCP_SSC12638.xls			GCP_SSC12813.xls		
		Beresfield			Fletcher			Hexham			Kurri Kurri			Maryland			Minmi			Mulbring		
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct
	Population:																					
G04	Total Persons	3181	100.0%	10.3%	5136	100.0%	16.6%	130	100.0%	0.4%	6044	100.0%	19.5%	7694	100.0%	24.9%	743	100.0%	2.4%	597	100.0%	1.9%
	Age groups:																					
G04	0 to 4 years	195	6.1%	8.9%	516	10.0%	23.6%	6	4.6%	0.3%	382	6.3%	17.5%	513	6.7%	23.5%	57	7.7%	2.6%	23	3.9%	1.1%
G04	5 to 11 years	274	8.6%	9.2%	709	13.8%	23.8%	12	9.2%	0.4%	492	8.1%	16.5%	765	9.9%	25.7%	76	10.2%	2.6%	59	9.9%	2.0%
G04	12 to 17 years	179	5.6%	7.5%	482	9.4%	20.3%	6	4.6%	0.3%	442	7.3%	18.6%	711	9.2%	29.9%	84	11.3%	3.5%	60	10.1%	2.5%
G04	18 to 24 years	280	8.8%	9.3%	439	8.5%	14.6%	8	6.2%	0.3%	548	9.1%	18.2%	744	9.7%	24.7%	90	12.1%	3.0%	40	6.7%	1.3%
G04	25 to 34 years	466	15.3%	11.6%	727	14.2%	17.3%	10	7.7%	0.2%	776	12.8%	18.5%	981	12.8%	23.4%	85	11.4%	2.0%	39	6.5%	0.9%
G04	35 to 49 years	525	16.5%	8.5%	1393	27.1%	22.6%	27	20.8%	0.4%	1091	18.1%	17.7%	1647	21.4%	26.7%	136	18.3%	2.2%	118	19.8%	1.9%
G04	50 to 59 years	385	12.1%	10.4%	435	8.5%	11.8%	21	16.2%	0.6%	734	12.1%	19.9%	1053	13.7%	28.6%	108	14.5%	2.9%	90	15.1%	2.4%
G04	60 to 69 years	360	11.3%	11.0%	288	5.6%	8.8%	29	22.3%	0.9%	753	12.5%	23.1%	784	10.2%	24.1%	69	9.3%	2.1%	95	15.9%	2.9%
G04	70 to 84 years	432	13.6%	17.0%	139	2.7%	5.5%	16	12.3%	0.6%	617	10.2%	24.3%	442	5.7%	17.4%	30	4.0%	1.2%	56	9.4%	2.2%
G04	85 and over years	78	2.5%	15.0%	6	0.1%	1.2%	4	3.1%	0.8%	213	3.5%	41.0%	58	0.8%	11.2%	9	1.2%	1.7%	9	1.5%	1.7%
G04	Under 18 years	648	20.4%	8.6%	1707	33.2%	22.6%	24	18.5%	0.3%	1316	21.8%	17.4%	1989	25.9%	26.4%	217	29.2%	2.9%	142	23.8%	1.9%
G04	15 years and over	2625	82.5%	10.7%	3650	71.1%	14.8%	113	86.9%	0.5%	4965	82.1%	20.2%	6051	78.6%	24.6%	572	77.0%	2.3%	487	81.6%	2.0%
G02	Median Age (years)	40			31			50			40			36			33			43		
	Cultural Diversity:																					
G01a	Indigenous persons	177	5.6%	10.1%	209	4.1%	11.9%	11	8.5%	0.6%	461	7.6%	26.4%	437	5.7%	25.0%	28	3.8%	1.6%	32	5.4%	1.8%
G09e/ G09f	Persons born in Non Main English Speaking countries	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
G13f	Language spoken at home other than English	183	5.8%		736	14.3%		7	5.4%		93	1.5%		737	9.6%		11	1.5%		4	0.7%	
G13e	Speaks English Only	2839	89.2%		4251	82.8%		111	85.4%		5489	90.8%		6732	87.5%		723	97.3%		556	93.1%	
G11c	Speaks other language and speaks English very well or well	73	2.3%		482	9.4%		4	3.1%		60	1.0%		449	5.8%		5	0.7%		3	0.5%	
	Household Characteristics:																					
G31	Family households	861	68.3%	10.6%	1,363	91.0%	16.7%	32	64.0%	0.4%	1,531	66.7%	18.8%	2,097	80.1%	25.7%	201	82.4%	2.5%	163	82.7%	2.0%
G31	Lone person household	355	28.2%	13.8%	100	6.7%	3.9%	18	36.0%	0.7%	711	31.0%	27.6%	469	17.9%	18.2%	34	13.9%	1.3%	34	17.3%	1.3%
G31	Group household	44	3.5%	11.7%	34	2.3%	9.1%	0	0.0%	0.0%	55	2.4%	14.7%	52	2.0%	13.9%	9	3.7%	2.4%	0	0.0%	0.0%
G02	Average household size (number of persons)	2.4			3.4			2.3			2.4			2.8			3.1			2.9		
	Family Characteristics:																					
G25	Total families	891		10.7%	1,396		16.7%	31		0.4%	1,567		18.7%	2,155		25.8%	211		2.5%	165		2.0%
G25	Couple family with children	292	32.8%	7.8%	876	62.8%	23.5%	12	38.7%	0.3%	582	37.1%	15.6%	1,073	49.8%	28.8%	105	49.8%	2.8%	80	48.5%	2.1%
G25	Couple with children under 15 years	183	20.5%	7.1%	692	49.6%	27.0%	6	19.4%	0.2%	388	24.8%	15.2%	700	32.5%	27.3%	66	31.3%	2.6%	50	30.3%	2.0%
G25	Couple with children over 15 years	108	12.1%	9.2%	181	13.0%	15.4%	3	9.7%	0.3%	200	12.8%	17.0%	376	17.4%	32.0%	44	20.9%	3.7%	36	21.8%	3.1%
G25	Couple family without children	359	40.3%	12.5%	361	25.9%	12.6%	12	38.7%	0.4%	567	36.2%	19.7%	665	30.9%	23.1%	62	29.4%	2.2%	67	40.6%	2.3%
G25	One parent family	215	24.1%	13.2%	154	11.0%	9.5%	12	38.7%	0.7%	387	24.7%	23.8%	387	18.0%	23.8%	39	18.5%	2.4%	13	7.9%	0.8%
G25	One parent with children under 15 years	109	50.7%	12.6%	94	61.0%	10.9%	3	25.0%	0.3%	210	54.3%	24.3%	196	50.6%	22.7%	28	71.8%	3.2%	7	53.8%	0.8%
G25	One parent with children over 15 years	104	48.4%	13.8%	64	41.6%	8.5%	3	25.0%	0.4%	173	44.7%	23.0%	184	47.5%	24.5%	19	48.7%	2.5%	4	30.8%	0.5%
G25	Other family	30	3.4%	22.1%	13	0.9%	9.6%	0	0.0%	0.0%	31	2.0%	22.8%	25	1.2%	18.4%	0	0.0%	0.0%	0	0.0%	0.0%
	Other characteristics:																					
G18	Need for assistance	240	7.5%	12.2%	194	3.8%	9.8%	13	10.0%	0.7%	510	8.4%	25.9%	437	5.7%	22.2%	32	4.3%	1.6%	23	3.9%	1.2%
	Dwellings:																					
G32	Separate House	1,115	80.6%	11.3%	1,471	92.5%	14.9%	57	87.7%	0.6%	1,921	77.7%	19.4%	2,390	86.3%	24.2%	228	91.2%	2.3%	195	89.9%	2.0%
G32	Semi-detached, terrace house, townhouse	100	7.2%	10.1%	21	1.3%	2.1%	0	0.0%	0.0%	294	11.9%	29.6%	206	7.4%	20.7%	9	3.6%	0.9%	0	0.0%	0.0%
G32	Flat, unit or apartment	39	2.8%	22.4%	0	0.0%	0.0%	0	0.0%	0.0%	74	3.0%	42.5%	14	0.5%	8.0%	0	0.0%	0.0%	0	0.0%	0.0%
G32	Other dwellings	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	3	0.1%	50.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
G32	Not stated	5	0.4%	15.2%	0	0.0%	0.0%	0	0.0%	0.0%	9	0.4%	27.3%	4	0.1%	12.1%	3	1.2%	9.1%	0	0.0%	0.0%
G32	Total occupied private dwellings	1257	90.8%	11.3%	1500	94.3%	13.5%	57	87.7%	0.5%	2301	93.0%	20.7%	2615	94.5%	23.5%	240	96.0%	2.2%	201	92.6%	1.8%
G32	Unoccupied private dwellings	127	9.2%	15.5%	90	5.7%	11.0%	8	12.3%	1.0%	172	7.0%	21.0%	153	5.5%	18.7%	10	4.0%	1.2%	16	7.4%	2.0%
	Tenure Type:																					
G33	Fully owned	490	39.6%	14.1%	244	16.6%	7.0%	20	35.7%	0.6%	716	32.4%	20.7%	794	31.0%	22.9%	67	29.1%	1.9%	87	44.6%	2.5%
G33	Owned with a mortgage	365	29.5%	8.3%	919	62.6%	20.9%	16	28.6%	0.4%	714	32.3%	16.2%	1,209	47.2%	27.5%	129	56.1%	2.9%	91	46.7%	2.1%
G33	Rented (Total)	381	30.8%	13.0%	304	20.7%	10.4%	20	35.7%	0.7%	780	35.3%	26.6%	557	21.8%	19.0%	34	14.8%	1.2%	17	8.7%	0.6%
G33	Real estate agent	226	59.3%	12.4%	250	82.2%	13.7%	9	45.0%	0.5%	516	66.2%	28.2%	329	59.1%	18.0%	18	52.9%	1.0%	8	47.1%	0.4%
G33	State or territory housing authority	28	7.3%	8.6%	3	1.0%	0.0%	0	0.0%	#REF!	107	13.7%	#REF!	72	12.9%	#REF!	0	0.0%	0.0%	0	0.0%	0.0%
G33	Person not in same household	92	24.1%	15.7%	20	6.6%	0.0%	7	35.0%	0.0%	125	16.0%	0.0%	124	22.3%	0.0%	17	50.0%	0.0%	6	35.3%	0.0%
	Housing co-operative/community/church group																					
G33	Other landlord type	11	2.9%	17.2%	3	1.0%	0.0%	0	0.0%	0.0%	9	1.2%	0.0%	12	2.2%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
G33	Other landlord type	5	1.3%	6.0%	16	5.3%	0.0%	3	15.0%	0.0%	17	2.2%	0.0%	20	3.6%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
G33	Landlord type not stated	10	2.6%	29.4%	4	1.3%	0.0%	0	0.0%	0.0%	10	1.3%	0.0%	3	0.5%	0.0%	0	0.0%	0.0%	3	17.6%	0.0%
G33	Other Tenure Type	4	1.0%	8.5%	3	1.0%	6.4%	0	0.0%	0.0%	8	1.0%	17.0%	12	2.2%	25.5%	0	0.0%	0.0%	0	0.0%	0.0%
G33	Not stated	21	5.5%	8.0%	26	8.6%	9.8%	3	15.0%	1.1%	81	10.4%	30.7%	49	8.8%	18.6%	3	8.8%	1.1%	3	17.6%	1.1%
	Individual Income:																					
G02	Median Individual Income (Weekly)																					
G17b	Negative/Nil Income	547			863			437			496			628			663			543		
G17b	\$1-\$149	181	6.9%		384	10.5%		10	8.5%		360	7.3%		608	10.0%		70	12.3%		50	10.2%	
G17b	\$150-\$299	86	3.3%		165	4.5%		6	5.1%		194	3.9%		279	4.6%		26	4.6%		20	4.1%	
G17b	\$300-\$399	219	8.3%		188	5.2%		10	8.5%		410	8.3%		458	7.6%		37	6.5%		34	7.0%	
G17b	\$400-\$499	344	13.0%		195	5.4%		16	13.6%		637	12.9%		560	9.3%		48	8.5%		57	11.7%	

2016	Basic Community Profile	GCP_SSC10301.xls				GCP_SSC11533.xls				GCP_SSC11898.xls				GCP_SSC12221.xls				GCP_SSC12514.xls				GCP_SSC12638.xls				GCP_SSC12813.xls			
	File Name (Incl File Extension .xls or .xlsx)																												
	SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	Beresfield				Fletcher				Hexham				Kurri Kurri				Maryland				Minmi				Mulbring			
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	
G17b	\$400-\$499	315	11.9%		205	5.6%		22	18.6%		630	12.7%		528	8.7%		39	6.9%		47	9.6%								
G17b	\$500-\$649	264	10.0%		239	6.6%		7	5.9%		436	8.8%		519	8.6%		48	8.5%		26	4.3%								
G17b	\$650-\$799	277	10.3%		271	7.4%		11	9.3%		454	9.2%		464	7.7%		61	10.7%		21	4.3%								
G17b	\$800-\$999	263	10.0%		300	8.2%		10	8.5%		419	8.5%		596	9.8%		58	10.2%		31	6.4%								
G17b	\$1,000-\$1,249	213	8.1%		351	9.6%		10	8.5%		322	6.5%		596	9.8%		53	9.3%		54	11.1%								
G17b	\$1,250-\$1,499	105	4.0%		270	7.4%		0	0.0%		185	3.7%		383	6.3%		27	4.8%		32	6.6%								
G17b	\$1,500-\$1,749	91	3.4%		262	7.2%		5	4.2%		129	2.6%		288	4.7%		19	3.3%		26	3.3%								
G17b	\$1,750-\$1,999	42	1.6%		184	5.3%		0	0.0%		105	2.1%		188	3.1%		32	5.6%		20	4.1%								
G17b	\$2,000-\$2,999	47	1.8%		354	9.7%		0	0.0%		111	2.2%		250	4.1%		27	4.8%		21	4.3%								
G17b	\$3,000 or more	19	0.7%		109	3.0%		0	0.0%		34	0.7%		50	0.8%		3	0.5%		8	1.6%								
G17b	Individual income not stated	173	6.6%		153	4.2%		11	9.3%		531	10.7%		289	4.8%		20	3.5%		51	10.5%								
G02	Household Income: Median Household income (\$/weekly)	1,032			2,296			916			991			1,501			1,734			1,454									
G29	Negative/Nil income	19	1.5%		10	0.7%		0	0.0%		31	1.3%		33	1.3%		0	0.0%		6	3.0%								
G29	\$1-\$149	3	0.2%		0	0.0%		0	0.0%		10	0.4%		9	0.3%		3	1.2%		0	0.0%								
G29	\$150-\$299	31	2.5%		14	0.9%		0	0.0%		69	3.0%		34	1.3%		4	1.6%		5	2.5%								
G29	\$300-\$399	46	3.7%		6	0.4%		0	0.0%		90	3.9%		55	2.1%		0	0.0%		0	0.0%								
G29	\$400-\$499	121	9.8%		26	1.7%		5	8.8%		252	10.9%		135	5.2%		12	4.8%		11	5.6%								
G29	\$500-\$649	86	6.8%		21	1.4%		7	12.3%		142	6.2%		107	4.1%		4	1.6%		3	1.5%								
G29	\$650-\$799	146	11.6%		42	2.8%		10	17.5%		241	10.5%		182	7.0%		23	9.2%		16	8.1%								
G29	\$800-\$999	105	8.3%		48	3.2%		9	15.8%		206	8.9%		195	7.5%		20	8.0%		9	4.5%								
G29	\$1,000-\$1,249	117	9.3%		72	4.8%		5	8.8%		201	8.7%		222	8.5%		11	4.4%		20	10.1%								
G29	\$1,250-\$1,499	113	9.3%		85	5.7%		3	5.3%		178	7.7%		209	8.0%		15	6.0%		14	7.1%								
G29	\$1,500-\$1,749	70	5.6%		90	6.0%		6	10.5%		127	5.5%		195	7.5%		19	7.6%		8	4.0%								
G29	\$1,750-\$1,999	73	5.8%		105	7.0%		6	10.5%		135	5.9%		188	7.2%		17	6.8%		11	5.6%								
G29	\$2,000-\$2,499	107	8.5%		251	16.8%		3	5.3%		168	7.3%		334	12.8%		35	13.9%		24	12.1%								
G29	\$2,500-\$2,999	60	4.8%		202	13.5%		0	0.0%		99	4.3%		205	7.8%		28	11.2%		10	5.1%								
G29	\$3,000-\$3,499	21	1.7%		143	9.6%		0	0.0%		57	2.5%		116	4.4%		19	7.6%		13	6.6%								
G29	\$3,500-\$3,999	14	1.1%		88	5.9%		0	0.0%		25	1.1%		72	2.8%		7	2.8%		8	4.0%								
G29	\$4,000 or more	19	1.5%		135	9.0%		0	0.0%		39	1.7%		74	2.8%		9	3.6%		4	2.0%								
G29	Partial income stated(c)	78	6.2%		139	9.3%		0	0.0%		140	6.1%		201	7.7%		18	7.2%		31	15.7%								
G29	All incomes not stated(d)	30	2.4%		18	1.2%		3	5.3%		92	4.0%		46	1.8%		7	2.8%		5	2.5%								
G40	Labour force participation	1,394	53.1%	9.5%	2,749	75.3%	18.7%	47	41.6%	0.3%	2,510	50.6%	17.1%	4,003	66.2%	27.3%	386	67.5%	2.6%	274	56.3%	1.9%							
G40	Total employed	1,253	89.9%		2,598	94.5%		46	97.9%		2,263	90.2%		3,747	93.6%		358	92.7%		255	93.1%								
G40	Employed full-time	770	61.5%		1,689	65.0%		29	63.0%		1,364	60.3%		2,278	60.8%		228	63.7%		150	58.8%								
G40	Employed part-time	405	32.3%		805	31.0%		17	37.0%		760	33.6%		1,266	33.8%		117	32.7%		87	34.1%								
G40	Unemployed persons	137	9.8%	12.1%	155	5.6%	13.7%	3	6.4%	0.3%	249	9.9%	22.0%	263	6.6%	23.3%	21	5.4%	1.9%	12	4.4%	1.1%							
G40	Not in labour force	1,114	42.4%		787	21.6%		57	50.4%		2,059	41.5%		1,877	31.0%		177	30.9%		174	35.7%								
G48a	Occupation: Managers	62	4.9%	6.3%	289	11.1%	29.2%	4	8.9%	0.4%	134	5.9%	13.5%	266	7.1%	26.9%	24	6.9%	2.4%	19	7.3%	1.9%							
G48a	Professionals	107	8.3%	5.3%	643	24.8%	31.9%	0	0.0%	0.0%	204	9.0%	10.1%	588	15.7%	29.2%	42	12.1%	2.1%	18	6.8%	2.4%							
G48a	Technicians and trades	213	16.9%	9.0%	370	14.3%	15.7%	3	6.7%	0.1%	459	20.3%	19.5%	638	17.1%	27.0%	76	21.9%	3.2%	59	22.7%	2.5%							
G48a	Community and personal service	146	11.6%	9.2%	262	10.1%	16.6%	8	17.8%	0.5%	277	12.3%	17.5%	449	12.0%	28.4%	44	12.7%	2.8%	27	10.4%	1.7%							
G48a	Clerical and administrative	146	11.6%	8.1%	388	15.0%	21.7%	3	6.7%	0.2%	260	11.5%	14.5%	568	15.2%	31.7%	47	13.5%	2.6%	40	15.4%	2.2%							
G48a	Sales	115	9.1%	8.2%	242	9.3%	17.3%	0	0.0%	0.0%	233	10.3%	16.6%	409	10.9%	29.2%	26	7.5%	1.9%	29	11.2%	2.1%							
G48a	Machinery operators and drivers	144	11.4%	10.6%	164	6.3%	12.1%	10	22.2%	0.7%	289	12.8%	21.4%	327	8.7%	24.2%	41	11.8%	3.0%	15	5.8%	1.1%							
G48a	Labourers	314	24.9%	17.0%	194	7.5%	10.5%	17	37.8%	0.9%	360	15.9%	19.5%	432	11.6%	23.4%	40	11.5%	2.2%	19	7.3%	1.0%							
G48a	Not Stated	16	1.3%	7.1%	42	1.6%	18.7%	0	0.0%	0.0%	44	1.9%	19.6%	61	1.6%	27.1%	7	2.0%	3.1%	4	1.5%	1.8%							
G48b	Key Industry: Agriculture, Forestry and Fishing	21	3.1%	23.3%	3	0.2%	3.3%	7	24.1%	7.8%	15	1.3%	16.7%	11	0.6%	12.2%	3	1.7%	3.3%	9	7.1%	10.0%							
G48b	Mining	33	4.8%	8.0%	70	5.2%	16.9%	0	0.0%	0.0%	127	10.6%	30.7%	70	3.7%	16.9%	9	5.0%	2.2%	16	12.6%	3.9%							
G48b	Manufacturing	123	18.0%	12.8%	145	10.8%	15.1%	3	10.3%	0.3%	159	13.3%	16.6%	251	13.2%	26.2%	26	14.4%	2.7%	16	12.6%	1.7%							
G48b	Electricity, Gas, Water and Waste Services	18	2.6%	9.8%	39	2.9%	21.2%	0	0.0%	0.0%	30	2.5%	16.3%	43	2.3%	23.4%	8	4.4%	4.3%	3	2.4%	1.6%							
G48b	Construction	104	15.2%	10.0%	183	13.6%	17.6%	4	13.8%	0.4%	177	14.8%	17.0%	276	14.5%	26.5%	26	14.4%	2.5%	24	18.9%	2.3%							
G48b	Wholesale Trade	31	4.5%	12.5%	38	2.8%	15.3%	4	13.8%	1.6%	46	3.8%	18.5%	75	3.9%	30.2%	8	4.4%	3.2%	3	2.4%	1.2%							
G48b	Retail Trade	48	7.0%	8.7%	119	8.9%	21.6%	0	0.0%	0.0%	71	5.9%	12.9%	148	7.8%	26.8%	8	4.4%	1.4%	6	4.7%	1.1%							
G48b	Accommodation and Food Services	45	6.8%	11.2%	60	4.5%	15.0%	5	17.2%	1.2%	64	5.3%	16.0%	111	5.8%	27.7%	5	2.8%	1.2%	3	2.4%	0.7%							
G48b	Transport, Postal and Warehousing	59	8.6%	10.4%	80	6.0%	14.2%	3	10.3%	0.5%	88	7.3%	15.6%	154	8.1%	27.3%	24	13.3%	4.2%	3	2.4%	0.5%							
G48b	Information Media and Telecommunications	8	1.2%	18.6%	6	0.4%	14.0%	0	0.0%	0.0%	6	0.5%	14.0%	13	0.7%	30.2%	0	0.0%	0.0%	0	0.0%	0.0%							
G48b	Financial and Insurance Services	7	1.0%	7.7%	23	1.7%	25.3%	0	0.0%																				



2016	Basic Community Profile File Name (Incl File Extension .xls or .xlsx): SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	GCP_SSC10301.xls			GCP_SSC11533.xls			GCP_SSC11898.xls			GCP_SSC12221.xls			GCP_SSC12514.xls			GCP_SSC12638.xls			GCP_SSC12813.xls		
		Beresfield			Fletcher			Hexham			Kurri Kurri			Maryland			Minmi			Mulbring		
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct
	Educational attainment:																					
G16	Completion of Year 12 (or equivalent)	755	28.8%	8.7%	1,924	52.7%	22.3%	19	16.8%	0.2%	1,170	23.6%	13.5%	2,376	39.3%	27.5%	202	35.3%	2.3%	135	27.7%	1.6%
B40b	Without post-school qualifications	2625	100.0%	10.7%	3650	100.0%	14.8%	113	100.0%	0.5%	4965	100.0%	20.2%	6051	100.0%	24.6%	572	100.0%	2.3%	487	100.0%	2.0%
	Educational institution attending:																					
G15	Total	814			1,815			31			1,685			2,329			235			183		
	Pre-school attending:																					
G15	Pre-school	70	8.6%		186	10.2%		0	0.0%		91	5.4%		166	7.1%		19	8.1%		5	2.7%	
	Infants/Primary education attending:																					
G15	Government	181	75.1%		396	58.9%		6	66.7%		392	84.8%		573	79.6%		63	80.8%		37	58.7%	
G15	Catholic	57	23.7%		106	15.8%		3	33.3%		43	9.3%		84	11.7%		4	5.1%		7	11.1%	
G15	Other Non Government	3	1.2%		173	25.7%		0	0.0%		26	5.6%		65	9.0%		8	10.3%		16	25.4%	
G15	Total	241	29.6%		672	37.0%		9	29.0%		462	27.4%		720	30.9%		78	33.2%		63	34.4%	
	Secondary education attending:																					
G15	Government	113	76.4%		264	61.7%		6	200.0%		306	86.0%		481	74.9%		52	76.5%		32	65.3%	
G15	Catholic	30	20.3%		44	10.3%		0	0.0%		23	6.5%		69	10.7%		3	4.4%		5	10.2%	
G15	Other Non Government	6	4.1%		119	27.8%		0	0.0%		24	6.7%		92	14.3%		9	13.2%		15	30.6%	
G15	Total	148	18.2%		428	23.6%		3	9.7%		356	21.1%		642	27.6%		68	28.9%		49	26.8%	
	Technical or Further Educational Institution(a):																					
G15	Full-time student:																					
G15	Aged 15-24 years	15	1.8%		11	0.6%		0	0.0%		19	1.1%		15	0.6%		5	2.1%		0	0.0%	
G15	Aged 25 years and over	9	1.1%		14	0.8%		0	0.0%		6	0.4%		18	0.8%		0	0.0%		0	0.0%	
G15	Part-time student:																					
G15	Aged 15-24 years	16	2.0%		26	1.4%		0	0.0%		44	2.6%		58	2.5%		15	6.4%		3	1.6%	
G15	Aged 25 years and over	31	3.8%		39	2.1%		0	0.0%		50	3.0%		46	2.0%		10	4.3%		3	1.6%	
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	#DIV/0!		3	2.4%		0	0.0%		0	0.0%		0	0.0%	
G15	Total	68	8.4%		84	4.6%		0	0.0%		126	7.5%		140	6.0%		32	13.6%		8	4.4%	
	University or other Tertiary Institution attending:																					
G15	Full-time student:																					
G15	Aged 15-24 years	30	3.7%		102	5.6%		0	0.0%		35	2.1%		141	6.1%		7	3.0%		4	2.2%	
G15	Aged 25 years and over	23	2.8%		48	2.6%		0	0.0%		20	1.2%		78	3.3%		10	4.3%		3	1.6%	
G15	Part-time student:																					
G15	Aged 15-24 years	12	1.5%		20	1.1%		0	0.0%		8	0.5%		33	1.4%		4	1.7%		3	1.6%	
G15	Aged 25 years and over	25	3.1%		76	4.2%		0	0.0%		37	2.2%		83	3.6%		3	1.3%		3	1.6%	
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	0.0%		0	0.0%		3	0.9%		0	0.0%		0	0.0%	
G15	Total	82	10.1%		243	13.4%		3	9.7%		110	6.5%		334	14.3%		22	9.4%		12	6.6%	
	Other type of educational institution attending:																					
G15	Full-time student	3	0.4%		6	0.3%		0	0.0%		4	0.2%		12	0.5%		0	0.0%		0	0.0%	
G15	Part-time student	15	1.8%		21	1.2%		0	0.0%		19	1.1%		32	1.4%		11	4.7%		0	0.0%	
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	#DIV/0!		0	0.0%		0	0.0%		0	0.0%		0	0.0%	
G15	Total	18	2.2%		22	1.2%		0	0.0%		26	1.5%		50	2.1%		10	4.3%		3	1.6%	
G15	Type of educational institution not stated	178	6.8%		175	4.8%		16	14.2%		521	10.5%		281	4.6%		13	2.3%		44	9.0%	
	Mobility:																					
B38	Lived at same address 1 year ago	2,497	78.5%		3,870	75.4%		99	76.2%		4,637	76.7%		6,411	83.3%		647	87.1%		489	81.9%	
B39	Lived at same address 5 years ago	1,846	58.0%	11.1%	1,844	35.9%	11.1%	81	62.3%	0.5%	3,203	53.0%	19.3%	4,695	61.0%	28.2%	502	67.6%	3.0%	362	60.6%	2.2%
	Transport:																					
G30	Households without a motor vehicle	91	7.4%	16.0%	16	1.1%	2.8%	0	0.0%	0.0%	183	8.4%	32.3%	62	2.4%	10.9%	3	1.3%	0.5%	6	3.1%	1.1%
G30	One motor vehicle	525	42.8%	14.3%	245	16.7%	6.7%	19	37.3%	0.5%	875	40.0%	23.9%	759	29.7%	20.7%	49	21.2%	1.3%	36	18.7%	1.0%
G30	Two motor vehicles	400	32.6%	9.4%	823	56.2%	19.4%	21	41.2%	0.5%	725	33.2%	17.1%	1,107	43.4%	26.1%	95	41.1%	2.2%	91	47.2%	2.1%
G30	Three motor vehicles	133	10.8%	9.0%	252	17.2%	17.0%	7	13.7%	0.5%	268	12.3%	18.1%	412	16.1%	27.8%	49	21.2%	3.3%	26	13.5%	1.8%
G30	Four or more motor vehicles	77	6.3%	9.7%	128	8.7%	16.2%	4	7.8%	0.5%	134	6.1%	17.0%	212	8.3%	26.8%	35	15.2%	4.4%	34	17.6%	4.3%
	Journey to work (by one method only):																					
B46	Train	31	2.9%	33.7%	10	0.4%	10.9%	0	0.0%	0.0%	11	0.6%	12.0%	19	0.6%	20.7%	0	0.0%	0.0%	3	1.4%	3.3%
B46	Bus	10	0.9%	6.9%	23	1.0%	15.9%	0	0.0%	0.0%	15	0.8%	10.3%	56	1.7%	38.6%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Ferry	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Tram (includes light rail)	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Taxi	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Car, as driver	878	80.8%	8.6%	2,027	88.6%	20.0%	28	82.4%	0.3%	1,681	86.1%	16.5%	2,849	86.9%	28.0%	283	87.9%	2.8%	189	87.1%	1.9%
B46	Car, as passenger	75	6.9%	10.9%	97	4.2%	14.0%	3	8.8%	0.4%	132	6.8%	19.1%	188	5.7%	27.2%	21	6.5%	3.0%	12	5.5%	1.7%
B46	Truck	14	1.3%	12.6%	8	0.3%	7.2%	3	8.8%	2.7%	17	0.9%	15.3%	25	0.8%	22.5%	3	0.9%	2.7%	3	1.4%	2.7%
B46	Motorbike/scooter	8	0.7%	9.0%	16	0.7%	18.0%	0	0.0%	0.0%	11	0.6%	12.4%	26	0.8%	29.2%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Bicycle	6	0.6%	15.8%	11	0.5%	28.9%	0	0.0%	0.0%	0	0.0%	0.0%	12	0.4%	31.6%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Other	9	0.8%	18.0%	11	0.5%	22.0%	0	0.0%	0.0%	6	0.3%	12.0%	17	0.5%	34.0%	0	0.0%	0.0%	0	0.0%	0.0%
B46	Walked only	33	3.0%	22.1%	13	0.6%	8.7%	0	0.0%	0.0%	44	2.3%	29.5%	22	0.7%	14.8%	5	1.6%	3.4%	0	0.0%	0.0%
B46	Worked at home	22	2.0%	7.8%	72	3.1%	25.4%	0	0.0%	0.0%	35	1.8%	12.4%	63	1.9%	22.3%	10	3.1%	3.5%	10	4.6%	3.5%
	Socio-Economic Indexes for Areas (SEIFA) 2011*:																					
Table 2	Index of Advantage/Disadvantage	901.1			1084.5			824.0			875.1			999.7			1084.5			1040.2		
Table 3	Index of Disadvantage	928.9			1077.8			818.0			896.0			1015.9			1077.8			1045.9		

\*Socio-Economic indexes for Areas (SEIFA) 2011 Census

2016	Basic Community Profile File Name (Incl File Extension .xls or .xlsx) SEIFA FILE	GCP_SSC13177.xls			GCP_SSC13511.xls			GCP_SSC13542.xls			GCP_SSC13647.xls			GCP_SSC13771.xls			Local Area	
	File Name (Incl File Extension .xls or .xlsx)	Pelaw Main			Seahampton			Shortland			Stanford Merthyr			Tarro				
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	%
	Population:																	
G04	Total Persons	1021	100.0%	3.3%	303	100.0%	1.0%	3905	100.0%	12.6%	552	100.0%	1.8%	1645	100.0%	5.3%	30,951	100.0%
	Age groups:																	
G04	0 to 4 years	58	5.7%	2.7%	31	10.2%	1.4%	247	6.3%	11.3%	49	8.9%	2.2%	105	6.4%	4.8%	2,182	7.0%
G04	5 to 11 years	105	10.3%	3.5%	27	8.9%	0.9%	291	7.5%	9.8%	36	6.5%	1.2%	134	8.1%	4.5%	2,980	9.6%
G04	12 to 17 years	74	7.2%	3.1%	26	8.6%	1.1%	206	5.3%	8.7%	19	3.4%	0.8%	91	5.5%	3.8%	2,380	7.7%
G04	18 to 24 years	74	7.2%	2.5%	18	5.9%	0.6%	598	15.3%	19.9%	51	9.2%	1.7%	121	7.4%	4.0%	3,011	9.7%
G04	25 to 34 years	117	11.5%	2.8%	44	14.5%	1.0%	684	17.5%	16.3%	59	10.7%	1.4%	185	11.2%	4.4%	4,193	13.5%
G04	35 to 49 years	195	19.1%	3.2%	65	21.5%	1.1%	606	15.5%	9.8%	91	16.5%	1.5%	267	16.2%	4.3%	6,161	19.9%
G04	50 to 59 years	131	12.8%	3.6%	40	13.2%	1.1%	409	10.5%	11.1%	70	12.7%	1.9%	210	12.8%	5.7%	3,686	11.9%
G04	60 to 69 years	149	14.6%	4.6%	30	9.9%	0.9%	362	9.3%	11.1%	94	17.0%	2.9%	246	15.0%	7.5%	3,259	10.5%
G04	70 to 84 years	102	10.0%	4.0%	7	2.3%	0.3%	410	10.5%	16.1%	55	10.0%	2.2%	236	14.3%	9.3%	2,542	8.2%
G04	85 and over years	7	0.7%	1.3%	0	0.0%	0.0%	86	2.2%	16.6%	9	1.6%	1.7%	40	2.4%	7.7%	519	1.7%
G04	Under 18 years	237	23.2%	3.1%	84	27.7%	1.1%	744	19.1%	9.9%	104	18.8%	1.4%	330	20.1%	4.4%	7,542	24.4%
G04	15 years and over	827	81.0%	3.4%	225	74.3%	0.9%	3267	83.7%	13.3%	452	81.9%	1.8%	1373	83.5%	5.6%	24,607	79.5%
G02	Median Age (years)	41			35			33			43			45			37	
	Cultural Diversity:																	
G01a	Indigenous persons	78	7.6%	4.5%	14	4.6%	0.8%	190	4.9%	10.9%	28	5.1%	1.6%	84	5.1%	4.8%	1,749	5.7%
G09e/ G09f	Persons born in Non Main English Speaking countries	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	-	0.0%
G13f	Language spoken at home other than English	24	2.4%		5	1.7%		519	13.3%		4	0.7%		54	3.3%		2,377	7.7%
G13e	Speaks English Only	962	94.2%		282	93.1%		3252	83.3%		514	93.1%		1490	90.6%		27,201	87.9%
G11c	Speaks other language and speaks English very well or well	22	2.2%		5	1.7%		366	9.4%		3	0.5%		13	0.8%		1,485	4.8%
	Household Characteristics:																	
G31	Family households	273	67.9%	3.3%	84	84.0%	1.0%	952	60.8%	11.7%	156	70.6%	1.9%	446	68.1%	5.5%	8,159	73.5%
G31	Lone person household	119	29.6%	4.6%	16	16.0%	0.6%	464	29.6%	18.0%	62	28.1%	2.4%	190	29.0%	7.4%	2,572	23.2%
G31	Group household	10	2.5%	2.7%	0	0.0%	0.0%	149	9.5%	39.7%	3	1.4%	0.8%	19	2.9%	5.1%	375	3.4%
G02	Average household size (number of persons)	2.4			2.7			2.4			2.3			2.4			2.7	
	Family Characteristics:																	
G25	Total families	272		3.3%	89		1.1%	967		11.6%	163		2.0%	451		5.4%	8,358	
G25	Couple family with children	104	38.2%	2.8%	38	42.7%	1.0%	351	36.3%	9.4%	47	28.8%	1.3%	162	35.9%	4.4%	3,722	44.5%
G25	Couple with children under 15 years	67	24.6%	2.6%	30	33.7%	1.2%	248	25.6%	9.7%	28	17.2%	1.1%	103	22.8%	4.0%	2,561	30.6%
G25	Couple with children over 15 years	34	12.5%	2.9%	13	14.6%	1.1%	103	10.7%	8.8%	18	11.0%	1.5%	60	13.3%	5.1%	1,176	14.1%
G25	Couple family without children	108	39.7%	3.8%	32	36.0%	1.1%	375	38.8%	13.0%	67	41.1%	2.3%	200	44.3%	7.0%	2,875	34.4%
G25	One parent family	57	21.0%	3.5%	17	19.1%	1.0%	218	22.5%	13.4%	37	22.7%	2.3%	87	19.3%	5.4%	1,623	19.4%
G25	One parent with children under 15 years	33	57.9%	3.8%	11	64.7%	1.3%	113	51.8%	13.1%	16	43.2%	1.9%	43	49.4%	5.0%	863	53.2%
G25	One parent with children over 15 years	24	42.1%	3.2%	9	52.9%	1.2%	106	48.6%	14.1%	21	56.8%	2.8%	40	46.0%	5.3%	751	46.3%
G25	Other family	3	1.1%	2.2%	0	0.0%	0.0%	27	2.8%	19.9%	4	2.5%	2.9%	3	0.7%	2.2%	136	1.6%
	Other characteristics:																	
G18	Need for assistance	100	9.8%	5.1%	10	3.3%	0.5%	228	5.8%	11.6%	37	6.7%	1.9%	148	9.0%	7.5%	1,972	6.4%
	Dwellings:																	
G32	Separate House	361	81.1%	3.7%	102	93.6%	1.0%	1,222	72.1%	12.4%	205	90.3%	2.1%	616	87.5%	6.2%	9,883	82.9%
G32	Semi-detached, terrace house, townhouse	14	3.1%	1.4%	0	0.0%	0.0%	305	18.0%	30.7%	5	2.2%	0.5%	40	5.7%	4.0%	994	8.3%
G32	Flat, unit or apartment	17	3.8%	9.8%	0	0.0%	0.0%	23	1.4%	13.2%	7	3.1%	4.0%	0	0.0%	0.0%	174	1.5%
G32	Other dwellings	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	3	0.4%	50.0%	6	0.1%
G32	Not stated	0	0.0%	0.0%	0	0.0%	0.0%	12	0.7%	36.4%	0	0.0%	0.0%	0	0.0%	0.0%	33	0.3%
G32	Total occupied private dwellings	398	89.4%	3.6%	102	93.6%	0.9%	1561	92.1%	14.1%	221	97.4%	2.0%	655	93.0%	5.9%	11,108	93.1%
G32	Unoccupied private dwellings	47	10.6%	5.7%	7	6.4%	0.9%	134	7.9%	16.4%	6	2.6%	0.7%	49	7.0%	6.0%	819	6.9%
	Tenure Type:																	
G33	Fully owned	142	37.3%	4.1%	25	24.5%	0.7%	475	31.6%	13.7%	95	44.2%	2.7%	311	48.1%	9.0%	3,468	32.1%
G33	Owned with a mortgage	125	32.8%	2.8%	63	61.8%	1.4%	488	32.4%	11.1%	85	39.5%	1.9%	197	30.4%	4.5%	4,401	40.7%
G33	Rented (Total):	114	29.9%	3.9%	14	13.7%	0.5%	541	36.0%	18.4%	35	16.3%	1.2%	139	21.5%	4.7%	2,936	27.2%
G33	Real estate agent	73	64.0%	4.0%	6	42.9%	0.3%	301	55.6%	16.5%	23	65.7%	1.3%	68	48.9%	3.7%	1,827	62.2%
G33	State or territory housing authority	11	9.6%	0.0%	0	0.0%	0.0%	83	15.3%	0.0%	3	8.6%	0.0%	17	12.2%	0.0%	324	11.0%
G33	Person not in same household	30	26.3%	0.0%	3	21.4%	0.0%	123	22.7%	0.0%	6	17.1%	0.0%	33	23.7%	0.0%	586	20.0%
G33	Housing co- operative/community/church group	0	0.0%	0.0%	0	0.0%	0.0%	23	4.3%	0.0%	0	0.0%	0.0%	6	4.3%	0.0%	64	2.2%
G33	Other landlord type	0	0.0%	0.0%	0	0.0%	0.0%	13	2.4%	0.0%	0	0.0%	0.0%	9	6.5%	0.0%	83	2.8%
G33	Landlord type not stated	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	4	11.4%	0.0%	0	0.0%	0.0%	34	1.2%
G33	Other Tenure Type	4	3.5%	8.5%	0	0.0%	0.0%	16	3.0%	34.0%	0	0.0%	0.0%	0	0.0%	0.0%	47	1.6%
G33	Not stated	12	10.5%	4.5%	0	0.0%	0.0%	49	9.1%	18.6%	6	17.1%	2.3%	11	7.9%	4.2%	264	9.0%
	Individual Income:																	
G02	Median Individual Income (Weekly)	486			640			497			518			506			602	
G17b	Negative/Nil Income	55	6.8%		21	9.7%		297	9.1%		23	5.1%		91	6.7%		2,150	8.7%
G17b	\$1-\$149	23	2.8%		9	4.2%		108	3.3%		19	4.2%		49	3.6%		984	4.0%
G17b	\$150-\$299	96	11.8%		14	6.5%		335	10.3%		42	9.3%		129	9.5%		1,972	8.0%
G17b	\$300-\$399	124	15.3%		21	9.7%		421	12.9%		73	16.2%		211	15.5%		2,707	11.0%

2016	Basic Community Profile	GCP_SSC13177.xls				GCP_SSC13511.xls				GCP_SSC13542.xls				GCP_SSC13647.xls				GCP_SSC13771.xls				Local Area
	File Name (Incl File Extension .xls or .xlsx)																					
	SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	Pelaw Main				Seahampton				Shortland				Stanford Merthyr				Tarro				
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	%	
G17b	\$400-\$499	88	10.8%		18	8.3%		397	12.2%		45	10.0%		147	10.8%		2,481	10.1%				
G17b	\$500-\$649	72	8.9%		15	6.9%		299	9.2%		50	11.1%		125	9.2%		2,100	8.5%				
G17b	\$650-\$799	67	8.2%		23	10.6%		269	8.2%		43	9.5%		128	9.4%		2,089	8.4%				
G17b	\$800-\$999	66	8.1%		15	6.9%		274	8.4%		26	5.8%		126	9.2%		2,184	8.9%				
G17b	\$1,000-\$1,249	66	8.1%		19	8.8%		299	9.2%		29	6.4%		96	7.0%		2,108	8.6%				
G17b	\$1,250-\$1,499	40	4.9%		9	4.2%		157	4.8%		28	6.2%		61	4.5%		1,297	5.3%				
G17b	\$1,500-\$1,749	18	2.2%		10	4.6%		104	3.2%		15	3.3%		41	3.0%		996	4.1%				
G17b	\$1,750-\$1,999	14	1.7%		3	1.4%		57	1.7%		7	1.5%		28	2.1%		690	2.8%				
G17b	\$2,000-\$2,999	14	1.7%		15	6.9%		62	1.9%		10	2.2%		24	1.8%		935	3.8%				
G17b	\$3,000 or more	9	1.1%		7	3.2%		14	0.4%		4	0.9%		6	0.4%		263	1.1%				
G17b	Individual income not stated	61	7.5%		17	7.9%		171	5.2%		38	8.4%		101	7.4%		1,616	6.6%				
Household Income:																						
G02	Median Household income (\$/weekly)	989			1,458			1,038			1,091			975			1,376					
G29	Negative/Nil income	5	1.3%		0	0.0%		36	2.3%		0	0.0%		6	0.9%		146	1.3%				
G29	\$1-\$149	0	0.0%		0	0.0%		8	0.5%		0	0.0%		3	0.5%		36	0.3%				
G29	\$150-\$299	15	3.8%		3	2.9%		44	2.8%		7	3.2%		7	1.1%		233	2.1%				
G29	\$300-\$399	15	3.8%		3	2.9%		64	4.1%		11	5.1%		16	2.5%		306	2.8%				
G29	\$400-\$499	39	9.8%		3	2.9%		155	9.9%		12	5.6%		92	14.2%		863	7.8%				
G29	\$500-\$649	25	6.3%		7	6.8%		84	5.4%		13	6.0%		40	6.2%		539	4.9%				
G29	\$650-\$799	44	11.1%		5	4.9%		167	10.7%		22	10.2%		88	13.6%		986	8.9%				
G29	\$800-\$999	37	9.3%		10	9.7%		132	8.4%		20	9.3%		54	8.3%		845	7.6%				
G29	\$1,000-\$1,249	34	8.5%		3	2.9%		143	9.1%		22	10.2%		61	9.4%		911	8.2%				
G29	\$1,250-\$1,499	31	7.8%		13	12.6%		113	7.2%		19	8.8%		62	9.6%		855	7.7%				
G29	\$1,500-\$1,749	26	6.5%		12	11.7%		109	7.0%		11	5.1%		35	5.4%		708	6.4%				
G29	\$1,750-\$1,999	28	7.0%		3	2.9%		78	5.0%		11	5.1%		39	6.0%		694	6.2%				
G29	\$2,000-\$2,499	26	6.5%		12	11.7%		150	9.6%		23	10.6%		38	5.9%		1,171	10.5%				
G29	\$2,500-\$2,999	14	3.5%		9	8.7%		75	4.8%		7	3.2%		23	3.5%		732	6.6%				
G29	\$3,000-\$3,499	4	1.0%		5	4.9%		38	2.4%		8	3.7%		15	2.3%		439	4.0%				
G29	\$3,500-\$3,999	3	0.8%		3	2.9%		17	1.1%		5	2.3%		6	0.9%		248	2.2%				
G29	\$4,000 or more	10	2.5%		0	0.0%		12	0.8%		3	1.4%		10	1.5%		315	2.8%				
G29	Partial income stated(c)	26	6.5%		12	11.7%		98	6.3%		10	4.6%		35	5.4%		788	7.1%				
G29	All incomes not stated(d)	16	4.0%		0	0.0%		44	2.8%		12	5.6%		18	2.8%		291	2.6%				
Labour Force:																						
G40	Labour force participation	427	51.6%	2.9%	155	68.9%	1.1%	1,784	54.6%	12.1%	248	54.9%	1.7%	707	51.5%	4.8%	14,684	59.7%				
G40	Total employed	385	90.2%		147	94.8%		1,635	91.6%		223	89.9%		635	89.8%		13,545	92.2%				
G40	Employed full-time	223	57.9%		92	62.6%		952	58.2%		117	52.5%		379	59.7%		8,271	61.1%				
G40	Employed part-time	142	36.9%		50	34.0%		593	36.3%		97	43.5%		211	33.2%		4,550	33.6%				
G40	Unemployed persons	36	8.4%	3.2%	11	7.1%	1.0%	156	8.7%	13.8%	23	9.3%	2.0%	65	9.2%	5.7%	1,131	7.7%				
G40	Not in labour force	361	43.7%		61	27.1%		1,363	41.7%		178	39.4%		583	42.5%		8,791	35.7%				
Occupation:																						
G48a	Managers	20	5.0%	2.0%	14	9.0%	1.4%	99	6.1%	10.0%	15	6.6%	1.5%	43	6.7%	4.3%	989	7.3%				
G48a	Professionals	28	7.1%	1.4%	25	16.1%	1.2%	262	16.1%	13.0%	15	6.6%	0.7%	52	8.1%	2.6%	2,014	14.9%				
G48a	Technicians and trades	94	23.7%	4.0%	30	19.4%	1.3%	269	16.5%	11.4%	46	20.1%	1.9%	102	15.9%	4.3%	2,359	17.4%				
G48a	Community and personal service	50	12.6%	3.2%	12	7.7%	0.8%	209	12.8%	13.2%	30	13.1%	1.9%	67	10.5%	4.2%	1,581	11.7%				
G48a	Clerical and administrative	35	8.8%	2.0%	17	11.0%	0.9%	193	11.8%	10.8%	23	10.0%	1.3%	72	11.2%	4.0%	1,792	13.2%				
G48a	Sales	42	10.6%	3.0%	15	9.7%	1.1%	189	11.6%	13.5%	25	10.9%	1.8%	76	11.9%	5.4%	1,401	10.3%				
G48a	Machinery operators and drivers	50	12.6%	3.7%	23	14.8%	1.7%	159	9.7%	11.8%	34	14.8%	2.5%	97	15.1%	7.2%	1,353	10.0%				
G48a	Labourers	70	17.6%	3.8%	14	9.0%	0.8%	228	14.0%	12.3%	37	16.2%	2.0%	122	19.0%	6.6%	1,847	13.6%				
G48a	Not Stated	8	2.0%	3.6%	5	3.2%	2.2%	24	1.5%	10.7%	4	1.7%	1.8%	10	1.6%	4.4%	225	1.7%				
Key Industry:																						
G48b	Agriculture, Forestry and Fishing	3	1.4%	3.3%	0	0.0%	0.0%	5	0.6%	5.6%	4	3.5%	4.4%	9	2.6%	10.0%	90	1.3%				
G48b	Mining	19	8.6%	4.6%	11	17.2%	2.7%	25	2.9%	6.0%	20	17.7%	4.8%	14	4.1%	3.4%	414	5.9%				
G48b	Manufacturing	43	19.4%	4.5%	7	10.9%	0.7%	105	12.0%	10.9%	19	16.8%	2.0%	62	18.2%	6.5%	959	13.6%				
G48b	Electricity, Gas, Water and Waste Services	9	4.1%	4.9%	0	0.0%	0.0%	22	2.5%	12.0%	3	2.7%	1.6%	9	2.6%	4.9%	184	2.6%				
G48b	Construction	34	15.3%	3.3%	15	23.4%	1.4%	139	15.9%	13.4%	17	15.0%	1.6%	41	12.0%	3.9%	1,040	14.7%				
G48b	Wholesale Trade	8	3.6%	3.2%	0	0.0%	0.0%	17	1.9%	6.9%	8	7.1%	3.2%	10	2.9%	4.0%	248	3.5%				
G48b	Retail Trade	20	9.0%	3.6%	3	4.7%	0.5%	94	10.8%	17.0%	10	8.8%	1.8%	25	7.3%	4.5%	552	7.8%				
G48b	Accommodation and Food Services	15	6.8%	3.7%	3	4.7%	0.7%	54	6.2%	13.5%	10	8.8%	2.5%	26	7.6%	6.5%	401	5.7%				
G48b	Transport, Postal and Warehousing	19	8.6%	3.4%	5	7.8%	0.9%	78	8.9%	13.8%	3	2.7%	0.5%	49	14.4%	8.7%	565	8.0%				
G48b	Information Media and Telecommunications	0	0.0%	0.0%	0	0.0%	0.0%	10	1.1%	23.3%	0	0.0%	0.0%	0	0.0%	0.0%	43	0.6%				
G48b	Financial and Insurance Services	0	0.0%	0.0%	0	0.0%	0.0%	19	2.2%	20.9%	0	0.0%	0.0%	7	2.1%	7.7%	91	1.3%				
G48b	Rental, Hiring and Real Estate Services	0	0.0%	0.0%	0	0.0%	0.0%	4	0.5%	5.7%	0	0.0%	0.0%	5	1.5%	7.1%	70	1.0%				
G48b	Professional, Scientific and Technical Services	3	1.4%	0.9%	3	4.7%	0.9%	43	4.9%	13.6%	3	2.7%	0.9%	7	2.1%	2.2%	316	4.5%				
G48b	Administrative and Support Services	9	4.1%	4.5%	3	4.7%	1.5%	23	2.6%	11.4%	3	2.7%	1.5%	7	2.1%	3.5%	201	2.8%				
G48b	Public Administration and Safety	12	5.4%	2.9%	3	4.7%	0.7%	40	4.6%	9.6%	6	5.3%	1.4%	12	3.5%	2.9%	416	5.9%				
G48b	Education and Training	4	1.8%	1.5%	0	0.0%	0.0%	37	4.2%	13.5%	0	0.0%	0.0%	5	1.5%	1.8%	275	3.9%				
G48b	Health Care and Social Assistance	4	1.8%	1.0%	0	0.0%	0.0%	46	5.3%	12.1%	0	0.0%	0.0%	10	2.9%	2.6%	381	5.4%				
G48b	Arts and Recreation Services	3	1.4%	4.0%	0	0.0%	0.0%	10	1.1%	13.3%	0	0.0%	0.0%	3	0.9%	4.0%	75	1.1%				
G48b	Other Services	9	4.1%	2.1%	7	10.9%	1.6%	59	6.8%	13.8%	4	3.5%	0.9%	27	7.9%	6.3%	426	6.0%				
G48b	Inadequately described/Not stated	8	3.6%	2.5%	4	6.3%	1.2%	43	4.9%	13.2%	3	2.7%	0.9%	13	3.8%	4.0%	326	4.6%				

Basic Community Profile		GCP_SSC13177.xls				GCP_SSC13511.xls				GCP_SSC13542.xls				GCP_SSC13647.xls				GCP_SSC13771.xls				Local Area	
2016	File Name (Incl File Extension .xls or .xlsx)																						
	SEIFA FILE: File Name (Incl File Extension .xls or .xlsx)	Pelaw Main				Seahampton				Shortland				Stanford Merthyr				Tarro					
		No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	% Within File	% Of Precinct	No	%		
	Educational attainment:																						
G16	Completion of Year 12 (or equivalent)	203	24.5%	2.3%	65	28.9%	0.8%	1,377	42.1%	15.9%	95	21.0%	1.1%	325	23.7%	3.8%	8,646	35.1%					
B40b	Without post-school qualifications	827	100.0%	3.4%	225	100.0%	0.9%	3267	100.0%	13.3%	452	100.0%	1.8%	1373	100.0%	5.6%	24,607	100.0%					
	Educational institution attending:																						
G15	Total	252			91			1,255			124			395						9,209			
	Pre-school attending:																						
G15	Pre-school	11	4.4%		10	11.0%		62	25.1%		4	3.2%		35	8.9%					659	7.2%		
	Infants/Primary education attending:																						
G15	Government	75	83.3%		25	96.2%		201	77.3%		33	86.8%		101	87.8%					2,083	75.1%		
G15	Catholic	9	10.0%		0	0.0%		43	16.5%		9	23.7%		9	7.8%					374	13.5%		
G15	Other Non Government	8	8.9%		0	0.0%		12	4.6%		0	0.0%		7	6.1%					318	11.5%		
G15	Total	90	35.7%		26	28.6%		260	20.7%		38	30.6%		115	29.1%					2,774	30.1%		
	Secondary education attending:																						
G15	Government	53	85.5%		22	81.5%		160	84.2%		19	73.1%		64	85.3%					1,572	75.8%		
G15	Catholic	3	4.8%		3	11.1%		20	10.5%		3	11.5%		10	13.3%					213	10.3%		
G15	Other Non Government	6	9.7%		3	11.1%		10	5.3%		0	0.0%		3	4.0%					287	13.8%		
G15	Total	62	24.6%		27	29.7%		190	15.1%		26	21.0%		75	19.0%					2,074	22.5%		
	Technical or Further Educational Institution(a):																						
G15	Full-time student:																			-			
G15	Aged 15-24 years	0	0.0%		0	0.0%		17	1.4%		0	0.0%		3	0.8%					85	0.9%		
G15	Aged 25 years and over	0	0.0%		0	0.0%		14	1.1%		0	0.0%		3	0.8%					64	0.7%		
G15	Part-time student:																			-			
G15	Aged 15-24 years	7	2.8%		0	0.0%		36	2.9%		3	2.4%		11	2.8%					219	2.4%		
G15	Aged 25 years and over	7	2.8%		6	6.6%		37	2.9%		4	3.2%		14	3.5%					247	2.7%		
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	0.0%		0	0.0%		0	0.0%					3	0.0%		
G15	Total	16	6.3%		8	8.8%		101	8.0%		3	2.4%		33	8.4%					619	6.7%		
	University or other Tertiary institution attending:																						
G15	Full-time student:																			-			
G15	Aged 15-24 years	3	1.2%		0	0.0%		236	18.8%		3	2.4%		12	3.0%					573	6.2%		
G15	Aged 25 years and over	3	1.2%		0	0.0%		120	9.6%		5	4.0%		4	1.0%					314	3.4%		
G15	Part-time student:																			-			
G15	Aged 15-24 years	4	1.6%		0	0.0%		32	2.5%		0	0.0%		3	0.8%					119	1.3%		
G15	Aged 25 years and over	6	2.4%		4	4.4%		43	3.4%		3	2.4%		11	2.8%					294	3.2%		
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	0.0%		0	0.0%		0	0.0%					3	0.2%		
G15	Total	14	5.6%		4	4.4%		433	34.5%		7	5.6%		24	6.1%					1,288	14.0%		
	Other type of educational institution attending:																						
G15	Full-time student	0	0.0%		0	0.0%		6	0.5%		0	0.0%		3	0.8%					34	0.4%		
G15	Part-time student	0	0.0%		4	4.4%		8	0.6%		0	0.0%		9	2.3%					119	1.3%		
G15	Full/Part-time student status not stated	0	0.0%		0	0.0%		0	0.0%		0	0.0%		0	0.0%					-	0.0%		
G15	Total	4	1.6%		4	4.4%		16	1.3%		3	2.4%		9	2.3%					165	1.8%		
G15	Type of educational institution not stated	57	6.9%		22	9.8%		193	5.9%		41	9.1%		105	7.6%					1,646	6.7%		
	Mobility:																						
B38	Lived at same address 1 year ago	823	80.6%		243	80.2%		2,936	75.2%		453	82.1%		1,359	82.6%					24,464	79.0%		
B39	Lived at same address 5 years ago	623	61.0%	3.7%	180	59.4%	1.1%	1,951	50.0%	11.7%	346	62.7%	2.1%	996	60.5%	6.0%	16,629	53.7%					
	Transport:																						
G30	Households without a motor vehicle	25	6.5%	4.4%	3	2.8%	0.5%	136	9.0%	24.0%	10	4.8%	1.8%	32	5.1%	5.6%	567	5.3%					
G30	One motor vehicle	147	38.2%	4.0%	30	28.0%	0.8%	615	40.5%	16.8%	75	36.1%	2.0%	293	46.5%	8.0%	3,668	34.1%					
G30	Two motor vehicles	143	37.1%	3.4%	43	40.2%	1.0%	524	34.5%	12.3%	73	35.1%	1.7%	199	31.6%	4.7%	4,244	39.5%					
G30	Three motor vehicles	47	12.2%	3.2%	18	16.8%	1.2%	167	11.0%	11.3%	36	17.3%	2.4%	67	10.6%	4.5%	1,482	13.8%					
G30	Four or more motor vehicles	23	6.0%	2.9%	13	12.1%	1.6%	77	5.1%	9.7%	14	6.7%	1.8%	39	6.2%	4.9%	790	7.3%					
	Journey to work (by one method only):																						
B46	Train	0	0.0%	0.0%	0	0.0%	0.0%	9	0.8%	9.8%	0	0.0%	0.0%	9	1.6%	9.8%	92	0.8%					
B46	Bus	3	0.9%	2.1%	0	0.0%	0.0%	35	2.5%	24.1%	0	0.0%	0.0%	3	0.5%	2.1%	145	1.2%					
B46	Ferry	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	-	0.0%					
B46	Tram (includes light rail)	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	-	0.0%					
B46	Taxi	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%	-	0.0%					
B46	Car, as driver	269	81.3%	2.6%	113	84.3%	1.1%	1,183	84.0%	11.6%	174	88.3%	1.7%	484	86.4%	4.8%	10,158	86.0%					
B46	Car, as passenger	24	7.3%	3.5%	9	6.7%	1.3%	82	5.8%	11.9%	11	5.6%	1.6%	37	6.6%	5.4%	691	5.9%					
B46	Truck	12	3.6%	10.8%	0	0.0%	0.0%	17	1.2%	15.3%	0	0.0%	0.0%	9	1.6%	8.1%	111	0.9%					
B46	Motorbike/scooter	0	0.0%	0.0%	3	2.2%	3.4%	22	1.6%	24.7%	0	0.0%	0.0%	3	0.5%	3.4%	89	0.8%					
B46	Bicycle	0	0.0%	0.0%	0	0.0%	0.0%	5	0.4%	13.2%	0	0.0%	0.0%	4	0.7%	10.5%	38	0.3%					
B46	Other	3	0.9%	6.0%	0	0.0%	0.0%	4	0.3%	8.0%	0	0.0%	0.0%	0	0.0%	0.0%	50	0.4%					
B46	Walked at home	9	2.7%	6.0%	0	0.0%	0.0%	17	1.2%	11.4%	3	1.5%	2.0%	3	0.5%	2.0%	149	1.3%					
B46	Worked at home	11	3.3%	3.9%	9	6.7%	3.2%	34	2.4%	12.0%	9	4.6%	3.2%	8	1.4%	2.8%	283	2.4%					
	Socio-Economic Indexes for Areas (SEIFA) 2011*:																						
Table 2	Index of Advantage/Disadvantage	883.0			N/A			925.9			907.0			901.1									
Table 3	Index of Disadvantage	901.0			N/A			945.5			928.0			928.9									
*Socio-Economic Indexes for Areas (SEIFA) 2011 Census																							

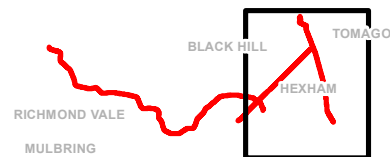
## Appendix B – Local social infrastructure



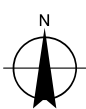


#### LEGEND

- Suburb boundary
- Proposed route
- Childcare
- Commercial
- Education
- Health
- Parkland



Paper Size A4  
0 300 600 900 1,200  
Metres  
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment  
Social Infrastructure  
sheet 1 of 3

Job Number 22-18317  
Revision 0  
Date 12 Mar 2019

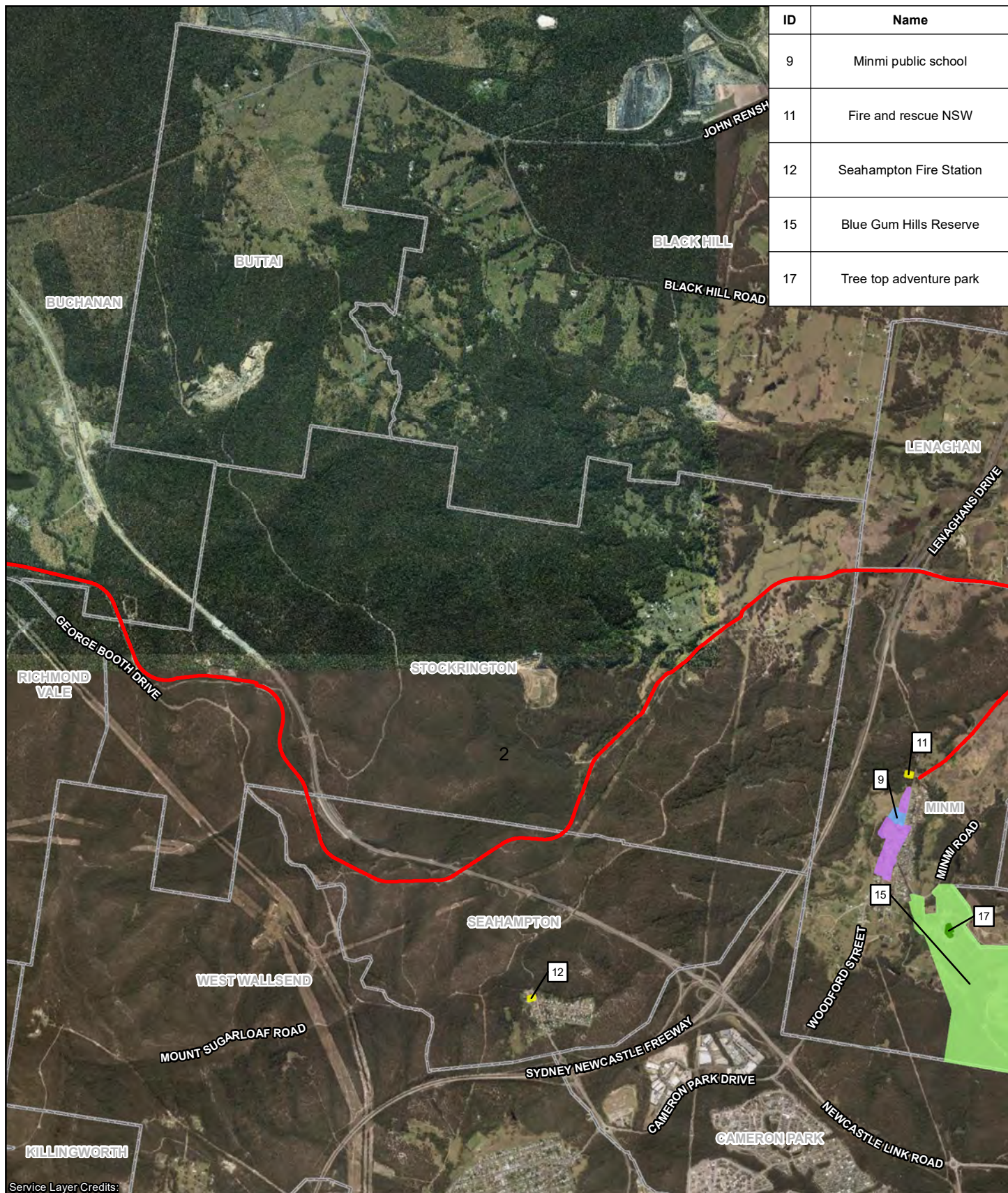
Figure B-1a

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntmail@ghd.com W www.ghd.com.au  
G:\22\18317\GIS\Maps\Deliverables\SEIA\2218317\_SEIA004\_SocialInfrastructure\_DDP\_A4P\_0.mxd

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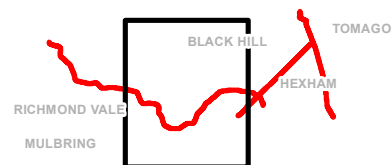
Data source: LPI: DTDB / DCDB, 2012, Aerial Imagery, 2016. Created by: fmacKay



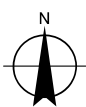


#### LEGEND

- Suburb boundary
- Proposed route
- Emergency
- Parkland
- Commercial
- Sport
- Education



Paper Size A4  
 0 300 600 900 1,200  
 Metres  
 Map Projection: Transverse Mercator  
 Horizontal Datum: GDA 1994  
 Grid: GDA 1994 MGA Zone 56



Newcastle City Council  
 Richmond Vale Rail Trail  
 SocioEconomic Impact Assessment  
**Social Infrastructure**  
 sheet 2 of 3

Job Number 22-18317  
 Revision 0  
 Date 12 Mar 2019

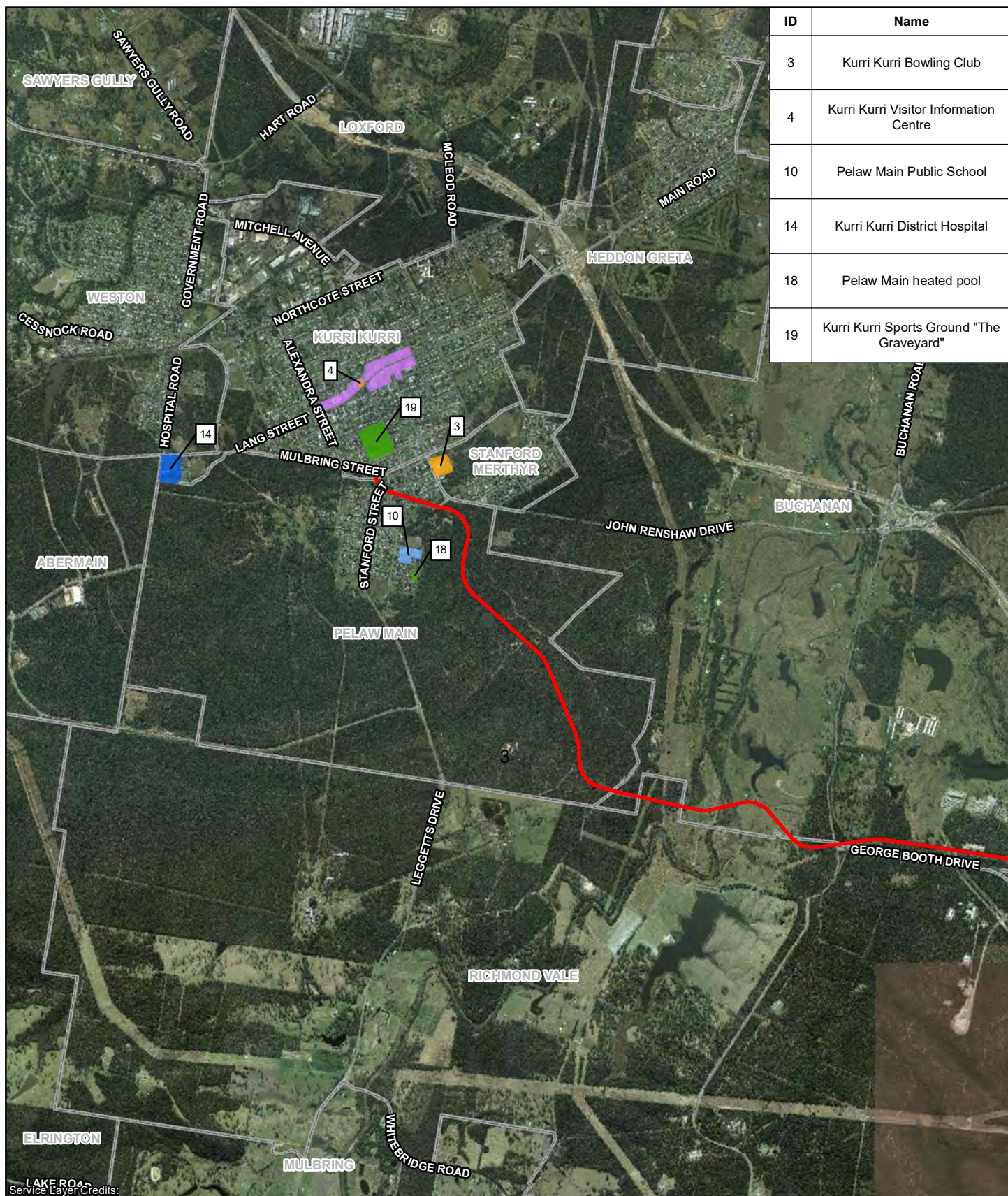
**Figure B-1b**

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E ntmail@ghd.com W www.ghd.com.au

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Data source: LPI: DTDB / DCDB, 2012, Aerial Imagery, 2016. Created by: fmackay

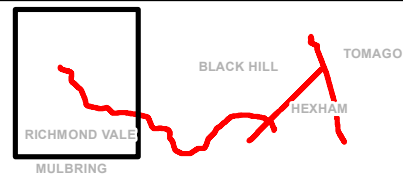




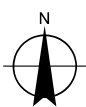
ID	Name
3	Kurri Kurri Bowling Club
4	Kurri Kurri Visitor Information Centre
10	Pelaw Main Public School
14	Kurri Kurri District Hospital
18	Pelaw Main heated pool
19	Kurri Kurri Sports Ground "The Graveyard"

#### LEGEND

- Suburb boundary
- Proposed route
- Commercial
- Community
- Education
- Health
- Sport



Paper Size A4  
0 300 600 900 1,200  
Metres  
Map Projection: Transverse Mercator  
Horizontal Datum: GDA 1994  
Grid: GDA 1994 MGA Zone 56



Newcastle City Council  
Richmond Vale Rail Trail  
SocioEconomic Impact Assessment  
Social Infrastructure  
sheet 3 of 3

Job Number 22-18317  
Revision 0  
Date 12 Mar 2019

Figure B-1c

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Data source: LPI: DTDB / DCDB, 2012, Aerial Imagery, 2016. Created by: fmackay



## Appendix C – Community facilities

Category	Name	Address	Description
<b>Maryland</b>			
Education	Maryland Public School	51 John T Bell Dr, Maryland NSW 2287	Coeducational school catering for years K-6. Consisted of roughly 32 staff and 461 students in 2017.
Child care	Maryland care and early education centre	34-36 Boundary Road, Maryland NSW 2287	52 permanent place long day care centre. Operating between 7.30 am to 5.45 pm weekdays.
Child care	Maryland Drive Preschool	179 Maryland Dr, Maryland NSW 2287	Long day care services for children up to school age. Operating Monday to Friday - 8:30 am to 4:30 pm.
Community	Maryland neighbourhood centre	207 Maryland Dr, Maryland NSW 2287	Daily events and classes including services such as psychology, physio, tax assistance, tutoring and IT workshops. Onsite parking available.
Education	Glendore Public School	299 Maryland Dr, Maryland NSW 2287	Coeducational school catering for years K-6. Consisted of roughly 33 staff and 531 students in 2017.
Child care	Glendore Childcare centre	4-8 Glendore Parade, Maryland NSW 2287	48 permanent place catering for years 0 – 6. Operating hours Monday to Friday 7:00 am – 6:00 pm.
Child care	Kindy Patch Maryland	350 Maryland Dr, Maryland NSW 2287	Catering for years 0 – 6. Operating hours Monday to Friday 7:00 am – 6:00 pm.
Religion	New Vine Baptist church	340 Maryland Dr, Maryland NSW 2287	Regular events help including markets and youth events.
<b>Fletcher</b>			
Waste	Summerhill Waste Management centre	141 Minmi Rd, Wallsend NSW 2287	Waste landfill management centre accessed from Minmi Road only. Newcastle City Council facility.
Retail	Fletcher village shopping centre	Cnr Churnwood Dr And Minmi Road, Minmi Rd, Fletcher NSW 2287	Retail shopping precinct including 217 car parks and specialty stores across nearly 5000 metres square. Was opened in 2013.
Pets	Fletcher veterinary practice	4 Beech Close, Fletcher NSW 2287	Animal hospital closed Sunday consisting of roughly 12 staff.

Category	Name	Address	Description
Education	Bishop Tyrrell Anglican College	256 Minmi Rd, Fletcher NSW 2287	Coeducational school catering for years Pre-school – 12 with after School Care programs. Consisted of roughly 73 staff and 766 students in 2017. Operating weekdays 6.30 am to 8.30 am and 3.00 pm to 6.00 pm.
Community	Fletcher community centre	55 Kurraka Dr, Fletcher NSW 2287	Community facility with services Including oval, netball courts, off street parking, playground, cricket potch, tennis courts.
Parkland	Wentworth Creek		Reserve
Parkland	Blue Gum Hills		Reserve
Stockrington			
Community	Pambalong Nature Reserve		Reserve
Community	Stockrington State Conservation Area		Reserve
Minmi			
Emergency	Fire and rescue NSW	Woodford St, Minmi NSW 2287	Emergency services accessed from Woodford Street only.
Education	Minmi public school	56 Woodford St, Minmi NSW 2287	Coeducational school catering for years K-6. Consisted of roughly eight staff and 102 students in 2017.
Religion	Coptic Orthodox Church of St Mary and St George	21 Church St, Minmi NSW 2287	
Sport	Tree top adventure park	Blue Gum Hills Regional Park, Minmi Road, Minmi NSW 2287	Recreation facility offering education programs, guided park tours. Facilities on site include toilets, picnic areas, onsite parking, bus parking, BBQ facilities, playground, merchandise and refreshments (no food).
Hexham			
Community	Hexham Bowling Club	290 Old Maitland Rd, Hexham NSW 2322	Bowling club offering bowls tournaments, Bistro, and function centre. Facility open seven days, with weekly bingo and raffle nights. Also owns and operates Hexham Cottages in Harrington for use by club members.
Community	Hunter Wetlands National Park		Reserve



Category	Name	Address	Description
Seahampton			
Emergency	Seahampton Fire Station	40 George Booth Dr, West Wallsend NSW 2286	Emergency services accessed from George Booth Drive only.
Pelaw Main			
Education	Pelaw Main Public School	6-16 Abermain St, Pelaw Main NSW 2327	Coeducational school catering for years K-6. Consisted of roughly 18 staff and 249 students in 2017.
Sport	Pelaw Main heated pool	1 Neath street, Richmond street entrance, Pelaw Main NSW 2327	
Stanford Merthyr			
Education	Stanford Merthyr Infants School	2A Maitland St, Stanford Merthyr NSW 2327	Coeducational infant school catering for years K-2. Consisted of roughly 7 staff and 67 students in 2017.
Kurri Kurri			
Community	Kurri Kurri Bowling Club	3 Tarro St, Kurri Kurri NSW 2327	Community facility operation Sunday to Thursday: 9:00 am to 9.30 pm, Friday: 9:00 am to 11.30 pm and Saturday: 9:00 am to 11:00 pm. Includes a function centre, weekly bowling tournaments, Social events every night and restaurant.
Sport	Kurri Kurri Sports Ground "The Graveyard"	Allworth Street	Outdoor sports ground including eight tennis courts, cricket pitch, sport club houses. Designated parking available.
Education	Kurri Kurri Public School	202 Lang St, Kurri Kurri NSW 2327	Coeducational school catering for years K-6. Consisted of roughly 46 staff and 656 students in 2017.
Community	Kurri Kurri Visitor Information Centre	199 Lang St, Kurri Kurri NSW 2327	Local information session and café located in the centre of town amongst retail precinct. Hosts the annual Kurri Kurri nostalgia festival.
Retail	Coles super market	259/277 Lang St, Kurri Kurri NSW 2327	Includes retail strip with specialty stores and chains running along Lang Street.

Category	Name	Address	Description
Community	Kurri Kurri community centre	251 Lang St, Kurri Kurri NSW 2327	Service include: home maintenance, youth services, community care, sporting activities, men's shed, room hire and recreational events.
Religion	Kurri Kurri Seventh-day Adventist Church	Allworth Street & Maitland St, Kurri Kurri NSW 2327	Regular events include weekly bible study, and church lunch activities.
Child care	Mission Australia Early Learning Kurri Kurri	168-170 Rawson St, Kurri Kurri NSW 2327	Operating hours include Monday to Friday: 7:00 am to 6:00 pm, catering for children aged six weeks to five years old.
Religion	Catholic Church Of The Holy Spirit	100 Barton St, Kurri Kurri NSW 2327	Operating hours include Monday to Tuesday 9:00 am to 4.30 pm, and Wednesday to Friday 9:00 am to 2:00 pm
Parkland	Birralee Park		
Education	Kurri Kurri High School	Deakin and Stanford Streets, Kurri Kurri NSW 2327	Coeducational school catering for years 7-12. Consisted of roughly 84 staff and 830 students in 2017.
Education	Hunter TAFE, Kurri Kurri Campus	McLeod Rd, Kurri Kurri NSW 2327	TAFE campus specialising in: <ul style="list-style-type: none"> <li>• Transport and Mining</li> <li>• Animal and Equine Studies</li> <li>• Food Services and Hospitality</li> <li>• Manufacturing and Engineering</li> <li>• Environment, Horticulture and Primary Industries</li> <li>• Tourism, Events and Outdoor Recreation</li> </ul> Includes 135 hectares of park and native bushland, 22 classrooms, and 14 labs. Student accommodation available.
Sport	Kurri Kurri Aquatic and Fitness Centre	Boundary Street, Boundary St, Kurri Kurri, NSW 2327, 2327	Services include a 25 metre pool and swim school as well as personal training services and group exercise classes.
Parkland		Grieve Street	Club house and toilet block located at park.

Category	Name	Address	Description
Parkland		Cnr Greta Street and Rawson Street	Playground, two cricket pitches, two cricket cages and toilet block located at park.
Parkland		Dill Street	
Parkland	Margaret Johns Park	158 Northcote St, Kurri Kurri NSW 2327	

## Appendix D – Strava heat maps

Strava ® is interactive software that enables users to track rides (or runs) via a mobile phone to analyse and compare performance with other riders. Heatmaps can be created to show the level of activity in different locations, with higher heat (red) relating to higher activity. The figures below are Strava heatmaps for cycle activity in the local and regional study area.

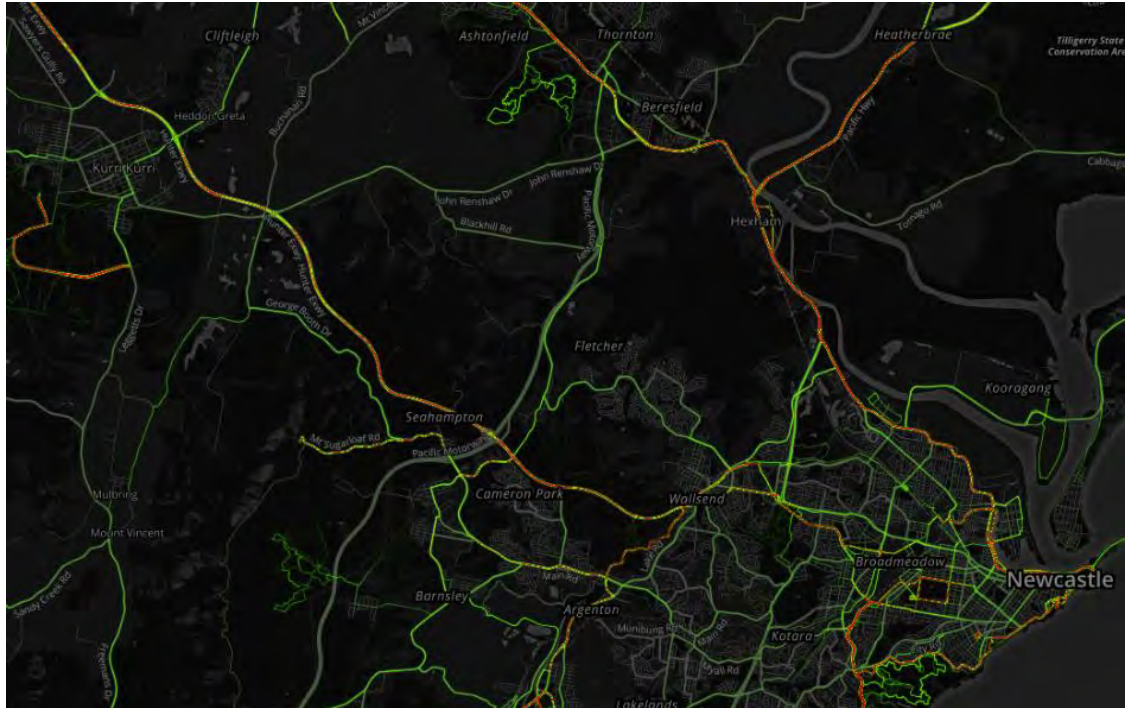


Figure D-1 Strava heatmap for the local study area

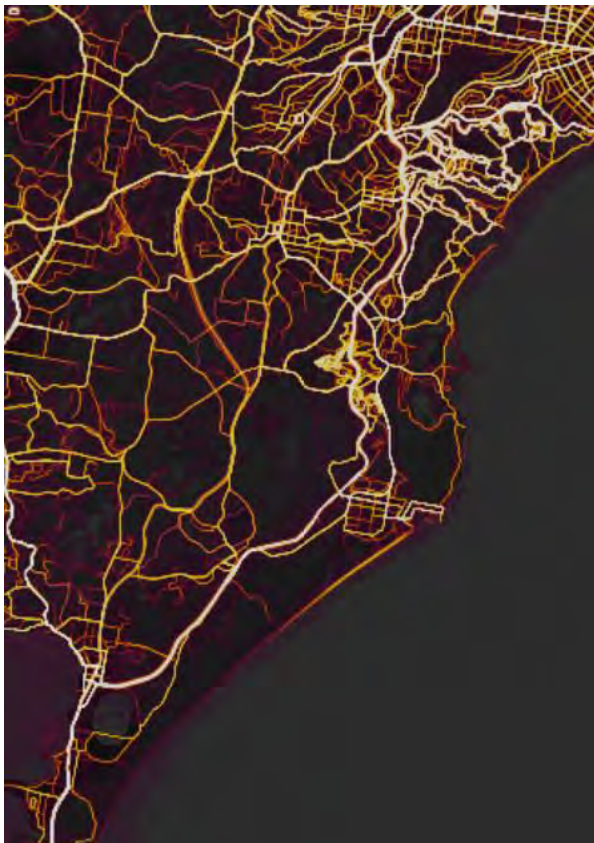


Figure D-2 Strava heatmap for the regional study area

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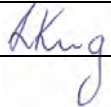
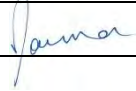
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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
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1	P Dellow	L King		P Youman		13/09/2019



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