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1 Executive Summary

Roads and Maritime Services (Roads and Maritime) proposes to upgrade Mulgoa Road from Jeanette Street, Regentville (south of the interchange with the M4 Motorway) to the north of Blaikie Road, Jamisontown. The proposal forms the first stage of a broader program to upgrade the Mulgoa Road/Castlereagh Road corridor between Glenmore Parkway, Glenmore Park and Andrews Road, Penrith located within the Western Sydney region of the Roads and Maritime network and the local government area (LGA) of Penrith.

The proposal is driven by the existing road congestion and the anticipated population and local employment growth in the region, including the North West Growth Area and Western Sydney Priority Growth Area.

The proposal would include widening the existing Mulgoa Road carriageway from two travel lanes to three travel lanes in each direction between Jeanette Street and Blaikie Road, extending the slip lanes entering the M4 Motorway, and modifying access to the Homemakers Centre at Wolseley Street. Upgrading the intersections at Factory Road, Jeanette Street, M4 Motorway, Wolseley Street, Glenbrook Street, Blaikie Road and Hutchison Crescent and Peter Court service roads.

The main negative impacts are:

- Air and noise quality impacts as a result of construction activities (e.g.: demolition, excavation, paving). Due to the existing nature of the corridor as a transport corridor, the air and noise impacts associated with operation of the widened road are not considered to be significant;
- A noise wall is proposed (extending from Glenbrook Street in the north and the M4 eastbound entry ramp in the south) to mitigate operational noise. While this reduces noise impacts to residences in this vicinity, there are visual impacts associated with this.
- Reduction in visual amenity due to clearing of vegetation and the establishment of construction sites. However, planting is also proposed to re-instate vegetation
- Change in traffic operations to allow for construction activities. These include lane closures and traffic diversion (e.g.: limited turning lanes). Some turning movements will be permanently removed, however alternatives will be provided where necessary.
- Permanent acquisition of a number of properties are required to facilitate widening of the road. 4 residential properties require full acquisition, while another ten residential properties and seven commercial properties require partial acquisition.
- Temporary use of a Council reserve for the use of the site as a construction compound would result in a temporary loss of local recreational opportunities and a negative impact on visual amenity

Upon completion and operation, the following positive impacts are anticipated:

- Improved level of amenity due to planting and landscape treatments
- Reduced traffic congestion, improved travel times into and out of the area, and improved performance around the M4 interchange
• Generally improved access to businesses and residences in the area
• Safer roads and intersections
• Greater opportunities for the community to participate in active transport

The SEIA outlines a number of measures to mitigate negative impacts. These include:

• Preparation of stakeholder communication and engagement plan to address planning and construction activities
• Continued consultation by RMS with various businesses, organisations, and residents in the area whose properties will require acquisition (partial or full)
• Ongoing engagement with key retail centres, the Penrith Homemaker Centre, Harvey Norman Centre and all key retained businesses to discuss impacts and timing, especially in relation to access and visibility to businesses.
• Ensuring property access in maintained during construction
• Consultation with public utility providers regarding the relocation of services
• Reinstall vegetation in accordance with the landscape and urban concept design and wider Mulgoa Urban Design Strategy.
• Incorporate urban and landscape treatments in the design to ensure the road corridor is aesthetically pleasing and incorporates greenery components to the hard infrastructure
• Develop and implement a traffic management plan for high alert fire days/emergencies to ensure quick access to the Blue Mountains via Mulgoa Road is maintained, given the severity of previous bush fires within the region
• Provide temporary bus stops during construction and ensure changes are communicated with bus users ahead of time.
2 Introduction

2.1 Background

The Greater Sydney Region Plan, *A Metropolis of Three Cities* divides the Greater Sydney area into three distinct, but connected ‘cities’: the Eastern Harbour City (around the existing Sydney CBD), a Central River City (around Paramatta) and a Western Parkland City (around the new Western Sydney Airport) (Greater Sydney Commission, 2018). The Western City Parkland will grow from 740,000 in 2016 to 1.1 million by 2036 and over 1.5 million by 2056. The population of the Western Parkland City is projected to grow from 740,000 in 2016 to 1.1 million by 2036, and to well over 1.5 million by 2056. *A Metropolis of Three Cities* identifies Greater Penrith as a growth area investigation. Existing communities will benefit from growth in surrounding areas and generate its own economic activity, opportunity and jobs for the people of Western Sydney.

To realise its full potential, the NSW and Australian Governments are investing heavily in infrastructure and services in Western Sydney, including Sydney’s second airport at Badgerys Creek, Sydney’s second Central Business District (CBD) at Parramatta as well as a range of transport infrastructure, education, cultural and health facilities. The North West Growth Area, which includes parts of The Hills, Blacktown and Hawkesbury Local Government Areas (LGA), and the South West Growth Area, which includes parts of Liverpool, Camden and Campbelltown LGA’s, are key focus areas for this growth (Department of Planning and Environment , 2015).

It is predicted that by 2031, Penrith will be home to more than 76,000 new residents, living in 32,700 new dwellings (Department of Planning and Environment, 2015). Penrith aims to provide 40,000 new jobs in a range of industries by 2031 (Penrith City Council, 2013).

Located in Penrith, the Mulgoa Road/Castlereagh Road corridor is a regionally important traffic route for both the Penrith CBD and the broader Western Sydney region, and is one of two main accesses from Penrith to the M4 Motorway. It is an important commuter, freight and bus route, providing access to Penrith, Glenmore Park, and Jamisontown, as well as an important north-south connection between Glenmore Parkway and Andrews Road. Mulgoa Road carries between 42,000 – 52,000 vehicles per weekday.

The road corridor is currently operating at capacity which is resulting in congestion and delays, especially during peak periods. This congestion is expected to increase due to future population and employment growth in the surrounding areas, as well as the nearby North West Growth Area and Western Sydney Priority Growth Area.

To address existing congestion and anticipated population and local employment growth, Roads and Maritime Services (Roads and Maritime) is proposing to widen Mulgoa Road between Jeanette Street and Blaikie Road, extend slip lanes entering the M4 Motorway, modify access to the Homemakers Centre at Wolseley Street, upgrade a number of intersections along the corridor, including Factory Road, Jeanette Street, M4 Motorway, Wolseley Street, Glenbrook Street, Blaikie Road and upgrade the Hatchinson Crescent and Peter Court service roads.
The proposal forms the first stage of a broader program to upgrade the Mulgoa Road/Castlereagh Road corridor between Glenmore Parkway, Glenmore Park and Andrews Road. The proposal, also known as ‘Mulgoa Road Stage 1’, was identified as a first priority of the Mulgoa Road/Castlereagh Road upgrade based on traffic modelling carried out by Roads and Maritime across the corridor.

2.2 Report purpose

The socio-economic assessment (SEIA) has been prepared to inform the Review of Environmental Factors (REF) for the proposal. The SEIA is required by Roads and Maritime to ensure potential socio-economic impacts have been considered in the proposal’s planning phase.

The socio-economic assessment:

“...includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, and projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment” (Vanclay, 2003).

The assessment describes the existing socio-economic environment to provide a basis for predicting likely changes related to the proposal. It then identifies and analyses the likely benefits or impacts of the proposal and assesses the magnitude, duration and likelihood of identified benefits and impacts. It finally identifies mitigation measures to avoid, manage or mitigate potential impacts and enhance the proposal’s benefits.

At the time of writing this SEIA the proposal was at the 20 per cent detailed design stage.

2.3 Assessment methodology

The SEIA has been prepared in accordance with the Roads and Maritime Environmental Impact Assessment Practice Note: Socio-economic assessment (EIA-N05) (the Practice Note). The initial project scoping checklist provided in Table 1 of the Practice Note was used to determine the level of socio-economic assessment required. The proposal is expected to have moderate level impacts, therefore a ‘moderate’ socio-economic assessment has been undertaken.

2.4 Data sources used to inform assessment

The information used in this SEIA was drawn from a variety of both primary and secondary sources which include:

- Meetings and discussions with the Roads and Maritime and Arup project teams
- Observations gained from site visits
- Discussions with key stakeholders
- Data from the Australian Bureau of Statistics (ABS) – including 2016 Census data
2.5 Policy context

The SEIA has also drawn on guidance provided by a range of local, State and Federal policies and plans including:

- NSW State Priorities (NSW Government, 2017)
- A Metropolis of Three Cities (Greater Sydney Commission, 2018)
- Sydney’s Bus Future (NSW Government, 2013)
- Contributing to liveable communities: roads as links and places (Roads and Maritime Services, 2012)
- Penrith City Strategy (Penrith City Council, 2013)
- Penrith Community Plan (Penrith City Council, 2017)
- Penrith Local Environment Plan (LEP) (Penrith City Council, 2010).

2.6 Study areas

The proposal is located within the Penrith LGA approximately 50km west of Sydney’s CBD. The proposal area is located approximately 2.5km from the Penrith CBD and is shown in orange in Figure 1.

The SEIA utilises a number of geographic areas to describe the socio-economic environment that may be impacted by the proposal. These areas aim to approximate the proposal area, which is shown in red in Figure 1 and include:

- **SEIA study area** – the combination of seven Statistical Area Level 1 (SA1) areas (SA1 codes 1146019, 1146045, 1146103, 1146105, 1146106, 1146140) to approximate the proposal area. To provide more fine grained population and dwelling data related to the proposal area, ABS Mesh Block areas have also been used where relevant for dwelling and population data

- **Penrith Local Government Area** – defined by the ABS as the Penrith LGA – shown in yellow in Figure 2. The proposal area sits within the LGA’s boundary. Where relevant, this area has been used for comparative purposes within the SEIA

- **State** – defined by the ABS as the State (STE) of NSW. Where relevant, this area has been used for comparative purposes within the SEIA.
Figure 1 Proposal area and study area
2.7 Proposal objectives

The primary objective of the proposal is to improve road safety and traffic flow along Mulgoa Road between Blaikie Road and Jeanette Street by reducing congestion. The proposal objectives are to:

- Improve journey time and reliability for road users
- Ease traffic congestion and achieve a level of service of E or better on Mulgoa Road up to 2036
- Improve road safety for all road users, including reduced fatalities and serious injury crash numbers
- Support and encourage active transport and public transport use
• Ensure Mulgoa Road Stage 1 is consistent with the Mulgoa Road/Castlereagh Road corridor upgrade strategy.

2.8 Proposal scoping

As outlined in the Practice Note, the initial scoping checklist was used to undertake a preliminary review of potential social and economic issues associated with the proposal. These include:

• Property acquisition
• Changes to the traffic environment for all transport modes
• Potential business impacts
• Changes to property accesses, including properties that facilitate business and social and recreational uses
• Changes to amenity in the proposal area associated with changes to landscape features and implementation of a larger scale road environment.
3 Description of the proposal

3.1 Current situation

The Mulgoa Road/Castlereagh Road corridor is a regionally important traffic route for both the Penrith CBD and the broader Western Sydney region, and is one of two main accesses from Penrith to the M4 Motorway. It is an important commuter, freight and bus route, providing access to Penrith, Glenmore Park, and Jamisontown, as well as an important north-south connection between Glenmore Parkway and Andrew’s Road. Mulgoa Road carries between 33,000 to 44,000 vehicles per weekday, with weekend traffic volumes between nine to 13 per cent lower.

Mulgoa Road is a classified State arterial road, running north–south between the Great Western Highway/High Street intersection, Penrith and Silverdale Road/Park Road, Wallacia. Between Jeanette Street and Blaikie Road (the proposal area), Mulgoa Road is currently four-lanes (two lanes in each direction) with varying median widths. The majority of the proposal area has grass verges with a pedestrian footpath running along the western side of Mulgoa Road and a shared cyclist/pedestrian path running along the eastern side of Mulgoa Road. Mulgoa Road services local vehicles, buses, pedestrians, cyclists and is a B-Double truck route.

The road corridor (including key intersections) currently experiences traffic congestion and delays during weekday morning and afternoon peak traffic periods (Arcadis, 2016). The number of traffic signals located along the corridor also contributes to the stop-start traffic conditions and the associated delay and congestion. Average weekday traffic profiles sourced by RMS SCATS Data (August 2017) indicate the Mulgoa Road segment between the M4 and Wolseley Street is at a capacity of around 2,000 vehicles northbound and southbound in the AM and PM peak hours respectively. The average daily vehicle numbers are expected to grow by 1.3 per cent per year in the next 21 years (up to 2036).

Daily vehicle numbers are expected to increase due to future population and employment growth in the surrounding areas, as well as the nearby North West Growth Area and the Western Sydney Priority Growth Area. As well as the regional growth areas, there are a number of key local developments in the immediate vicinity that will contribute to travel demand. These include the Penrith Homemaker Centre, Riverlink and Nepean River Precincts, as well as the new urban land releases at Glenmore Park. There is also currently a large number of heavy vehicles moving freight along Mulgoa Road/Castlereagh Road which will continue to grow in the future.

If no action is taken to improve the traffic flow in the study area, by 2026, there will major congestion at key intersections, Mulgoa Road will be highly congested, and local amenity and access to the Penrith CDB would continue to decline. This would result in an impact on noise and local air quality. Traffic modelling indicates that the conditions will worsen by 2036.
3.2 Proposed upgrade

In July 2016, the Australian and NSW governments announced a funding commitment to widen Mulgoa Road between Jeanette Street, Regentville and Blaikie Road, Jamisontown, forming Stage 1 of the Mulgoa Road/Castlereagh Road corridor upgrade (the proposal).

This section of Mulgoa Road was identified as a priority project of the Mulgoa Road/Castlereagh Road upgrade. The Stage 1 works would provide improved performance around the M4 Motorway interchange, which was identified as under the greatest pressure for improvement.

The proposal includes the following key features:

- Widening a 1.3km section of Mulgoa Road between Jeanette Street and Blaikie Road (including tie-ins) to allow for three travel lanes in each direction
- Extending the slip lanes on Mulgoa Road entering the M4 Motorway
- Interface with the M4 Smart Motorway project ramp designs
- Provision of retaining walls to support widening under the existing M4 bridges
- Removal of the grade separated access to the Homemakers Centre at Wolseley Street
- Provision of an active transport corridor, including a 3.5m wide shared path along the eastern side of Mulgoa Road
- Re-construction of Huron Place to become a two-way shared transit zone (low speed environment)
- Provision of bus prioritisation measures at the Blaikie Road, Glenbrook Street and Wolseley Street intersections
- Upgraded drainage to manage increased surface runoff and flows to local waterways
- A noise wall between Mulgoa Road and Hatchinson Crescent, extending between Glenbrook Street in the north and the M4 eastbound entry ramp in the south
- Relocation of underground utilities
- Tree planting and landscaping to match the vision for the whole of the Mulgoa Road corridor
- Temporary establishment of a construction compound site.

Construction of the proposal would commence in early-2020 (subject to planning approval) and would be completed by mid-2021, weather permitting.

Construction of the proposal would be staged to minimise disruption to local traffic flows and to maintain access to residences and businesses. Construction staging would be further investigated as the proposal is developed.
4 Existing socio-economic environment

This section of the SEIA provides an overview of the existing conditions within the relevant areas identified in section 2.6. This review has been completed to provide baseline information from which to assess potential impacts on the social and economic environment.

4.1 Population and demography

4.1.1 Population

- At the time of the 2016 ABS Census, the population of the study area was 3,003 people
- At the time of the 2016 ABS Census, the population of the Penrith LGA was 203,950, a population increase of 14 per cent since 2011. By 2021 the population is expected to grow by a further 20 per cent to 242,150 people.

4.1.2 Age

- According to the 2016 Census, 21 per cent of the population are aged 14 years or younger within the study area and Penrith LGA, compared to 19 per cent for the NSW population. This shows a slightly higher proportion of school-aged children within the study area and Penrith LGA compared to the wider NSW population
- Around two thirds of the study area and Penrith LGA’s population (64 per cent and 67 per cent respectively) are of working age (aged between 15-64 years) which is consistent with the overall State’s working age percentage of 65 per cent
- 15 per cent of the study area’s population is aged 65 years or older, which is comparable to the NSW population (at 16 per cent).

4.1.3 Cultural diversity

- At the time of the 2016 Census, three per cent of the population in the study area identified as being of Aboriginal and Torres Strait Islander descent, which is similar to the broader NSW population
- 11 per cent of the study area’s population was not born in Australia
- 11 per cent of the study area’s population indicated that they spoke another language at home, compared to NSW which indicated 27 per cent of the state’s population spoke another language at home.

4.2 Families and housing

4.2.1 Dwellings

- According to the 2016 Census, 1,055 dwellings are located within the study area
• The predominant form of housing in the study area was separate dwellings (79 per cent), followed by semi-detached dwellings (20 per cent)

• At the time of the 2016 Census, 1.4 per cent of private dwellings within the study area were unoccupied.

4.2.2 Household and families

• At the time of the 2016 ABS Census, 793 families lived within the study area. 46 per cent of these were classified as couple families with children, which is consistent with the Penrith LGA (48.8 per cent) and State of NSW (45.7 per cent)

• The average household size within the study area was 2.6 people, which is similar to the State of NSW (2.6 people), but slightly lower than Penrith LGA with two people.

4.2.3 Housing cost and tenure

• Within the study area, 37 per cent of dwellings are owned and 36.7 are being purchased (compared with 26 per cent and 41 per cent in Penrith LGA, and 32 per cent each in NSW)

• The study area had a lower rate of dwellings being rented (21.8 per cent) compared with Penrith LGA and NSW, which had 30 per cent and 32 per cent of dwellings being rented. The average monthly mortgage repayment data for the study area was $2,341, which is higher than the repayments of residents in the wider Penrith LGA and NSW ($2,000 and $1,986 respectively)

• Weekly rents within the study area are $351 per week, with slightly higher rents in the Penrith LGA and broader State of NSW ($360 and $380 respectively).

4.3 Socio-economic indicators

The Socio-Economic Indexes for Areas (SEIFA) is an index provided by the ABS that summarises different aspects of the socio-economic conditions of people living in an area based on a set of socio-economic data from the Census such as income, educational attainment, unemployment and dwellings without motor vehicles. It provides a more general measure of socio-economic status than is given by measuring income or unemployment alone. SEIFA for the 2011 Census has been used for this report, as the 2016 SEIFA data is not currently available.

The Index of Relative Socio-Economic Advantage/Disadvantage (IRSAD) is a continuum of advantage to disadvantage. It considers indicators relating to income, education, occupation, wealth and living conditions. A high value on the index represents an area of relative advantage and conversely a low index value represents an area of disadvantage.

Figure 3 represents the SEIFA IRSAD index for areas in proximity to the study area. The north-west portion of the study area is located within areas of relative disadvantage (2nd decile). This is likely due to a large portion of this area being
undeveloped land with a small number of residential properties to the west of the Penrith Homemaker Centre. Areas to the south-west and south-east of the project area are within areas of advantage (5th and 6th decile).

Figure 3  SEIFA IRSAD index for the study area (in red)

4.4  Need for assistance

- According to the 2011 Census, four per cent of people in the study area identified a need for assistance with daily living, which is comparable with Penrith LGA.

4.5  Travel behaviour

4.5.1  Vehicle ownership

According to the 2016 ABS Census, motor vehicle ownership within the study area was:
• 65 households (or 7 per cent) do not own a motor vehicle
• 357 households (or 40 per cent) own a single motor vehicle
• 478 households (or 53 per cent) own two or more motor vehicles
• The average motor vehicle per dwelling is 1.9.

The data is further indicative of the dependency on motor vehicles as the main transport method within the Penrith LGA.

4.5.2 Travel to work

• According to the 2016 ABS Census, approximately 90 per cent of people in the study area travel to work via car, with 83 per cent of these people as the driver. It is a similar trend for Penrith LGA with 87 per cent of people travelling to work via car, with 80 per cent of these as the driver
• Six per cent of people in the study area reported travelling to work via public transport, five per cent of these via train. A slightly higher proportion of people within Penrith LGA travel to work via train (7 per cent)
• Only 0.3 per cent (or 4 people) living in the study area reported cycling to work and 1.6 per cent (or 18 people) across the study area reported walking to work.

4.5.3 Key transport network

As identified in section 4.5 the study area has a high ownership and use of private vehicle. Based on data sourced from Roads and Maritime in August 2017, on a typical weekday period 42,000 – 52,000 vehicles use Mulgoa Road on a daily basis. Traffic profiles suggest morning peak use between 7:00 AM and 9:00 AM and afternoon peak use between 4:00 PM and 6:00 PM.

Traffic analysis indicate that if nothing is done to address traffic congestion along Mulgoa Road, the following is likely to occur based on forecast levels of traffic growth on the existing road network:

• Major congestion at a number of key intersections during peak periods in the next ten (2026) to twenty years (2036)
• Mulgoa Road would be highly congested and there would be increased delays and queuing along the corridor
• Local amenity and access to the Penrith CBD would continue to decline due to increased traffic, as would other road related impacts such as noise and localised air quality
• The efficiency of public transport and freight would decline with reduced travel speed.

4.5.4 Incident data

Crash data sourced from Roads Maritime for the period 2012 to 2016 found that there were 76 crashes along Mulgoa Road within the study area. These included 35 injuries and 41 non-casualty crashes. No fatalities were recorded.
The majority of recorded crash data occurred at intersections, occurring around peak periods, which would suggest that traffic congestion and driver error have been contributing factors in many of the incidents that have occurred. Around 50 per cent of incidents represented vehicles travelling in the same direction, and commonly occurred in turn lanes along Mulgoa Road.

4.5.5 Transport and access indicators

Mulgoa Road is classified as a State road with a posted speed limit of 60 km/h, where Jeanette Street and Blaikie Road are classified as local roads.

There are traffic signals at the following major intersections:

- Mulgoa Road M4 Motorway interchange
- Mulgoa Road/Wolseley Street
- Mulgoa Road/Blaikie Road.

There is a free-flow access tunnel to the Penrith Homemaker Centre along Mulgoa Road. Motorists can enter via a single lane portal accessed from the right-hand lane of southbound Mulgoa Road. The structure is approximately 170m in length, of which approximately 75m of the tunnel is covered. The tunnel is prone to inundation during flood events and sometimes requires stormwater to be pumped out.

Other key intersections and areas within the proposal area include:

- **Glenbrook Street** – the intersection serves a predominately residential area bounded by the M4 Motorway, Surveyors Creek and Mulgoa Road. The current arrangement is a signalised at-grade T-intersection with left-in, left-out and right-in, right-out turning provisions.

- **Hatchinson Crescent and Peter Court service roads** - Currently, residents on Hatchinson Crescent and Huron Place access Mulgoa Road via Warragamba Crescent and Glenbrook Street. Existing vegetation screens Hatchinson Crescent from Mulgoa Road traffic. Peter Court residents have a direct view of Mulgoa Road. There is currently a safety barrier/fence to protect the shared path leading from Hatchinson Crescent onto Mulgoa Road on the merge with the M4 Motorway eastbound entry ramp.

- **Factory Road** - The T-intersection at Mulgoa Road and Factory Road currently operates as an un-signalised left-in and left-out priority intersection.
4.5.6 Public transport

Three Busways bus services operate within the study area to access the suburbs of Glenmore Park, Regentville, Jamisontown and Penrith, including access to the Penrith Rail Station. The bus routes that use the proposal area are shown in Figure 5 and include:

- Busways routes 795, 797 and 799 operate along Mulgoa Road providing half hourly services in peak times.

There are five existing bus stops located along Mulgoa Road within the proposal area as shown in Figure 5 and include:

- Western side of Mulgoa Road to the north of Spencer Street
- Eastern side of Mulgoa Road to the south of Jeanette Street
- Eastern side of Mulgoa Road at Factory Road
- Both sides of Mulgoa Road at Blaikie Road.

The facilities provided at bus stops are variable throughout the proposal area. Shelters and benches are currently provided at locations such as Mulgoa Road/Factory Road and Mulgoa Road/Blaikie Road (eastern side). Other stops are marked with a bus stop sign containing timetables (e.g. Mulgoa Road/Blaikie Road (western side)

Penrith Rail Station is located 3.3km from the proposal area.
4.5.7 Active transport

Pedestrian and cycling paths are located within the proposal area. These link the Penrith CBD with Regentville Primary School and provide pedestrian and cyclist access to the suburbs of Glenmore Park, Regentville, Jamisontown and Penrith. Key pedestrian and cyclist facilities within the proposal area are described below and shown in Figure 6 and Figure 7.

There are currently pedestrian paths on both sides of Mulgoa Road. The southbound pedestrian path on the eastern side ends before Hatchinson Crescent. The paths within the study area vary in width and provide access to a number of community and commercial premises.

The existing pedestrian crossings at the Mulgoa Road/Wolseley Street and Mulgoa Road/Blaikie Road intersections, provide access across all roads however, Mulgoa Road can only be crossed from the northern crossing at both of these intersections. There are zebra crossings at the northbound and southbound left turn lanes from Mulgoa Road onto Blaikie Road.

There is currently an off-road shared pedestrian/cycle path extending the majority of the proposal area along the eastern side of Mulgoa Road. For a section of the alignment from the northern end of Huron Place to the southern end of Hatchinson Crescent, cyclists move onto a local road (shared zone) before reconnecting with the pedestrian/cycle path.

Figure 5 Existing Bus Routes on Mulgoa Road (Source: Busways, 2018)
Figure 6 Strava heat maps for active transport modes (Source: Strava, 2018)

Figure 7 - Existing Cycling Facilities along Mulgoa Road (Source: Cycleway Finder (rms.nsw.gov.au))
4.6 Economic characteristics

4.6.1 Income

The median weekly household income within the study area was $1,563 at the time of the 2016 ABS Census. The Penrith LGA median was higher at $1,658, while the NSW State median was slightly lower at $1,486.

4.6.2 Labour force and unemployment

Penrith LGA had an unemployment rate of four per cent in the first quarter of 2017 (Department of Employment, 2017) which was lower than the State of NSW for the same period (5.1 per cent).

The unemployment rate in the Penrith area has been trending downwards since March 2015 as shown in Figure 8.

Figure 8  Historical unemployment rate Penrith LGA Dec 2012 – February 2017

4.6.3 Industry of employment

In Penrith, people are employed in the following industries:

- Manufacturing - 9,617 people (12.8 per cent)
- Retail Trade - 9,443 (12.6 per cent)
- Health Care and Social Assistance - 9,390 (12.5 per cent)
- Education and Training - 8,300 (11.1 per cent)
- Public Administration and Safety - 6,118 (8.1 per cent).
4.7 Business and industry

4.7.1 Industry Indicators

In 2016, Penrith’s Gross Regional Product (GRP) was estimated at $7.79 billion, which accounts for 1.6 per cent of the State of NSW’s Gross State Product (Penrith City Council, 2017).

In 2015/2016, key industries adding value to the GRP include (id economic, 2016):

- Manufacturing – $918m (13.1 per cent)
- Health care and social assistance – $702m (10.0 per cent)
- Public Administration and Safety – $651m (9.3 per cent)
- Education and Training – $685m (9.8 per cent)
- Construction – $683m (9.8 per cent)
- Retail Trade – $536m (7.7 per cent)
- Transport, Postal and Warehousing – $367m (5.3 per cent)
- Wholesale trade – $451m (6.4 per cent)
- Financial and insurance services – $298m (4.3 per cent)
- Electricity, gas, water and waste services – $298m (4.3 per cent).

4.7.2 Local businesses

In 2016, there were 12,888 registered businesses in Penrith. Construction; rental, hiring and real estate services; transport, postal and warehousing and professional, scientific and technical services were the industries with the largest number of registered businesses as shown in Figure 9 Registered businesses by industry –
The following provides an overview of local businesses/business related activities in the SEIA study area:

- **Penrith Home Maker Centre** - Home to 23 speciality shops, the Penrith Homemaker centre is a showroom style/bulky goods retail centre located within and adjacent to the proposal area. Managed by CBRE, key tenants include Bunnings, Anaconda, JB Hi-Fi, Spotlight and Petbarn. Access to the centre is via Wolseley Street northbound, Patty’s Place and the southbound Mulgoa Road free flow tunnel. This tunnel was funded and constructed by Harvey Norman to enable customers to avoid congestion when turning into the centre from Mulga Road.

Monthly foot traffic through the mall section of the centre provides an indication of visitor numbers, with an average of 125,000 visitors per month. Peak periods for the centre include Saturday mornings, and the lead up to Christmas, Boxing Day and End of Financial Year sales. The business hours for the centre are 9:00am to 5:00pm Monday, Tuesday, Wednesday and Friday, 9:00am to 9:00pm Thursday and 10:00am to 4:00pm on Saturday, Sunday and Public Holidays. Deliveries for the centre are via Wolseley Street and Patty’s Place. The centre has 1,500 car parking spaces which are available to customers free of charge.

- **BP service station** – located at 124-128 Mulgoa Road, access and egress from the BP service station is via Mulgoa Road southbound. The BP is open 24 hours a day every day of the year. The current owner has a 10-year lease in place with seven years remaining on the lease. At the time of the lease start the business owner was turning over one million litres of fuel per day. The station’s petroleum infrastructure is located at the front of the property approximately 10m from the proposal area.

- **Shell service station** – Located at 221 Mulgoa Road, the Shell service station has two access points onto the site, one from Wolseley Street and the other from Mulgoa Road. The service station is open from 5:00am to 10:00pm on Monday to Friday and 6:00am to 9:00pm on Saturday and Sunday. The service station has grassed frontage before the road corridor. The petroleum infrastructure is located 20m from the proposal area.

- **Penrith Trade Centre** - Located at 241 Mulgoa Road, the trade centre is another showroom style/bulky goods retail centre located within the proposal area. Managed by Andan Pty Ltd, key tenants include Super Amart, Seconds World, Zoo Fitness, Pet Good Direct, Subway and Pizza Hut. Access to the centre is via Blaikie Road, off Mulgoa Road. The centre car park has capacity for over 100 parking spaces, available to customers free of charge.

- **Super Amart** – Located within the Penrith Trade Centre, Super Amart is a furniture warehouse. The centre is open Monday to Friday 9am to 7pm, Saturday 9:00am to 6:00pm and Sunday 10:00am to 6:00pm. Sunday is the busiest day with visitation numbers approximately 1,000 customers, followed by Saturday with 600 customers. Monday to Friday numbers are less and varied. Given the locality of the Super Amart, directly off Mulgoa Road, almost all customers and staff travel to the store by car. Deliveries are once a week and are received at the rear of the store via Blaikie Road. The store is...
managed by Andan Pty Ltd and independently owned by the Super Amart Franchise Business.

- **Quality Inn Penrith/Grey Gums Hotel** – Located at 261 Mulgoa Road, the Quality Inn offers 55 rooms and has a 4.5 star rating. The centre manager resides at the property in a cottage within the hotel. The Grey Gums Hotel and bottle shop is also part of the property owner’s portfolio. The hotel is a fully licensed bar and restaurant and also provides gaming facilities. The hotel’s busiest period is during dinner time from 5:30pm to 9:00pm with the greatest numbers of patrons being when a Penrith Panthers home game is on, usually on a Friday, Saturday or Sunday evening. The hotel bar is open from 10:00am to 1:00am on a Monday and 10:00am to 3:00am every other night. The hotel also has an outdoor playground. Employees work till the gaming machines reconcile at 3:30am. The smoking gaming area, is located in an outdoor area with open louvers for ventilation. It was noted by hotel management that the trees located at the front of the property have previously dropped branches on parked vehicles. The majority of patrons access the hotel via car, with ample parking for patrons and employees available, accessed from Mulgoa Road and Blaikie Road.

![Figure 10 Front entrance to Grey Gums Hotel and Motel from Mulgoa Road (Google, 2017)](image)

- **Western Motorcycles** – Located at 283 Mulgoa Road, Western Motorcycles is a major motorcycle showroom and retail outlet with over 300 bikes in stock at any one time. The centre also contains a workshop and pre-delivery department to service and prepare its customers bikes on site. The centre has 22-24 employees working each day and the opening hours are 8:30am – 5:30pm Monday to Friday, 8:30am to 7:00pm on Thursday, 8:30am to 4:00pm on Saturday and closed Sunday. The busiest retail periods are on Saturday morning, the Christmas shopping period and weeks leading up to long weekends. Store deliveries are received via Mulgoa Road, which is currently
difficult due to the narrow area of the driveway and oncoming traffic and congestion on Mulgoa Road. Customers can access the centre via Mulgoa Road, off Wolseley Street from the Penrith Homemaker Centre, or via Patty’s Place and Blaikie Road. The centre currently uses the front grassed area of Mulgoa road as a display area for vehicles and noted that there have been instances where fallen branches from the trees have caused damage to bikes on display.

Figure 11 Western Motorcycles Display front on Mulgoa Road (Google, 2017)

- **Nepean Animal hospital** - Located on 50 Mulgoa Road, the animal hospital provides 24 hour veterinary services. Access to the hospital is via Mulgoa Road. The animal hospital is the only veterinary service within the study area. The next nearest 24 hour vet is 25 kilometres away in Blacktown at the Blacktown Vet Clinic-Animal Care.

- **Hungry Jacks (Penrith Grey Gums)** – Located at the corner of Mulgoa Road and Blaikie Road West, the store operates 365 days a year from 6:00am to midnight, with the busiest seasons public and school holidays. The store receives its busiest traffic during the meal time hours, breakfast 6:00am to 10:00am, lunch 11:00am to 2:00pm and dinner 5:00pm through to 8:00pm. The drive-thru contributes 60 to 80 per cent of the sales and is accessed via Blaikie Road. Parking and dine-in access is also from Blaikie Road. The store also contains a children’s playground which is located outside of the restaurant facing Blaikie Road. Almost all patrons and staff travel to work via vehicle and park within the car park, where there is ample parking.
• **Other Mulgoa Road businesses not directly impacted by the proposal** -
  There are a number of other business located along Mulgoa Road within the proposal area that are not directly impacted by the proposal (i.e.: no property is required for the proposal access to the property will not be affected). These include:
  - YMCA Penrith
  - Penrith Tyres and Mechanical Repair
  - Penrith Ice Palace
  - Hooters
  - GPC Electronics
  - Penrith - Toys "R" us, Babies "R" us
  - Barbeques Galore Penrith
  - Rashays restaurant
  - Pool & Spa Warehouse
  - Rudolph’s Christmas Centre.

• **Penrith Panthers Entertainment, Leisure and Sporting Precinct** – Located approximately 1.8km from the study area at 123 Mulgoa Road, the precinct includes a range of dining, bar, event and activity facilities. The 22,500 seat Penrith Panthers stadium is located across Mulgoa Road. Planning is
underway to replace the stadium and further develop the entertainment, leisure and sporting precinct.

4.7.3 Agriculture

In 2010/11, Penrith’s agricultural industry added $83 million to the local economy. Key industries contributing to this total were livestock slaughtering, egg production, vegetable production and nurseries and cut flower producers (economy.id, 2015).


There are no significant agricultural lands or businesses located within the study area.

4.7.4 Tourism

Both the tourism and hospitality industries are key contributors to the Penrith economy. In 2015/16, the total tourism and hospitality sales in Penrith City was $318.4m, the total value added was $212.6m (id economic, 2016).

Capitalising on the regional attraction of the Blue Mountains and the outer west location, Penrith has various key tourism attractions including:

- Model Park
- Mount Schoenstatt Shire
- Penrith Whitewater Stadium
- Foot Golf Werrington
- Rock Lookout
- Museum of Fire
- Penrith Skatel
- Caleys Lookout Track
- Bents Basin State Conservation Area
- Penrith Regional Gallery and The Lewers Bequest
- Greater Blue Mountains drive
- Luddenham Raceway
- Twin Creeks Golf and Country Club
- Penrith Slot car and Bobby Centre
- Arms of Australia Inn Museum
- Penrith Golf and Recreation Club
- WSU Penrith Observatory
- iFLY Downunder.

None of these attractions are located within the study area.

- Cables Wake Park
4.8 Community Values

Penrith City Council’s new Community Plan outlines a number of outcomes that the community is keen to see delivered in the LGA. These include:

- A Regional City that is the focus of a sustainable and prosperous region
- Access to facilities and services
- Active, healthy lifestyles
- Choice of quality housing
- A safe, resilient, welcoming and creative community
- To protect and conserve a healthy natural environment, including our beautiful Nepean River
- Safe roads, including shared pathways for cyclists and pedestrians
- Neighbourhoods they can be proud of.

4.9 Social infrastructure

The following sections provide an overview of the social infrastructure and values in the study area and its surrounds.

4.9.1 Open space and recreation

- **111 Mulgoa Road open green space** – the only open green space located along the proposal area is a 7,000m², unnamed park owned by Penrith City Council. The space is a grassed area, with vegetation (trees) along Mulgoa Road.

Figure 13 Open Space park along Mulgoa Road (Google, 2017)
• **Other** - Remnant vegetation scattered through the proposal area provides informal parkland character within the Mulgoa Road retail precinct. This vegetation also extends southbound along Mulgoa Road towards the outlook of the Blue Mountains. The larger Eucalyptus trees provide strong natural character within the existing road infrastructure (See Figure 14 Eucalyptus trees along Mulgoa Road).

• Footpaths and utilities - There are also a number of existing utilities located within the footpath along the eastern verge of Mulgoa Road between Hatchinson Crescent and Glenbrook Street.
4.9.2 Community Facilities

- **Regentville Fire and Rescue** - Operated by Fire and Rescue NSW, the Regentville Fire and Rescue provides fire, primary rescue and HAZMAT services to the Penrith and surrounding areas. Located at 8-12 Jeanette Street, the fire and rescue station operates 24/7 with at least six staff on duty at all times. Access is via Jeanette Street onto Mulgoa Road. A keep clear zone is marked at the intersection of Jeanette Street and Mulgoa Road. There is break in the median which allows for right hand turns onto Mulgoa Road and access across Mulgoa Road into Factory Road. This is signed for emergency vehicle access only, though other vehicles are frequently observed making illegal right turns. See [Error! Reference source not found.](#) for a photograph of this layout.

- The Fire Service also serves as a holding station to accommodate the extra staff and vehicles required for the peak Bushfire season. Given past Bushfire experiences within the Blue Mountains area, it is vital that the station remains accessible at all times.

Figure 14 Eucalyptus trees along Mulgoa Road (Google, 2017)
• **Regentville Rural Fire Brigade** - Located at 20 Jeanette Street, adjacent to the NSW Fire Service Station, the volunteer-based Rural Fire Brigade provides firefighting services during bushfire season. With 900 volunteers, the station is the feeder district to Blacktown, Penrith, and the Blue Mountains. The brigade is most active within the summer months when its peak bush fire danger period. During this time, the entire Rural Fire Service is on high alert with many surrounding stations using the Regentville station as a base to support the potentially impacted bush fire communities in the Blue Mountains. Access arrangements for the rural fire brigade are the same as the fire and rescue station.

• **Regentville Public School**

Regentville Public School was established in 1868 and is located off Mulgoa Road on School House Road. Regentville Public School is one of the largest public schools in the Penrith LGA and provides education from Kindergarten to Year 6 for around 700 students (approximately 450 families). A large majority of students (75 - 80 per cent) are dropped to school via car and the remainder utilise both public buses and afterschool care buses, with a very small majority riding or walking to school due to safety risks associated with crossing the road.

The school is approximately 150 metres east of Mulgoa road and encounters significant traffic build ups during the morning period from 8:45 to 9:05 am and particularly in the afternoon from 3:00pm. School House Road, where the school resides encounters a significant build-up of vehicles due to parking on the road, only allowing one lane of traffic to travel through at any one time.

School hours are from 8:50am to 3:00pm, however 55 staff members begin their work day from approximately 7:30am to 6:00pm. Staff have two allocated parking areas, one off School House Road and another at the
southern end of the school. A site visit has indicated that staff parking is limited and is an issue. The majority of families travel from Glenmore Park and thus travel via Glenmore Parkway, and, due to the synchronising of the traffic lights, often encounter significant delays particularly at the round-about entering Mulgoa Road. The school is not frequented during school holiday periods.

- **Regentville Kids Academy**

Located at 1 Factory Road, the Kids Academy is one of the largest day care facilities within the area, catering for 276 families. The day care centre sits next to Mulgoa Road. All families are required to follow strict drop off and sign in protocol which encourages hundreds of vehicles through Factory Road each day. With limited parking at the centre, vehicles often park on the street and walk in. The key hours of operation are from 6:30am to 6:30pm. High trafficked hours are during both the morning from 6:30am – 9:00am and evening from 4:30-6:30pm.

- **Regentville Hall**

This Council owned facility is located at 16 Jeanette Street, Regentville and holds capacity for 120 people. The hall is currently hired out by Nepean Food Services, a non-profit incorporated organisation sponsored by the NSW Department of Health, who offer a ‘Meals on Wheels’ service to community members who are of a frail age or living with a disability. The key function which occurs at the address is the Penrith Luncheon Club. The event is held every Thursday from 10:00am to 1:30pm and clients are picked up and dropped off from their home and brought to the hall for a meal.

- **Penrith Showgrounds**

Located outside the study area at Ransley Street in Penrith, the Showgrounds and Market Stalls is adjacent to Mulgoa Road. The showgrounds attract large numbers of people who access the facility through the proposal area. The showgrounds operate as a function centre for the region and is Penrith’s only market centre which regularly attracts large crowds particularly in the lead up to the Penrith Show, held in the last weekend in August each year (Penrith Australia, n.d.).
5 Stakeholder and community engagement

Roads and Maritime have consulted with a range of stakeholder and community members throughout project inception and concept design. In May 2017, the engagement and project team held a preferred option Community Information Session within various locations in Penrith. The wider community received a formal presentation and had the opportunity to provide feedback and ask questions. Issues discussed during this period have been taken into consideration in this socio-economic assessment and have also been outlined in chapter 5 of the REF.

The property acquisition team for the proposal have also been in direct contact with residents and business owners throughout the process to begin conversations surrounding acquisition. Roads and Maritime have a Personal Manager of Acquisitions who works directly with landholders and residents expected to be impacted by the proposal to ensure the process is supportive of the needs of those affected. This position is incorporated in all Roads and Maritime projects to ensure they align themselves with their Property Acquisition policy.

As part of this socio-economic assessment, meetings were held with both the Rural and New South Wales Fire Brigades, the Regentville Kids Academy, the Homemaker Centre management body, and other retail businesses in the proposal area. At these meetings, the draft design was shown and feedback on potential impacts to the businesses were gathered to be included within the REF and design process. The following presents a summary of the key issues and opportunities highlighted by each organisation.

5.1 NSW Fire and Rescue – Cumberland Zone

- Key concerns relate to safety and maintaining access at all times for right hand turns out of Jeanette Street to travel northbound on Mulgoa Road, left hand turns out of Jeanette Street to travel southbound on Mulgoa Road and access across Mulgoa Road to Factory Road
- Requested the installation of ‘keep clear’ warning lights at the intersections of Mulgoa Road, Jeanette Street and Factory Road
- Requested hatched pavement marking in the ‘keep clear’ area on Mulgoa Road
- Suggested extension of the left turning slip lane southbound on Mulgoa Road from M4 Motorway
- Is keen to work with Roads and Maritime to ensure the design considers turning paths for fire service vehicles.

5.2 Regentville Rural Fire Service

- Same safety and access requirements as NSW Fire and Rescue
- Heightened need to maintain access during bushfire season – September to May. Noted that high risk bush fire season, they can have 20 additional fire service vehicles parked along Jeanette Street.
5.3 Penrith Home Maker Centre

- Busiest times for the centre are Saturday, Thursday late-night shopping and the Christmas trading peak
- Communicating to the wider businesses in the centre can be made through the body corporate
- Requested that disruptive construction activities are minimised during the Christmas trading peak (December)
- Opportunity for an information session for Roads and Maritime to reach all businesses.

5.4 Kids Academy Regentville

- 255 children and their families access the centre each day. All children have to be walked into the centre and physically signed in by a parent/guardian
- Nearly all children are brought to the centre by car
- Around 30 staff work from the centre each day
- 15 car parks are available at the centre for either parents or staff.
- Limited parking space for families and majority families park on Factory Road during peak drop off (6:30am – 9:00am) and pick up (4:00pm – 6:00pm)
- Open every day of the year, except for Christmas Day
- 60 per cent of families use the M4 Motorway on their journey to the centre.

5.5 BP service station

- Concerned about location of underground diesel storage tanks and potentially losing a pump due to construction
- Closure of pumps would impact the viability of the business
- Signage is very important to the business, given its reliance on passing traffic.

5.6 Grey Gums Hotel Motel

- Concerned about maintaining access for hotel guests. Noted that the slip lane is important for access to the hotel
- Noted that the gaming room and smoking area are semi-outdoor and are concerned about construction related noise and dust
- Not concerned about the potential removal of the trees located outside their facility as they have had previous incidents of trees falling on patrons and staff vehicles.

5.7 Western Motorcycles

- Currently displays vehicles out the front of the shop, fronting Mulgoa Road
- Concerns with losing the front display area
- Only access to the shop is off Mulgoa Road, via a narrow driveway
• Delivery vehicles also use this access and often hold up traffic while entering or exiting the shop. This has been known to hold up traffic through to the M4 Motorway
• Requested that their driveway is widened as part of the proposal.

5.8 Regentville Public School

• The school stated there are current issues with congestion and traffic delays during both the AM peak periods from 8:45am to 9:05am and from 3:00pm when school finishes
• Some concern that construction works will exacerbate these traffic issues
• Recognises that once operational, the widening of Mulgoa Road will improve both traffic and congestion going forwards
• Almost 80 per cent of students travel to school by car, with only a small number using public or active (walking or cycling) transport
• The school noted that parents are hesitant to let children travel to school on the public buses or by walking or riding due to safety concerns of crossing roads and interaction with strangers
• The bus lane, located off Jeanette Street connecting to Harwood Circuit, is not used to capacity due to the small percentage of students traveling to school via this mode. There has been a previous misunderstanding about who the owner of the bus lane is and the school is still unsure if it is Roads and Maritime, Education NSW or Penrith City Council
• The school believes the best method of reducing congestion would be to provide more access and opportunities for school buses to operate within the area. The safer alternative would significantly reduce the number of cars on the roads.

5.9 Penrith City Council

• Penrith City Council’s key interest in the proposal relates to the provision of active transport infrastructure within the proposal area
• Noted that the Penrith Festival takes place in the first weekend of November and generates a lot of traffic on local roads.
6 Assessment of social and economic impacts

The following potential socio-economic impacts related to the proposal have been identified for the proposal area and its surrounds.

6.1 Construction phase impacts

6.1.1 Property Impacts

The proposal would require Roads and Maritime to acquire land to widen the road corridor. The acquisitions involved include both partial and full and a combination of residential and commercial properties. These acquisitions would result in a permanent impact to these properties.

Table 1 identifies the properties that will be partially or fully acquired to provide additional land to widen the road corridor.

Table 1 Property Acquisitions

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<thead>
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<th>Lot/Plan</th>
<th>Address</th>
<th>Use</th>
<th>Area of acquisition (m²)</th>
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<td>Commercial</td>
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<td>SP63101</td>
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Acquisition of land would take place prior to the start of construction. Roads and Maritime would undertake all acquisitions in accordance with current Roads and Maritime guidelines including *Roads and Maritime Services Land Acquisition Information Guide* (*Roads and Maritime Services, 2014b*) and the *Land Acquisition (Just Terms Compensation) Act 1991*.

As outlined in section 5, Roads and Maritime have a Personal Manager of Acquisitions who works directly with landholders and residents expected to be impacted by the proposal to ensure the process is supportive of the needs of those affected. This position has been incorporated amongst all Roads and Maritime projects to ensure they align themselves with their Property Acquisition policy (*Roads and Maritime Services, 2014*).

The overall demographic profile of the study area is not expected to be impacted by the acquisition of these residential properties.

The existing gas mains that run along Mulgoa Road (owned and managed by Jemena) are proposed to be relocated via Hatchinson Crescent, along Warragamba Crescent and re-joining Mulgoa Road via Glenbrook Street (refer Proposal area). Further investigations will be completed for relocation of these gas mains throughout detailed design and in consultation with Jemena. Property owners and residents of dwellings along these streets will be engaged to understand potential impacts associated with these works. It is anticipated that these relocation works would take no longer than three weeks.

In addition to these acquisitions, a temporary construction compound is proposed to be established on the Council reserve at 111 Mulgoa Road, Regentville. This is proposed as the main construction compound and would be of sufficient size to accommodate:

- Material laydown areas
- On-site construction buildings and worker facilities
- Temporary car parking.

The construction compound would be secured with construction fencing and gates and be provided with power for lighting and communications. Erosion control provisions and other Council and contractual requirements would be provided to ensure that the site is maintained in a reasonable condition.

As a result of occupying 111 Mulgoa Road, recreational use of the park will temporarily cease and potential impacts associated with noise, dust and other disturbance will need to be mitigated or managed. It is anticipated that access to all properties in the vicinity of the reserve would be maintained during construction.

Neighbouring residents on Cornelius Place and Jeanette Street, will also need to be engaged as their properties back onto the proposed compound area.

6.1.2 Amenity impacts

Construction activities related to the proposal are expected to have some impact on amenity in and directly adjacent to the proposal area. This is likely to include:

- Noise and vibration impacts
• Air quality impacts
• Visual amenity impacts.

6.1.2.1 Noise and vibration

There are a number of construction activities where construction noise and vibration impacts are expected. The loudest construction activities are demolition and excavation, construction of retaining walls and pavement tie-ins and overlay. These occur over the entire proposal area. Key noise and vibration impacts during construction include:

• Residents along Cornelius Place and Jeanette Street potentially expected to be disturbed from the 111 Mulgoa Road construction compound area
• Noise and vibration impacts associated with the construction of the noise wall along Hatchinson Crescent
• Residents along Warragamba Crescent, Hatchinson Crescent and Glenbrook Street potentially affected by noise and vibration impacts as a result of works associated with the relocation of the gas main along these streets.
• Noise impacts associated with general construction traffic. While noise is expected to be generated over a wide area, traffic noise will be the greatest at ancillary sites, batching plant locations, and where construction is occurring at a given time. The peak expected construction traffic associated with the project is 200 light vehicles and 200 heavy vehicle movements per day.

Vibration from the construction work is not likely to adversely impact on sensitive receivers if safe working distance recommendations are followed. For cases where vibration-generating works are required to occur within the safe working distances close to sensitive receivers, impacts may occur and dilapidation surveys are recommended.

6.1.2.2 Air Quality

There is the potential for dust generation associated with the following construction activities:

• Stripping of topsoil
• Clearing of vegetation
• Earthworks
• Stockpiling
• Transport and handling of soils and materials
• Traffic movements on unpaved roads.

These activities would be associated with dust generation and potential amenity impacts on nearby sensitive receptors. Dust generation would occur temporarily and be exacerbated during dry and windy conditions, particularly on hot days. Potential impacts would be minimised through the implementation of safeguard measures. As such, the proposal would have minor adverse impact on dust generation during construction.
Exhaust emissions from construction plant, machinery and vehicles would also generate emissions that could impact on air quality and amenity for local residents. Such emissions (including carbon monoxide, carbon dioxide, oxides of nitrogen, sulphur dioxide and non-combustible hydrocarbons) are associated with the combustion of fossil fuels during vehicle movement and the operation of on-site plant and construction machinery. It is expected that all construction vehicles, plant and machinery would be operated in accordance with the manufacturer’s guidelines and therefore associated emissions and air quality impacts would be negligible in the context of existing vehicular movements in the region. The proposal would therefore have minor adverse impact on emissions and ambient air quality during construction.

There would also be the potential for odour associated with the construction of the road pavement, specifically during the application of asphalt and line-marking. Again, this would be temporary in nature and minimised through the implementation of safeguard measures. The proposal would therefore have minor adverse impact on odour during construction.

Dust could potentially impact a number of businesses who have elements of outdoor dining or entertaining. These are further defined in section 6.1.8

Exhaust emissions from plant, machinery and vehicles used during the construction phase would also have the potential for emissions that could impact on air quality and amenity for local residents. It is expected that all construction vehicles, plant and machinery would be operated in accordance with the manufacturer guidelines and therefore associated emissions and air quality impacts would be negligible in the context of existing vehicular movements in the area.

Section 6.12.3 of the REF outlines safeguards and management measure to address potential air quality impacts. This includes the preparation of an Air Quality Management Plan.

### 6.1.2.3 Visual amenity

The construction phase of the road corridor upgrade will result in a temporary reduction in visual amenity. A number of existing trees and vegetation will be removed in the construction phase. These include the removal of vegetation along the footpaths and trees that currently provide a buffer between Mulgoa Road and the Kids Academy, and mature hedging that currently filters views from properties along Hatchinson Crescent. In addition, there will be temporary use of a Council reserve as a construction site.

For further information on visual amenity impacts, please refer to the Landscape and Character Visual Impact Assessment.

### 6.1.3 Travel behaviour

Construction of the proposal would involve the activity of light and heavy vehicles throughout the construction timeframe. The majority of high traffic activities would be encouraged to be held during off peak hours to minimise delays and congestion. As the proposal includes widening the road from two to
three lanes either side, changed traffic operations would be in place at times (e.g. temporary realignment of traffic) to allow for construction work to be undertaken.

The construction activities occurring within Hatchinson Crescent, Peter Court, Huron Place and Glenbrook Street may impact resident’s access and travel behaviours during the construction phase. Construction related impacts, such as road works, the construction of a noise wall and traffic related access issues may cause potential stoppages or detours for motorists traveling in these areas.

Construction related activities along Factory road will impact residents who have previously been able to turn left (i.e.: southbound) onto Mulgoa Road. Once construction commences this turning movement will no longer be available to motorists. Road works, traffic delays and congestion may also impact travel times for residents and parents/guardians who use the street to drop off children at the Regentville Kids Academy.

The removal of the Wolseley Street tunnel will alter the travel behaviour for motorists accessing the Homemaker Centre. Earthworks and construction is also expected to impact traffic and congestion within this section of Mulgoa Road.

Traffic will be temporarily realigned on to a new pavement south of M4 Motorway to allow installation of new pavement.

6.1.4 Public transport

The proposal requires the reconfiguration of bus stops to better support the upgrade. The bus stops would be repositioned to better support the predicted traffic measures for the various bus routes that travel along the Mulgoa Road corridor (identified in section 4.5.6).
Bus stops would require relocation during construction and this would be undertaken in consultation with the bus operators and public transport users. Temporary bus stops would be used to maintain public transport access. Communication with bus users regarding upcoming bus stop changes would be required (e.g. through website and bus stop signage/flyers).

Impacts to the railway operation will be negligible as the proposal area is located away from the railway and station infrastructure. However, rail users may experience some traffic delays when travelling to the railway station due to construction activity.

6.1.5 Active transport

Connections for pedestrians and cyclists would be maintained throughout the construction period. Where active transport connections/routes are temporarily removed or blocked an alternative connection would be provided. These alternate connections would be designed to maintain access for all users, including those with disabilities. These connections/routes would be coordinated with the stages of construction to ensure safe access and would be as direct as possible. In general, there is sufficient space within the existing road verges and adjacent to

Figure 16 Study area bus stops (Google, 2017)
the proposed works to accommodate existing or temporary pedestrian and cycle facilities.

6.1.6 Social Infrastructure

6.1.6.1 Open space and recreation

As there is limited open space along this section of Mulgoa Road negligible impacts to open space and recreation are expected. As outlined in section 4.9.1, the vacant lot at 111 Mulgoa Road has been proposed as the construction compound for the works. As described in section 6.1.1, the Council owned space will need to be sectioned off from public use throughout the construction period. Penrith City Council and Roads and Maritime will need to engage with the local community to provide prior notice of the changes of access to the space.

6.1.6.2 Community facilities

Both the Regentville Fire and Rescue Service and the Regentville Rural Fire Brigade are currently located directly adjacent to the proposal area and will continue to reside in the location throughout construction. Emergency access requirements will need to be discussed with the services and incorporated in traffic management plans. This includes taking into consideration peak fire season when planning major traffic changes or stoppages.

The proposal design includes improving the safety for fire vehicles to turn right onto Mulgoa road. This includes:

- Emergency vehicle signage with flashing lights on approach to Jeanette Street to allow for fire vehicle priority
- Road line marking and static signage to prevent traffic queues blocking emergency use of Jeanette Street.

As detailed in section 4.9.2, Regentville Public School is also in close proximity to the proposal area. No direct impacts due to construction are expected at the school, however potential congestion as a result of the works could impact school traffic. Construction and traffic management planning needs to be discussed with the school and incorporated in traffic management plans.

The Regentville Hall, currently occupied by Nepean Food Services as detailed in section 4.9.2 may experience potential delays and additional congestion out of Jeanette Street due to construction related activity.

While no direct construction impacts are expected at the Regentville Kids Academy, parents dropping off and picking up children may experience additional traffic delays associated with the works. Removing the left out option out of Factory Road onto Mulgoa Road may also change parent’s road journey.

The Penrith Showgrounds are not expected to experience any direct impacts due to construction related activities, however given the significance of its crowds and community use, potential traffic and congestion impacts may hinder patrons on their journey to the facility, particularly within the Penrith Show period.
6.1.7 Economic

There would be minimal impact to the local and broader economy as a result of the project. A number of businesses would be impacted by acquisition of property and/or vehicular access. These are discussed in section 6.1.8. However, a Construction Management Plan will be implemented to ensure all commercial establishments can remain in operation. There is potential for traffic to avoid the area during construction where alternate routes are available. This could potentially result in a reduction of traffic through the area and therefore reduced business exposure.

6.1.8 Business and industry

Access to the Penrith Homemaker Centre would be impacted during construction due to the removal of the free-flow tunnel access from Mulgoa Road. Access to the centre from Mulgoa Road will be maintained during construction by utilising the median between Glenbrook Street and Wolseley Street as a temporary right turning lane into Wolseley Street on the west of the existing tunnel entrance.

To enable the road to be widened, a strip of land will be acquired along the Homemakers Centre’s frontage. Customers may also experience congestion and potential confusion due to changed access arrangements. This will need to be considered within the Traffic Management Plan and discussed with the centre’s management.

The BP service station is also expected to experience impacts due to the widening of the corridor and the location of the new shared path being within close proximity to the existing diesel fuel bowser and it is likely that the diesel fuel bowser will be relocated. There is also possible vehicle circulation issues particularly for the BP service station on the corner of Mulgoa Road and Blaikie Road as a result of the proposal.

The Shell service station will also experience impacts during construction with their Mulgoa Road entrance closed and replaced to allow adequate space for the intended bus bay/shelter and to provide adequate sight distance for entry and exiting vehicles. The exit only from Shell service station is to be upgraded to accommodate entry and exit from Mulgoa Road. To counteract the closure of the entrance to traffic from Mulgoa Road, the exit of Wolseley Road toward the Shell service station will be temporarily widened approximately three metres to introduce a temporary traffic lane whilst the Mulgoa Road entry is closed.

Penrith Trade Centre is expected to experience impacts during construction due to the strip acquisition along the western verge of Mulgoa Road and as a result several car parks are expected to be removed as identified in section 6.1.7. Potential traffic as a result of construction may also impact the centre’s employees and customers travel times due to congestion.

Quality Inn/Grey Gums Hotel would also be impacted by construction activities along Mulgoa Road, with a number of car parks expected to be removed. Removal of some of the established Forest Red Gum trees will also be required however, the intention is to retain as many trees as possible and this would be explored further throughout the detail design. Construction may also cause potential dust, noise and traffic impacts to both hotel patrons and motel guests.
Access to both facilities will still be available through Blaikie Road and Wolseley Street during construction.

Western Motorcycles are expected to be impacted from the widening of Mulgoa Road requiring the acquisition of the portion of the shop front area, which is currently utilised by the business as a display area as detailed in section 6.1.7. Access to the site may also be temporarily impacted by road works occurring on Mulgoa Road in this area. Traffic congestion as a result of construction activities may also cause further delays.

Hungry Jacks patrons and employees may experience delays as a result of construction activity. The acquisition along the frontage of the store may also impact the fast food facility if signage is lost, due to the number of competitive fast food restaurants on the road corridor, as identified in section 5.1.7.

Several other Mulgoa Road businesses are also expected to be impacted by construction activities and potential congestion, these include:

- YMCA Penrith
- Penrith Tyres and Mechanical Repair
- Penrith Ice Palace
- Hooters
- GPC Electronics
- Penrith - Toys "R" us, Babies "R" us
- Barbeques Galore Penrith
- Rashays restaurant
- Pool & Spa Warehouse
- Rudolph's Christmas Centre.

The Nepean animal hospital is not expected to be directly impacted by construction activities, however given the service is the only 24/7 veterinary service within 20km, maintaining access at all times is important, especially after hours.

While not located within the proposal area, Penrith Panthers Entertainment, Leisure and Sporting Precinct patrons may experience potential construction related congestion delays during major events such as Penrith Panther’s home games.

All businesses located within and adjacent to the proposal area would need to be considered during the preparation of the traffic management plan.

6.1.9 Tourism and recreation impacts

No direct tourism and recreation related impacts are expected as a result of the proposal, though it is noted that construction related traffic impacts may impact visitors in and around the proposal area. Potential traffic and congestion could potentially be a deterrent to visitors wanting to travel to the identified tourism attractions in section 4.7.4.
6.1.10 Community values

As referenced in section 4.8, Penrith City Council has set values which are to achieve a sustainable and prosperous region. The Council highlighted their aspiration is to ensure safe roads, including shared pathways for cyclists and pedestrians (Penrith City Council, 2017).

In relation to community values, the proposal isn’t expected to impact the community’s overall vision for Penrith, but is likely to temporarily impact a number of outcomes that the community highlighted as important in their community plan. For example, during construction it is going to be more difficult to move through the proposal area. This area provides access to major roads and a number of businesses and community facilities, and as such construction works are likely to disrupt people’s movements and cause some level of frustration.

Removal of vegetation along the road corridor may also concern some people, especially any impact to the Eucalyptus trees located along Mulgoa Road.

There is also potential for shared pathways to be relocated and the road journey to be unique due to activity taking place. Residents journeys through the Mulgoa Road proposal area may be disrupted during the short term.

6.1.11 Cumulative impacts

There are a number of road upgrades underway/commencing within the same time frame as the proposal.

These projects and relevant timings include:

- **Mulgoa Road/Jane Street upgrade:** Roads and Maritime will commence construction of the upgrade of Jane Street - Great Western Highway and Mulgoa Road - Castlereagh Road intersections in late 2018. This project area is located approximately 2.5km north of the proposal area. Construction is expected finish by mid-2020 (Roads and Maritime, 2016).

- **M4 Smart Motorway project:** The NSW Government is upgrading the M4 Motorway to build NSW’s first smart motorway. Stage 1 will start with building an additional lane in each direction between Roper Road and the M7 Motorway. This project will provide more capacity on the motorway to ease congestion, and improve journey times for road users. Stage 1 commenced December 2017 and is scheduled to be complete by 2020. (Roads and Maritime, 2017).

- **The Northern Road:** The Northern Road upgrade between Mersey Road, Bringelly, and Glenmore Parkway, Glenmore Park covers about 16km and would divert The Northern Road around the Western Sydney Airport site and around Luddenham town centre. The Environmental Impact Statement (EIS) and concept design for the upgrade was on public exhibition until August 2017. A Submissions and Preferred Infrastructure Report has now been prepared and is currently available on the Roads and Maritime website. The NSW Department of Planning and Environment will now prepare an assessment report and the Australian Government Department of the Environment and Energy will prepare a recommendation report for the project. Once these reports are finalised, the Commonwealth Environment Minister and the NSW Planning Minister will decide whether or not to approve the
project, any modifications that must be made, and the conditions to be attached to any approval. The project is expected to commence in mid-2019 and is anticipated to be completed by 2022 (Roads and Maritime, 2017)

The occurrence of these significant road projects within similar timeframes may impact residents and motorists travelling on these connecting road corridors. Congestion and delays are expected whilst these major infrastructure projects are in construction and thus motorists will likely be impacted when travelling.

6.1.12 Summary of construction impacts

The constriction phase will result in a number of negative impacts as described in the previous section. A summary the construction related impact is as follows:

- Permanent full acquisition of 4 residential properties and permanent partial acquisition of 17 properties (10 residential and 7 commercial) are required to enable the widening of the road corridor on both sides. These acquisitions would be permanent boundary realignments.
- Temporary dust, noise and visual impacts created by construction activities for residents and businesses within the proposal site.
- Pedestrians and cyclists using active transport infrastructure within the proposal site may also be impacted by traffic changes, detours and stoppages during construction.
- Removal of car parks at the Super Amart centre during construction (to be finalised during the detail design).
- Removal of vegetation from areas within the proposal area may impact people’s perception of community values associated with green space and environmental protection, including the removal of mature eucalypt trees.
- Access impacts to Shell service station.
- Changes to the traffic environment due to construction activities are likely to cause delays and temporary stoppages in the proposal area and its surrounds. This may impact access to local businesses, residences, recreational areas, Penrith Homemaker Centre, Penrith Rural Fire Brigade, Regentville Fire and Rescue, Regentville Public school, Kids Academy Regentville, BP service station.
- Existing bus stops within the proposal area would be relocated and temporary stops would be used for the duration of the construction phase.

6.2 Operation phase impacts

6.2.1 Property impacts

Once operational, the proposal is not expected to have any additional property impacts. In relation to driveway access to the Penrith Homemaker Centre the free-flowing traffic lane will be removed and replaced with a right turning lane at a traffic light adjacent to the centre.
6.2.2 Amenity impacts

While a number of trees will be removed as part of the proposal, planting is proposed to reinstate the existing Eucalyptus character of the area. Once operational, a number of new visual elements will be integrated into the proposal area to improve user experience. These include planting on the traffic islands, creation of an entry statement through higher levels of treatment through planting selection at key nodes, and a mix of planting and paving where pedestrian movements occur to provide visual interest. This will lessen the impact on amenity generally associated with a widening of a road corridor (such as reduced character and visual amenity, reduced air and noise quality). For further information on visual amenity impacts, please refer to the Landscape and Character Visual Impact Assessment.

The noise modelling and on-site measurements indicate that noise sensitive receivers along Mulgoa Road, north of the M4 Motorway, on Mulgoa Road north of Rodley Avenue, as well as the active and passive recreation areas adjacent to the proposal area (i.e. Woodriff Gardens and Nepean District Tennis Association) are already experiencing an exceedance of the NCG noise criteria for road redevelopments. Although no significant increase in noise levels is predicted to occur as part of the proposal, these receivers are predicted to exceed the cumulative noise limit, with noise levels from project road segments being the dominant noise sources.

Under the provisions of the NMG, these receivers would qualify for consideration of at-property noise mitigation as a result of the proposal. Mitigation via low-noise pavements or noise barriers/mounds is not considered feasible for these receivers.

A noise wall has been recommended to address exceedances at noise-sensitive receiver locations between Glenbrook Street and Hatchinson Crescent. The recommended noise wall is to extend from Glenbrook Street in the north, along Hatchinson Crescent and around the bend of the M4 eastbound entry ramp. Whilst addressing noise impacts, the noise wall in itself may be regarded by residents and motorists as a negative visual impact. Changes to the current vegetation barrier could result in potentially negative response from both motorists, community members and residents. Architectural treatment will likely be provided for residential found to experience residual exceedances of the NCG noise levels. For further information on noise impacts, please refer to the Noise and Vibration Impact Assessment.

6.2.3 Travel Behaviour

When operational, the proposal would reduce congestion and delays along Mulgoa Road and Wolseley Street, Glenbrook Street and Blaikie Road intersections during peak hour periods. The widening of the proposal road corridor will enable traffic to flow freely reducing stoppages and decreasing average travel times through this area.

The following changes to intersection layouts would be implemented once operational:

- **Hatchinson Crescent, Huron Place and Peter Court** – Once operational, Hatchinson Crescent would become a five metre wide two-way shared transit
zone for vehicles and cyclists, with a 1.5m wide footpath provided for pedestrians. The shared zone would accommodate traffic flow in both directions. Raised threshold treatments are proposed at the start, end, and midpoint of this zone to alert drivers to the change in road environment. This would also be achieved by a change in road asphalt colour, additional signage, and a change to the typical road line marking. Residents’ existing driveways would be maintained.

A noise wall would also be constructed in this area to reduce the road traffic noise and achieve acceptable noise levels at neighbouring residences, as discussed in section 6.1.2.1. The introduction of the wall will change the current outlook for residents.

- **Glenbrook Street** – once operational, the access to the new two-way shared transit zone at Hatchinson Crescent from Glenbrook Street would be restricted to left-in only. Traffic would exit via Warragamba to reach Glenbrook Street.

- **Factory Road** – Once operational, Factory Road would be restricted to left-in only. The left-out turn is proposed to be removed for safety reasons due to the proximity of Factory Road to the left-turn auxiliary lanes to the M4 westbound entry ramp. Access to Mulgoa Road and the M4 Motorway from Factory Road would be via Gibbes Street and Spencer Street. Alternative access to Mulgoa Road is via Bellevue Road, Tench Avenue and Jamison Road.

- **Wolseley Street Tunnel** - The right turn tunnel is proposed to be replaced by dual right-turn lanes and a fully signalised intersection. All other turning arrangements would remain.

### 6.2.4 Public Transport

In relation to public transport, bus priority lanes would be provided at the Mulgoa Road/Blaikie Road intersection, Mulgoa Road/Glenbrook Street intersection and Mulgoa Road/Wolseley Street intersection, improving access for buses in this area.

The repositioned bus stops would better support the predicted traffic measures identified in section 5.1.4 for the various bus routes that travel along the Mulgoa Road corridor. The exact location of bus stops would be further investigated throughout the detailed design.

### 6.2.5 Active transport

In relation to active transport, a shared path for pedestrians and cyclists connecting with an active transport corridor would be provided on the eastern side of Mulgoa Road. The existing footpath on the western side of Mulgoa Road would be maintained as part of the proposal widening works. These improvements to active transport infrastructure will contribute to safe, healthy and effective pedestrian and cycling linkages within the Penrith CBD.

### 6.2.6 Social infrastructure

Overall, access to social infrastructure within the proposal area would be improved by operation of the proposal. This will be achieved by improved traffic flows in the local area.
Access for the fire services will be significantly improved through the following upgrades:

- Emergency vehicle signage with flashing lights on approach to Jeanette Street to allow for Fire Brigade priority
- Road line marking and static signage to prevent traffic queues blocking emergency use of Jeanette Street.

6.2.7 Economic

No changes to the socio-economic environment are expected as a result of operation of the proposal. Direct impacts on business, employment and industry are also not expected to be impacted by its operation. That said indirect benefits associated with reduced traffic congestion and ability to move through the proposal area are expected.

6.2.8 Business and industry

While the proposal is not expected to have any direct impact on business and industry, there may be subsequent impacts to travellers with changes in turning movements and restrictions, in relation to previous travel patterns. However once operational, the proposal is expected to provide indirect benefits to local business and industry in the form of improved access to and through the local area, the operational road aiming to reduce congestion. These include improved access to businesses on Blaikie Road and Wolseley Street through dedicated turn lanes.

6.2.9 Tourism and recreation

No direct tourism and recreation related impacts are expected as a result of the proposal. Once operational, the proposal may provide indirect benefits to tourism and recreation in the form of improved access to and through the local area.

6.2.10 Community values

The upgraded intersections are expected to provide a range of socio-economic benefits including reduced travel times, reduced vehicle stoppages, improved safety for all users, new cycle and pedestrian infrastructure and new urban and landscape design elements to improve amenity as much as possible.

While it is recognised that roads and intersections in the area will be larger in scale and 'busyness', landscaping and urban design elements would be included in the road corridor to break up the bulk of the road corridor as much as possible.

As described in section 3.5.2, the Active Transport Corridor infrastructure incorporated into the proposal aligns with Penrith City Council’s vision to improve the accessibility to active transport opportunities to improve both vehicle dependency and healthy lifestyles.
6.2.11 Cumulative impacts

Once construction of the next stages of the Mulgoa Road programme has commenced, there may be a subsequent increase in operational issues for the proposal area, mainly due to potential traffic induced delays.

6.2.12 Summary of operational impacts

Unlike the construction phase impacts, the operation phase involves both positive and negative impacts. A summary of operational related impacts is as follows:

- The operation of the proposal will reduce congestion and delays significantly along Mulgoa Road during peak hour periods, enabling traffic to flow more freely and reduce stoppages. This is a positive impact.
- Community values associated with ease of access to services, safer road and greater access to active transport and lifestyle are consistent with the benefits associated with the operational proposal. This is a positive impact.
- No additional property impacts are expected and there will be limited changes to current access and egress arrangements within the proposal area.
- New visual elements (landscape and urban design elements) within the proposal area are expected to mitigate amenity impact associated with the increase in the scale of the road corridor. This is a positive impact.
- Noise wall between Mulgoa Road and Hatchinson Crescent/Huron Place, extending from Glenbrook Street in the north and the M4 eastbound entry ramp in the south. This will have a positive impact in reducing noise, however may be a negative impact visually. The design should carefully consider aesthetics to reduce the visual impact of the wall.
- Changes for residents and motorists travelling through Hatchinson Crescent, with access to Hatchinson Crescent via Glenbrook Street restricted to left-in only. This may be a negative impact as it changes the existing routes of some motorists who would need to utilise an alternate route, however may present a positive impact to the performance of the overall road network.
- Hatchinson Crescent to become 5m wide shared zone for vehicles and cyclists with a 1.2m wide footpath for pedestrians. This would have a positive impact to encouraging participation in active transport.
- Factory Road would be restricted to left-in only. This may be a negative impact as it changes the existing routes of some motorists who would need to utilise an alternate route, however may present a positive impact to the performance of the overall road network.
- Wolseley Street tunnel and access to the Homemaker Centre would be replaced by dual right-turn lanes and fully signalised intersection. This would be a positive impact with improved access to the Homemaker Centre, improved traffic flow, and improved safety.
- Improvements in this area of the Mulgoa Road corridor will complement other road improvements along this corridor benefiting motorists through improved travel times and reduced congestion. This would be a positive impact with improved efficiency of the road network.
7 Mitigation and management

To address impacts and enhance benefits identified in section Error! Reference source not found., a suite of migration and management action have been identified for the proposal’s construction and operational phases.

7.1 Construction Phase

7.1.1 Property impacts

- Roads and Maritime have and will continue to consult with various businesses/organisations in the area who will be fully or partially acquired prior to commencing construction
- Roads and Maritime will ensure property access is maintained through consultation with landholders during construction
- All property acquisitions to be undertaken in accordance with current Roads and Maritime guidelines including Roads and Maritime Services Land Acquisition Information Guide
- Roads and Maritime will consult with public utility providers regarding the relocation of services
- Roads and Maritime will maintain property access in consultation with landholders during construction
- Roads and Maritime negotiate suitable temporary lease arrangements for the construction compound area.

7.1.2 Amenity impacts

- Avoid and minimise the removal of mature trees wherever possible
- A noise wall between Mulgoa Road and Hatchinson Crescent/Huron Place to mitigate the noise of Mulgoa Road
- Develop a Construction Environmental Management Plan (CEMP) to minimise and manage dust, noise, vibration etc. associated during the construction phase of the proposal
- Urban and landscape treatments to be incorporated into the design where possible to ensure the road corridor is aesthetically pleasing and incorporates greenery components to the hard infrastructure
- Consultation with stakeholders and the community about the planned landscape features to ensure they’re supportive of the proposed design elements.
- Vegetation lost during construction will be reinstated in accordance with the landscape and urban concept design and wider Mulgoa Urban Design Strategy. This will provide a selection of landscape sections to build on the natural charter to strengthen connection with the surrounding mountains.
- Vegetation will be used to screen road elements and create separation between the road corridor and residential use.
7.1.3 Traffic, pedestrian and cyclist impacts

- Emergency access must be maintained for both Fire stations at all times via signals or traffic controllers. This also must be integrated into traffic management planning. There needs to be particular consideration during the construction phase, for both fire stations to obtain quick access during the bush fire danger period, which runs from September through to May.

- Develop a traffic management plan for high alert fire days/emergencies to ensure quick access to the Blue Mountains via Mulgoa Road is maintained, given the severity of previous bush fires within the region.

- Provide temporary bus stops during construction and communicate with bus users ahead of stop changes.

- Ongoing engagement with the Homemaker Centre and relevant businesses to ensure access is maintained without the use of the tunnel.

- Take into consideration the construction timing to mitigate peak hour drop off and pick up for the Regentville Kids Academy and consider an alternate route and appropriate signage for vehicles turning right (south bound) onto Mulgoa Road. A permanent alternate route would be required as the turn will be removed permanently.

- Construction workforce planning to include workplace parking.

- Maintain pedestrian and cycle access throughout the construction area as much as possible. Where possible provide detour routes to manage access impacts.

- Ongoing engagement and communication with Hatchinson Crescent, Peter Court and Huron Place residents is required to ensure they’re aware of the changes occurring throughout both construction and once the road is operational.

- Engagement with staff and shoppers of the Homemaker Centre to ensure they are notified of the changes to the Wolseley Street tunnel and that alternative access would be provided.

- Engagement with Regentville Kids Academy and Factory Road residents regarding removal of left out turn.

- Access to the Homemaker Centre during decommissioning of the tunnel will be retained by utilising the median between Glenbrook Street and Wolseley Street as a temporary right turning lane into Wolseley Street on the west of the existing tunnel entrance.

7.1.4 Business and industry

- Maintain signage associated with businesses during construction. A signage management plan should be prepared in consultation with businesses.

7.1.5 Community consultation and communication

- Preparation of stakeholder communication and engagement plan to address planning and construction activities.
• Ongoing engagement with local stakeholders, residents, businesses, motorists and motoring and trucking representative bodies to discuss construction activities and traffic management
• Ongoing engagement with key retail centres, the Penrith Homemaker Centre, Harvey Norman Centre and all key retained businesses to discuss impacts and timing, especially in relation to access and visibility to businesses.
• Ongoing engagement with both Fire Stations to ensure a traffic management plan is in place during construction and particularly within the Bush Fire season.
• Include the wider Mulgoa Road businesses within future discussions to ensure the predicted traffic and delays are communicated well in advance.

7.2 Operation phase

Once the proposal is operational there are no additional mitigation or management actions required.
8 Conclusion

The socio-economic assessment has identified that construction related impacts will be localised to the proposal area and its surrounds and are most likely to occur due to traffic and access disruptions and stakeholder specific issues associated with access and construction activity. These items will need to be carefully managed during construction to reduce these impacts as much as possible.

Key construction related impacts to be managed include:

- **Transport and access** – Disruption and changes will occur within the study area for all transport modes, including pedestrians and cyclists, due to construction related activities. Key changes in access will be along Hatchinson Crescent, Factory Road and the removal of Wolseley Street tunnel. Traffic management processes and communication with stakeholders will provide key management actions to address and mitigate the potential issues.

- **Community values** – Some impact to the Penrith City Council community values are expected during construction stages. These include values associated with caring and preserving the natural environment through the removal of mature eucalyptus trees. Traffic and congestion as a result of road works and delays along the road corridor is expected to impact motorists, local residents and business.

- **Social values** - A range of specific issues have been identified for stakeholders including the Homemaker Centre, Regentville Public School, Regentville Kids Academy, BP and Shell service stations, Penrith Trade Centre, Super Amart, Quality Inn/Grey Gums, Hungry Jacks, Western Motorcycles and various other businesses identified within this report. These issues will require careful management during the construction phase to mitigate potential impacts. Ongoing communication with stakeholders during construction will be a key management action to address these issues.

- **Community facilities** – Both the Regentville Fire and Rescue Service and the Regentville Rural Fire Brigade will need to be regularly engaged and updated by the proposal team to ensure their access in and out of Jeanette Street is maintained at all times during the construction period. In cases of Bush Fire high alert days/emergencies, the services will require careful management to minimise impacts as much as possible.

Once operational, significant socio-economic impacts are not expected, though it is acknowledged that roads and intersections in the area will be larger in scale and ‘busyness’ which may affect the amenity of the area. The upgraded intersections are expected to provide a range of socio-economic benefits including reduced travel times, reduced vehicle stoppages, improved safety for all users, new cycle and pedestrian infrastructure and new urban and landscape design elements to improve amenity as much as possible.

Key operational benefits include:

- **Transport and access** – The area will benefit from improvements to traffic flow, travel speeds, safer road networks and greater opportunity to access active transport networks.
- **Community values** – Vegetation would be utilised to screen road elements and create separation between the road corridor and residential uses. Greater provision of active transport networks will also align the community value of healthy and active lifestyles.

- **Community facilities** – through the widening of the turning space on Mulgoa Road between Jeanette Street and Factory road, both Fire Stations will have quicker and safer access when turning right northbound on Mulgoa road. The inclusion of more warning within the keep clear road signing outside Jeanette Street will also provide safer exit and entry for the Fire Trucks in times of emergency and day-to-day activities.