

Appendix J Socio-economic assessment



Roads and Maritime Services

The Northern Road / Bringelly Road Grade Separated
Interchange

Socio-economic assessment

November 2015

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1. Introduction

1.1 Overview

Roads and Maritime Services (Roads and Maritime) is proposing a new grade separated interchange at The Northern Road and Bringelly Road, Bringelly (referred to as 'the proposal' for the purposes of this report). The proposal is located within the Western Sydney Priority Growth Area and South West Priority Land Release Area (formerly known as the South West Growth Centre), about 45 km south-west of the Sydney central business district and 12 km west of Liverpool (refer to Figure 1.1).

The proposal would tie into The Northern Road Upgrade Stage 2A (Peter Brock Drive to Belmore Road) to the south, The Northern Road Upgrade Stage 2C (Thames Road to Mersey Road) to the north, and the Bringelly Road Upgrade Stage 2 (King Street to The Northern Road) to the east.

This report has been prepared by GHD as part of the environmental assessment of the project. Roads and Maritime is the proponent of the proposal, and an environmental assessment in the form of a review of environmental factors (REF) is being prepared by GHD in accordance with the requirements of Part 5 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act).

This socio-economic impact assessment (SEIA) report assesses and documents the potential socio-economic impacts of the proposal as an input to the REF.

1.2 Key features of the proposal

The grade separated interchange, which would involve The Northern Road passing under Bringelly Road, would be located about 300 m east of the existing intersection of The Northern Road, Bringelly Road and Greendale Road. The proposal also involves modifications to the existing intersection. The key features of the proposal are shown in Figure 1.1 and include:

- Widening and upgrading about 400 m of Bringelly Road, between Kelvin Park Drive and Greendale Road, to provide:
 - Two 3.5 m wide traffic lanes in each direction between Kelvin Park Drive and The Northern Road/Bringelly Road interchange, with wide central medians to allow for a future third traffic lane in each direction
 - Two 3.5 m wide traffic lanes in each direction on the western side of the interchange, transitioning to one lane in each direction to tie in to the existing intersection and Greendale Road
 - Two metre wide shoulders in each direction
- Constructing a new section of The Northern Road, to the east of the existing alignment, between about 200 m south of Robinson Road and the southern abutment of the bridge over Thompsons Creek. The new section, which would pass beneath Bringelly Road, would be about one kilometre long and about 50 m wide (including embankments), and would include:
 - Two 3.5 m wide traffic lanes in each direction
 - Four metre wide shoulders connecting to the on and off ramps of the interchange, allowing for the future provision of bus lanes
 - An underpass about 60 m long beneath the upgraded section of Bringelly Road

- 2.5 m wide shoulders along The Northern Road under the interchange for a length of about one kilometre
- A wide central median to allow construction of a future third traffic lane in each direction
- Providing a new signalised intersection on Bringelly Road over The Northern Road, with turning movements provided in all directions
- Providing dual right turn movements in all directions to and from The Northern Road and Bringelly Road, and dedicated left turn lanes in all directions
- Providing bus service facilities by:
 - Retaining the bus stops on the existing The Northern Road
 - Relocating bus stops on Bringelly Road to suit the interchange
 - Providing two new bus stops on The Northern Road northbound and southbound interchange on ramps
 - Providing a bus only lane for buses travelling north and south along The Northern Road at the traffic lights on Bringelly Road
- Providing three metre wide shared paths for pedestrians and cyclists
- Providing a new road connection between Robinson Road and The Northern Road via an extension of the realigned Belmore Road intersection, and building a cul-de-sac at the western end of Robinson Road
- Converting the existing section of The Northern Road (to the west of the new section) to a 'no through road', by providing cul-de-sacs at both the northern (at Thames Road) and southern ends (near Robinson Road).

It is anticipated that construction of the proposal would commence in late 2016 / early 2017 and would be open to traffic by the end of 2019.

Further information on the proposal is provided in chapter 3 of the REF.

1.3 Report structure

The report comprises the following sections:

- **Section 2 – Methodology:** describes the scope and methodology for the SEIA
- **Section 3 – Context for the SEIA:** provides a description of the strategic context for the proposal and the SEIA
- **Section 4 – Existing socio-economic environment:** summarises the existing socio-economic conditions of the local government areas and locality in which the proposal is situated
- **Section 5 – Consultation outcomes:** documents the issues raised during community engagement conducted by Roads and Maritime Services that are relevant to the SEIA
- **Section 6 – Socio-economic impact assessment:** considers the potential socio-economic impacts of the proposal during construction and operation
- **Section 7 – Management and mitigation strategies:** recommends measures to minimise the potential significance of the impacts identified
- **Section 8 – Conclusion:** presents a summary of the findings.

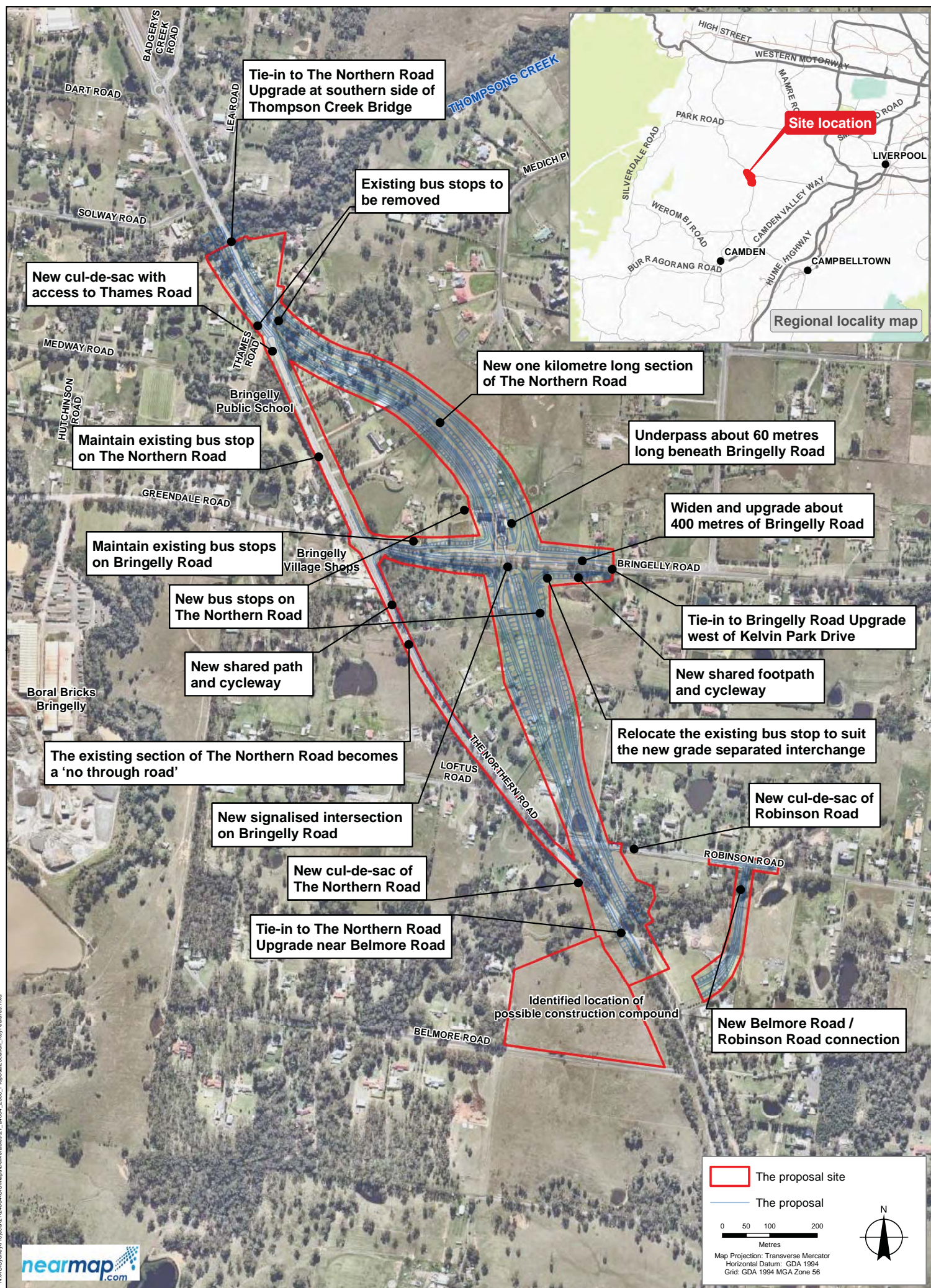


Figure 1.1 Proposal location and key features

2. Assessment methodology

2.1 Scope of report

This report summarises the results of the SEIA. It forms part of a package of technical reports that have been prepared to support the REF for the proposal. The SEIA considers the proposal in the context of the existing socio-economic environment and potential future urban form of the locality. The SEIA considers the likely socio-economic impacts of the proposal, and recommends management and mitigation strategies for the construction and operational phases.

The SEIA has been undertaken in accordance with the project brief provided by Roads and Maritime, and Roads and Maritime's *Environmental Impact Assessment Practice Note – Socio-economic assessment (EIA-N05)*. A 'moderate' level of investigation, as defined in the practice note, has been completed. The approach has also been guided by best practice frameworks for integrating socially sustainable outcomes and benefits for communities into major infrastructure projects, including the Infrastructure Sustainability Council of Australia rating tool.

It is noted that the results of other technical studies that have been prepared to assess the potential impacts of the proposal are not repeated by this report. This report cross-references the other technical reports, focussing on the potential socio-economic implications of these impacts.

2.2 Tasks undertaken

The SEIA involved the following main tasks.

2.2.1 Scoping of assessment

Scoping the SEIA involved attending initial project team meetings; reviewing information on the proposed concept design; and considering information on the location, timing and scale of the proposal. As the study areas overlap, the REFs for the upgrading of Bringelly Road and The Northern Road were reviewed:

- Review of Environmental Factors, *The Northern Road upgrade, Narellan to Bringelly* (SKM, 2012)
- Review of *Environmental Factors, Bringelly Road Upgrade* (nghenvironmental, 2011).

The planned scope and approach for the assessment was discussed with Roads and Maritime Services before starting work.

2.2.2 Defining the study area for the assessment

Local study area

The local study area for the SEIA was defined according to the communities with the potential to be impacted by the proposal. To understand the characteristics of these communities, the local study area was determined by grouping four Statistical Area Level 1 (SA1) catchments, which are the smallest levels of population data collection by the ABS.

The local study area is roughly bounded by The Northern Road to the north-west, the proposed western Sydney airport site at Badgerys Creek to the north, South Creek to the east, and Carrington Road to the south.

The local study area is shown in Figure 2.1.

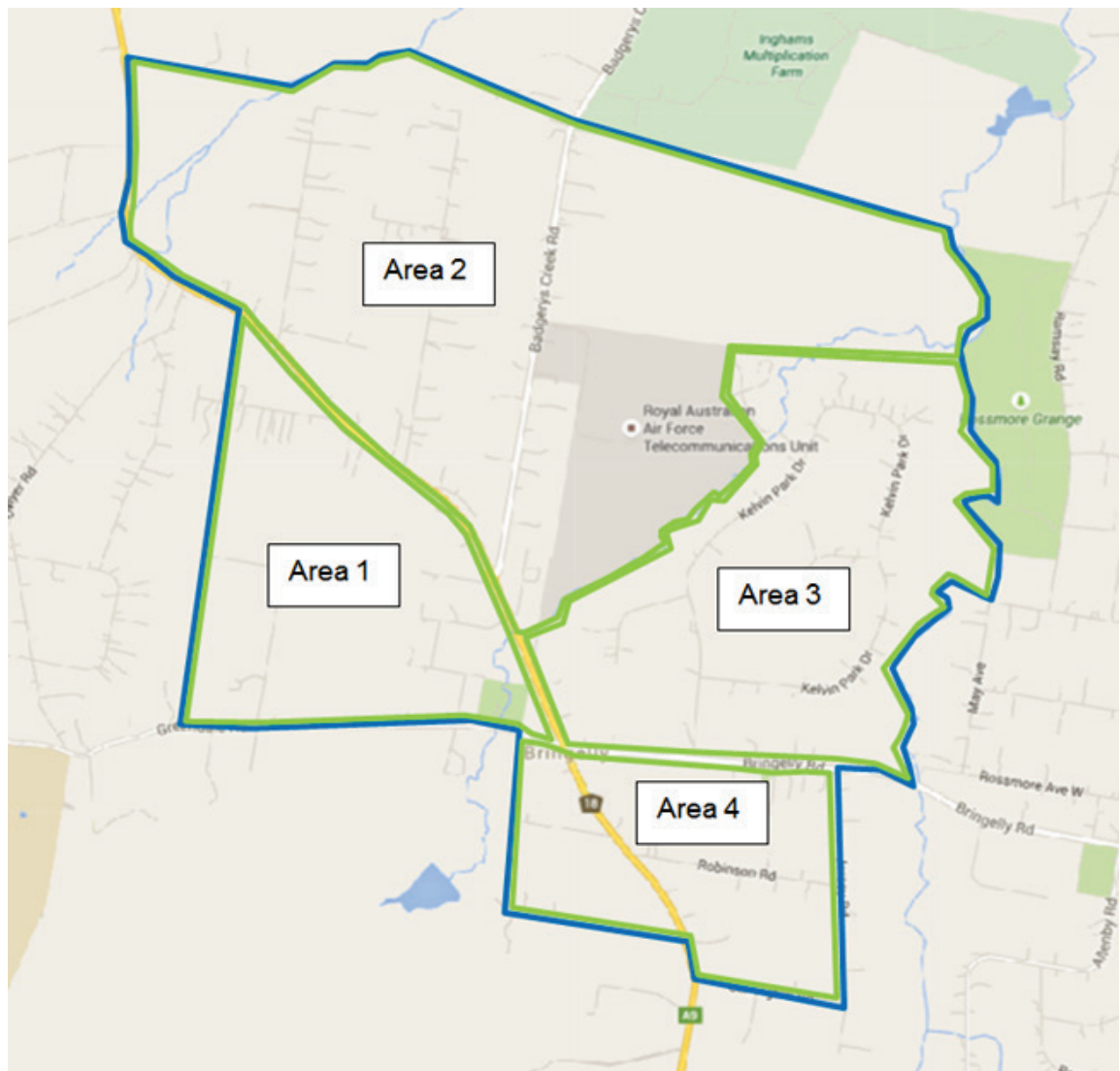


Figure 2.1 Census districts within the local study area for the SEIA¹

Regional study area

The regional study area for the SEIA has been identified for comparison purposes, by grouping two Statistical Area Level 2 (SA2) catchments – Badgerys Creek-Greendale, and Cobbitty-Leppington. These areas have been chosen as the point of comparison rather than the Liverpool and Camden LGAs, as they are mainly rural areas and exclude the urban centres of Liverpool and Camden.

The regional study for the SEIA is shown in Figure 2.2.

¹ The ABS SA1 codes are as follows area 1: 11505017, area 2: 1150518, area 3: 1150519 and area 4: 1150601

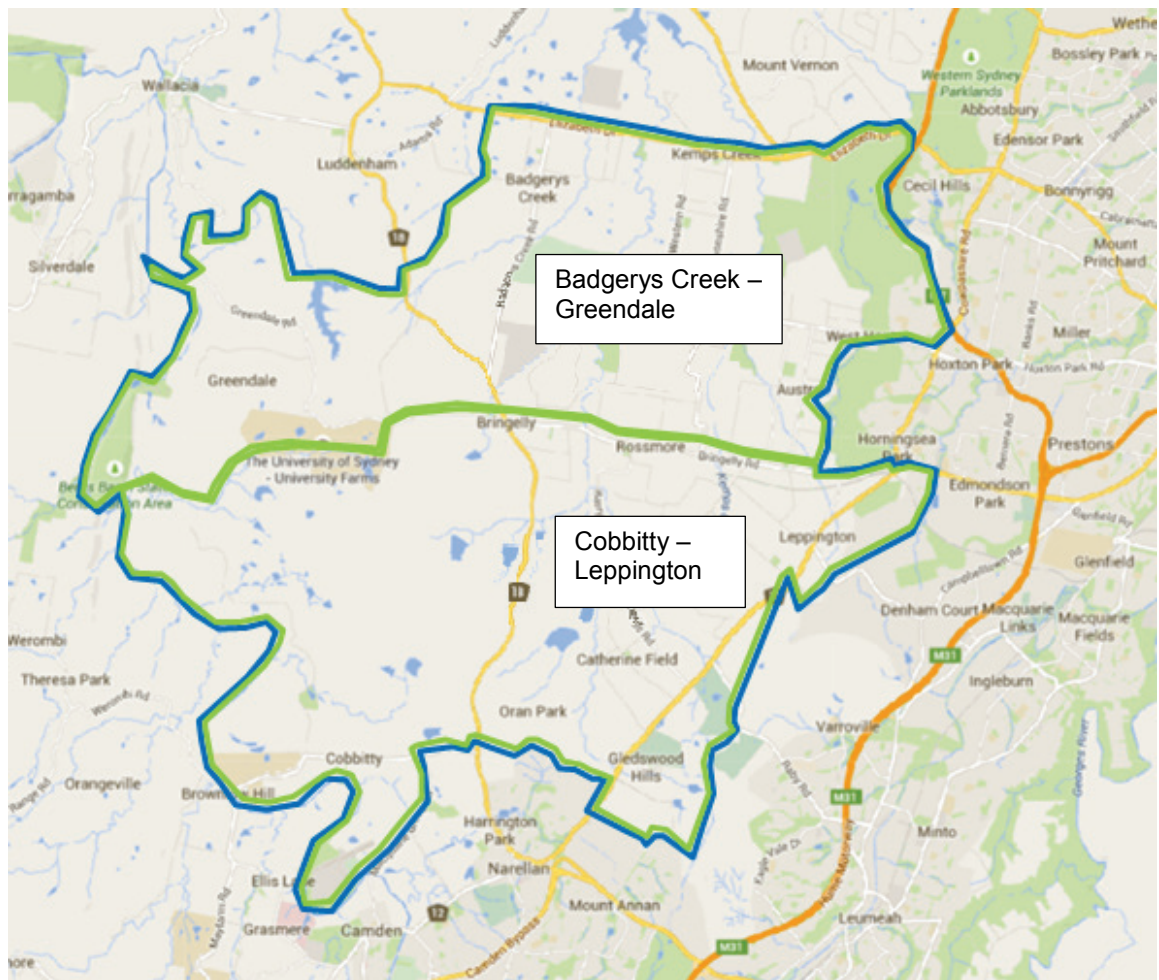


Figure 2.2 Regional study area for the SEIA

2.2.3 Demographic analysis and information review

A desktop review of relevant background information, local and regional planning strategies and demographic and socio-economic data was undertaken. Information was obtained from the relevant results of the Australian Bureau of Statistics (ABS) *2011 Census of Population and Housing* (the 2011 Census) and from Liverpool City Council and Camden Council. A community profile was developed and analysed.

2.2.4 Site visit and review of consultation outcomes

A site visit was undertaken to review existing land uses and local conditions.

The results of community consultation for the proposal were reviewed, including feedback from meetings with property owners and community information sessions (undertaken by Roads and Maritime). Roads and Maritime also provided information about the existing community concerns and constraints gathered during the process of negotiating investigation access agreements and the planning investigation phase.

2.2.5 Review of outcomes of other impact assessments and technical reports

The results of relevant technical studies undertaken for the REF were reviewed, including the traffic/transport, noise/vibration, heritage, and landscape character/visual assessment reports. Other impact assessment sections of the draft REF were reviewed.

2.2.6 Identification of impacts

Based on the above tasks, the potential socio-economic impacts of the construction and operation of the proposal were assessed. The assessment considered issues, potential impacts and mitigation opportunities including:

- Property acquisition/resident relocation
- Impact on local businesses
- Amenity and environmental health issues such as noise and stress
- Changes to access/potential severance including the ability of the existing community to access work, education and social activities
- Changes to transport/access including community safety including the relationship between existing pedestrian and cycle routes and the proposal
- Changes in access to social infrastructure including to schools, community facilities, child care and other services
- Health/community wellbeing issues including impacts on vulnerable groups such as the aged, people with a disability and people from culturally and linguistically diverse communities.

2.2.7 Development of mitigation measures

Mitigation measures are recommended based on the results of the SEIA, a review of mitigation measures recommended by other specialist studies for the proposal, and best practice measures for the mitigation of potential socio-economic impacts.

3. Context for the SEIA

3.1 Overview

The context for the SEIA includes:

- State, regional and local plans and policies that are potentially relevant to the development of the study area (refer section 3.2 below)
- Significant developments in the study area (refer section 3.3 below)
- The strategic need and drivers for the proposal (refer section 2.1 of the REF), and the background to selection of the preferred option (refer section 3.4 below).

In summary, the proposal is one of the key projects being developed as part of the Western Sydney Infrastructure Plan. The Plan will deliver major road infrastructure upgrades to support an integrated transport solution for the region and capitalise on the economic benefits from developing the proposed western Sydney airport at Badgerys Creek.

The proposal is needed to cater for the anticipated increase in traffic that will use the intersection of The Northern Road and Bringelly Road following the upgrading of these roads. A grade separated interchange will facilitate free flowing traffic on The Northern Road and it is also a safer option, separating traffic flows on The Northern Road and Bringelly Road. By building a grade separated interchange, road capacity would be improved, and the road network would provide for expected future traffic growth.

3.2 Strategic planning

The proposal is located within the Camden and Liverpool local government areas (LGAs). Relevant state government and council strategic and community planning documents were reviewed to understand the local and regional policy context.

The study area for the SEIA includes parts of the South West Growth Centre's Bringelly and Rossmore precincts. It is noted that these precincts have not yet been released by the NSW Government for planning or development.

The following regional strategic land use and community planning documents were reviewed:

- *A Plan for Growing Sydney - the Sydney metropolitan strategy* (NSW Government, 2014)
- *Structure Plan for the South West Growth Centre* (NSW Government, 2005)
- *Broader Western Sydney Employment Area Draft Structure Plan* (NSW Government, 2013)
- *South West Rail Link Extension - Public transport corridor preservation* (Transport for NSW, 2015).

Further information on these documents is provided in section 2.1 of the REF.

Relevant local planning documents were also reviewed, as summarised below.

3.2.1 Growing Liverpool 2023

In 2013 Liverpool City Council released its community strategic plan *Growing Liverpool 2023* (Liverpool City Council, 2013). This plan identifies the investments and policies that Council proposes to accommodate the future growth of south-west Sydney. It recognises the key role of Liverpool in this growth, and among other objectives, proposes to:

- Assist existing businesses to grow, innovate and become more competitive
- Provide safe and easy travel with a high quality road and traffic management network.

Improving the intersection of Bringelly Road and The Northern Road would assist in providing safe road access for residents and businesses in the western part of the local government area.

3.2.2 Camden 2040

Camden Council's strategic plan *Camden 2040* (Camden Council, 2013) articulates the vision for Camden into the future. Key features are:

- Healthy urban and natural environments
- Visible and accessible open space
- A prosperous local economy
- Effective and sustainable transport
- An enriched and connected community.

The proposal would improve the safety and efficiency of road travel. This would support effective road transport, supporting the local economy by connecting the local community with important services and employment.

3.3 Proposed and approved projects within and in the vicinity of the study area

Roads and Maritime is working to plan and build the new and upgraded major arterial roads that will ensure western Sydney's population meets the growth ahead. The Northern Road and Bringelly Road are principal arterial road corridors within the Western Sydney Priority Growth Area and South West Priority Land Release Area. Roads and Maritime is upgrading The Northern Road and Bringelly Road as part of the Australian and NSW governments' Western Sydney Infrastructure Plan. The proposal is one of a number of road improvement projects proposed and underway to cater for increased traffic volumes from the following planned developments:

- Western Sydney Priority Growth Area and South West Priority Land Release Area
- Western Sydney Employment Area
- Proposed western Sydney airport at Badgerys Creek
- Bringelly Brickworks expansion.

Further information on these developments, and the overall need for the proposal, is provided in section 2.1 of the REF.

3.4 Background to development of the proposal

As noted by section 2.4 of the REF, the proposal to upgrade The Northern Road in the study area was originally assessed in The Northern Road upgrade REF (SKM, 2012). The determined REF included an upgrade of the intersection of The Northern Road, Bringelly Road and Greendale Road in its current location, as an at-grade intersection.

In April 2014, the Prime Minister announced (as part of the Western Sydney Infrastructure Plan) a proposal to upgrade the intersection of The Northern Road, Bringelly Road and Greendale Road, by building a grade separated interchange between The Northern Road and Bringelly Road. In early 2015, Roads and Maritime undertook an options assessment process to identify a preferred alignment for the grade separated interchange. An alignment option located to the east of the existing intersection was identified as the preferred alignment option for the following reasons:

- Best meets the proposal objectives
- Minimises the potential impacts on identified environmental constraints
- Provides flexibility for future upgrades
- Provides benefits in terms of constructability
- Minimises impacts on existing land uses in the Bringelly town centre
- Retains access to the existing Bringelly Village shops
- Avoids impacts to the Bringelly Public School
- Avoids impacts to heritage listed items
- Minimises property impacts as much as possible.

In June 2015, Roads and Maritime engaged GHD to identify a preferred design option for the interchange based on URS's preferred alignment option, and prepare the concept design and environmental assessment. The preferred design option developed by GHD involves a change to the vertical alignment of the option proposed by URS, with The Northern Road now proposed to travel under Bringelly Road. This would minimise the potential noise and visual impacts compared to the option involving The Northern Road travelling over Bringelly Road.

Further information on the option development and assessment process, including the justification for selection of the preferred option, is provided in section 2.4 of the REF.

In summary, the proposal has been developed based on careful consideration of the potential impacts of the interchange on the local community. The proposal minimises impacts on businesses, land uses, visual amenity, the school and heritage items at Bringelly Village compared with the approved upgrade and other options considered.

4. Existing socio-economic environment

4.1 Overview

As noted in section 3.1, the proposal is located within the Camden and Liverpool LGAs. Bringelly Road forms the southern boundary of the Liverpool LGA and the north-eastern boundary of the Camden LGA. The intersection of Bringelly Road and The Northern Road is the major crossroads in Bringelly. The suburb of Bringelly is mainly rural/rural residential with some small scale agricultural pursuits, scattered local industry, community facilities and retail development.

4.1.1 Socio-economic data

Data on the demographic characteristics of the community potentially affected by the proposal has been compiled for a local study area, centred on Bringelly, and a regional study area, bounded by Bringelly in the north and Camden in the south, Greendale in the west and Leppington in the east. These areas are all semi-rural and some are beginning to undergo urbanisation.

Data for the local and regional study areas is compared with the Greater Sydney (Sydney Metropolitan Area). Data has been sourced from the 2011 ABS Census and the Bureau of Transport Statistics 2012/2013. Appendix A includes data for all demographic indicators discussed in this report.

4.1.2 Summary of the key socio-economic characteristics of the study area

The key characteristics relevant to the socio-economic impact assessment summarised below. Further information is provided in sections 4.2 to 4.8. The key characteristics are related to the tenure, age profile and employment of the population. Overall, the local study area does not display marked disadvantage. However, individuals within the local study area may have particular circumstances that require additional consideration or property specific mitigation measures.

The local and regional study area display a relatively lengthy tenure of ownership and/or occupancy of properties compared with Greater Sydney. This means that some residents have lived in the area for a relatively long time and may have long standing connections with local people, support networks and service providers.

There are a higher proportion of older people between 50 and 70 years old in the local and regional study area compared with Greater Sydney, and a relatively large proportion of teenagers. Combined with longer tenure, the characteristics suggest second or third home owners who may be less likely to be contemplating moving home in the short term. Teenagers are more likely to be mobile and move outside the area for education or employment, and in five to 10 years they may begin to form their own households.

The 2011 Census data shows a higher reliance on motor vehicles compared with Greater Sydney, which would be expected given the semi-rural nature of the local and regional study areas. Public transport services are relatively infrequent and the road environment is not currently ideal for cycling and walking.

More residents work in home-based employment compared with Greater Sydney. A higher proportion of residents are engaged in construction, agriculture and trades compared with Greater Sydney. These occupations have related requirements for land and in some cases storage facilities for vehicles and equipment. This will be relevant when considering the ability of

residents affected by acquisition to relocate to premises that are suitable for both housing and business purposes.

4.2 Demographic profile

4.2.1 Overall population

The total population of the local study area was 1893 persons in 2011. As shown in Figure 4.1, the age profile of the local study area is fairly consistent with the regional study area. However, there are slightly more families with children in high school (aged 12 to 17 years), and markedly less people over 70 years in the local study area.

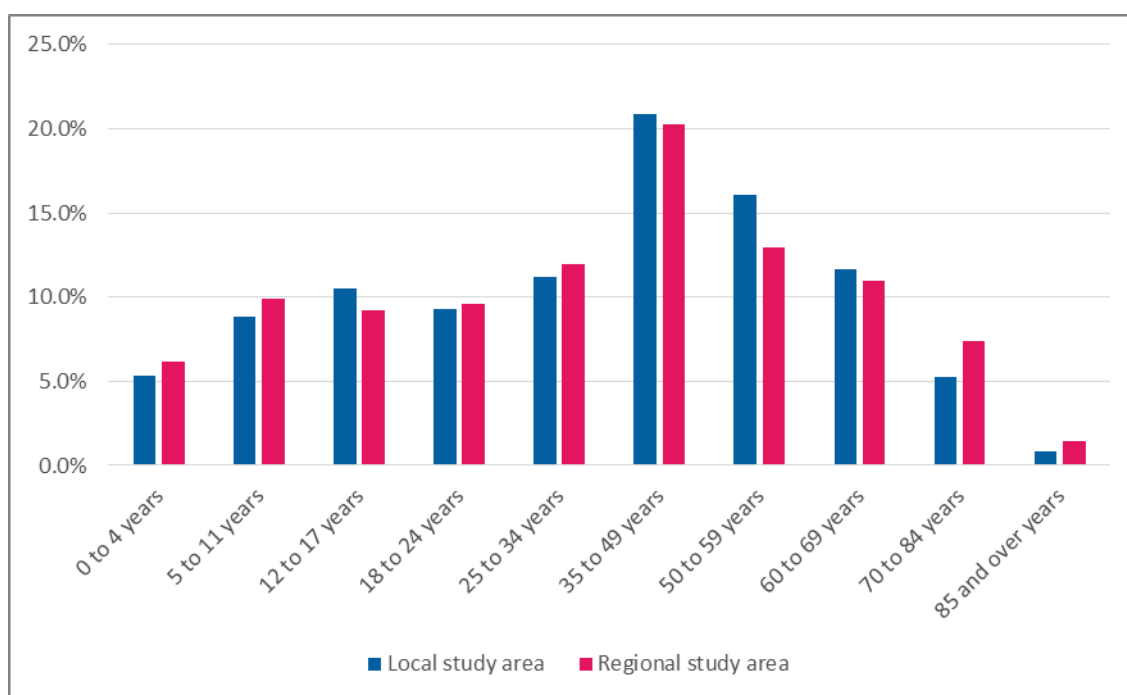


Figure 4.1 Age profile

4.2.2 Cultural diversity

The local study area has a lower level of cultural diversity compared with the regional study area, with fewer residents born in a non-English speaking country (14.2 per cent compared with 21.6 per cent). Further, there are fewer individuals that speak a language other than English at home, with 27.5 per cent compared with 31.6 per cent for the regional study area. The Indigenous population is slightly lower than the regional study area, with 1.1 per cent compared with 1.4 per cent.

4.2.3 Households and families

The local study area is generally characterised by family households (87.1 per cent compared with 83.4 per cent for the regional study area). There are a smaller proportion of lone person households (11 per cent for the local study area and 15 per cent for the regional study area) and a similar percentage of group households compared with the regional study area (1.8 per cent compared with 1.6 per cent). The average occupancy rate within the local study area is 3.3 persons, which is similar to the regional study area with 3.2 persons per household.

Couples with children are the most prevalent family type in the local study area (57 per cent), which is higher than the regional study area (53.7 per cent). The proportion of couple families without children is consistent with the regional study area (31.1 per cent compared with 31.3 per cent) and one parent families are not as common as in the regional study area (11.9 per cent

compared with 13.9 per cent). Residents within the local study area are slightly less transient than the regional study area, with 62.8 per cent living at the same address as five years ago compared with 60.9 per cent, and are somewhat less transient than residents of Greater Sydney in which only 52.8 per cent of people live at the same address as years ago.

4.2.4 Dwelling and tenure

The majority of dwellings in the local study area are separate dwellings (95.9 per cent), which is higher than in the regional study area (88.5 per cent). As the local study area is semi-rural, there are no semi-detached, townhouses or apartments.

More dwellings in the local study area are owned outright compared with the regional study area (46.6 per cent and 43.4 per cent), with a higher proportion of dwellings being owned with a mortgage (35.5 per cent and 30.5 per cent). A smaller percentage of dwellings are rented in the local study area (17.9 per cent) compared with the regional study area (26.1 per cent).

4.2.5 Education

A smaller proportion of the population within the local study area (27.9 per cent) have completed year 12 compared with the regional study area (30.8 per cent). Half of the residents of the local study area (50.2 per cent) do not hold post-school qualifications, which is similar to the regional study area (52.2 per cent).

4.2.6 Vehicle ownership

The local study area is characterised by high vehicle ownership. As shown in Figure 4.2, 45 per cent of households own three or more vehicles. A number of residents also use a truck as a mode of transport for their journey to work (10.3 per cent compared with 7.2 per cent for regional study area). A slightly higher percentage of the population drive to work than the regional study area (69.6 per cent and 68 per cent) and the use of public transport to get to work is uncommon (2.3 per cent compared with 4.5 per cent), which is likely to be related to the relative infrequency of public transport services and the occupation of residents. In the Camden LGA, 63 per cent of the population commutes to work outside of the LGA, and 52 per cent of population works in Liverpool or Parramatta. In the Liverpool LGA, 57 per cent of the population commutes to work outside of the LGA².

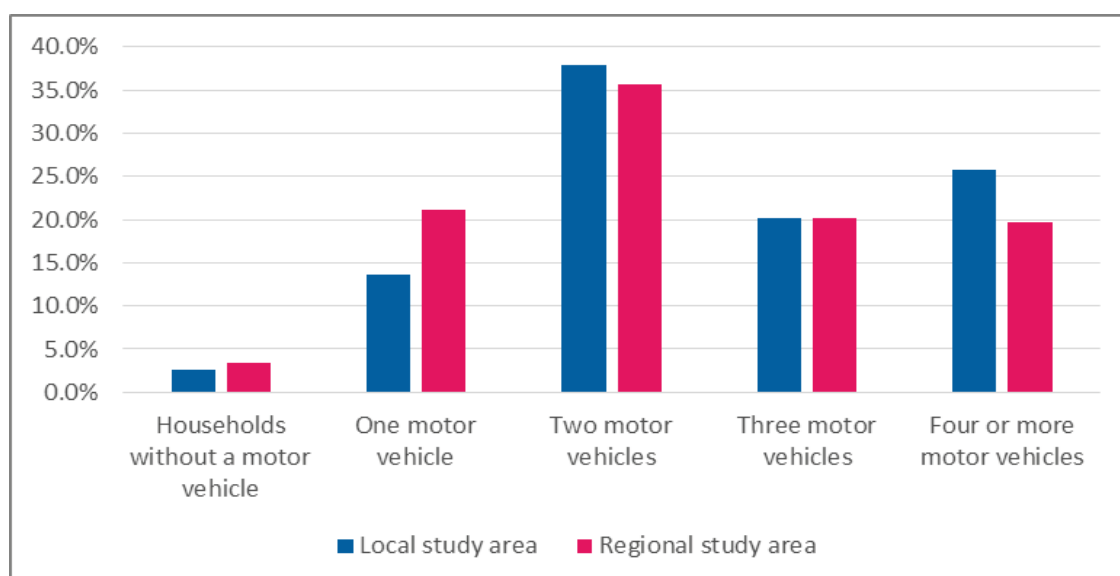


Figure 4.2 Vehicle ownership

² Source Community Profiles for Liverpool and Camden 2015

4.3 Regional study area

In 2011, the regional study area had a population of 16,287 people, which is likely to increase as the Western Sydney Priority Growth Area and South West Priority Land Release Area is developed. Compared with Greater Sydney, the regional study area has a similar age profile. A higher percentage of residents in the regional study area work from home (11 per cent compared with 4.3 per cent in Greater Sydney). This is consistent with the higher proportion of people engaged in agriculture and may indicate that some people within the regional study area own farms.

4.3.1 Camden LGA

In 2011, the Camden LGA had a population of 56,720 people, which is projected to increase to 149,250 by 2031 (Department of Planning and Environment, 2014). It is likely that development of the Western Sydney Priority Growth Area and South West Priority Land Release Area will contribute substantially to this growth. The Camden LGA is characterised by young families with a higher proportion of children aged 15 years or under compared with Greater Sydney (38.3 per versus 32.5 per cent). On average, residents travel 34 minutes to commute to work with private car being the predominant mode of travel. A higher proportion of the workforce is employed in the education and training industry, and household incomes are higher than Greater Sydney (\$1727 per week compared with \$1447). Camden LGA has a higher proportion of Indigenous persons (two per cent compared with 1.2 per cent), there are markedly lower levels cultural diversity based on residents born in a non-English speaking country.

4.3.2 Liverpool LGA

In 2011, the Liverpool LGA had a population of 180,143 people, which is projected to increase to 294,050 by 2031 (Department of Planning and Environment, 2014). As with Camden, it is expected that development of the Western Sydney Priority Growth Area and South West Priority Land Release Area will contribute substantially to this increase. The LGA is primarily characterised by couple families with children. The main mode of transport to work is by car, however commuting to work by train is also common. The average trip to work takes 37 minutes. A high proportion of people are employed as labourers and in the manufacturing and transport industry. The Liverpool LGA is very culturally diverse with a large proportion of residents born in a non-English speaking country, and a high number of households that speak a language other than English.

A summary of the demographic characteristics of the local and regional study areas, Camden LGA and Liverpool LGA compared with Greater Sydney is shown in Table 4.1.

Table 4.1 Summary of demographic characteristics from the 2011 Census

Characteristics	Local study area	Regional study area	Camden LGA	Liverpool LGA	Greater Sydney
Population					
Total population	1893	16,287	56,720	180,143	4,391,674
Median age (years)	39	37	34	33	36
Under 18 years (%)	24.7	25.4	28.9	28.1	22.9
Over 85 years (%)	0.8	1.4	1.4	0.9	1.8
Households and families					
Couple families with children (%)	57	53.7	54.9	56.7	48.9

Characteristics	Local study area	Regional study area	Camden LGA	Liverpool LGA	Greater Sydney
Couple families without children (%)	31.1	31.3	30	23.7	33.5
One parent families (%)	11.9	13.9	14.1	18.2	15.7
Income and employment					
Median household income (\$ per week)	\$1660	\$1319	\$1727	\$1299	\$1447
Labour force participation (%)	58.9	57.8	69.8	58.1	61.7
Unemployed (%)	3.3	4.6	4.0	7.0	5.7
Travel to work					
Car (%)	69.6	5.4	78.3	71.1	60.2
Train (%)	2.3	3.7	6.7	11.3	15
Truck (%)	10.3	7.2	2.2	1.9	1.2

4.3.3 Socio-economic indexes for areas

The Index of Relative Socio-economic Disadvantage is derived from Census variables related to disadvantage, such as low income, low educational attainment, unemployment, and dwellings without motor vehicles (ABS, 2014). A higher score on the index indicates a lower level of disadvantage, while a lower score indicates a higher level of disadvantage. The average SEIFA index score is 1,000.

The 2011 Index of Relative Disadvantage score for the local study area ranged from 1007 to 1065, therefore all areas scored slightly above average (refer to Table 4.2). For the purpose of comparison, the score for the Camden LGA is 1056 and the score for the Liverpool LGA is 968.

Table 4.2 SEIFA scores for Census statistical area level 1 (SA1) districts within the local study area

	Area 1 SA 1 No. 1150517	Area 2 SA 1 No. 1150518	Area 3 SA 1 No. 1150519	Area 4 SA 1 No. 1150601	Badgerys Creek- Greendale	Cobbitty- Leppington	Camden LGA	Liverpool LGA
Score	1054	1007	1065	1030	998	1014	1056	968

4.4 Projected future population

The NSW Government established the South West Growth Centre and the North West Growth Centre in 2005 to manage the release of greenfield land for urban development, and coordinate the sustainable delivery of infrastructure over the next 25 to 30 years. The South West Growth Centre comprises about 17,000 hectares of land and 18 development precincts. It is predicted that the South West Growth Centre will accommodate about 110,000 new dwellings for 300,000 people.

It is therefore noted that would be considerable changes in the local and regional study area in the medium to long term as a result of the development of the Rossmore and Bringelly precincts. These precincts have not yet been released for planning and development. The timing for the release of future precincts will depend on a range of factors, including the rate of population growth, demand for housing in existing precincts. When precincts are released, the rate of development will vary depending on the existing fragmentation of land ownership, suitability for development, and the availability of services.

4.5 Transport and access

The proposal is centred on the crossroads of two main roads, which provide access for local and regional residents, businesses and communities. Bringelly Road and The Northern Road are undergoing major upgrades as part of the Western Sydney Infrastructure Plan. A description of the existing characteristics of The Northern Road and Bringelly Road in the study area are provided in section 2.2 of the REF.

Road transport is the dominant mode of transport in the local area. However, the recent opening of the South West Rail Link to Leppington, approximately seven kilometres to the east of the proposal site, provides access to public transport alternatives for those commuting to Liverpool or the Sydney CBD.

Properties with access to local roads that may be impacted by construction and operation of the proposal are shown in Figure 6.1 of the REF.

A summary of other transport features is provided below. Further information is provided in the traffic and transport report (Appendix D of the REF) and summarised in section 6.1 of the REF.

4.5.1 Parking

No stopping signs are located on The Northern Road and Greendale Road in the vicinity of the intersection. Beyond the parking restrictions at the intersection, parking is generally unrestricted on The Northern Road, Bringelly Road and Greendale Road.

4.5.2 Bus services

Bus stops and bus routes in the study area are listed in Table 4.3. Bus services in the study area (both school services and route 856) are operated by Interline Bus Services. Interline Bus Services provides school and route bus services in Sydney Metropolitan Bus Region 2 under contract with Transport NSW. A bus zone is located near bus stop number 2171178 and along Greendale Road near Bringelly Public School.

Table 4.3 Bus facilities in the study area

Bus stops		Bus routes	
Stop number	Location	Number	Route
2171443	The Northern Road near Thames Road	856	Bringelly to Liverpool via Prestons and Churchill Gardens
2171442	The Northern Road opposite Thames Road	856	Liverpool to Bringelly via Churchill Gardens and Prestons
2171178	The Northern Road near Bringelly Public School	856	Liverpool to Bringelly via Churchill Gardens and Prestons
2171180	Bringelly Road east of The Northern Road (eastbound)	856	Bringelly to Liverpool via Prestons and Churchill Gardens
2171422	Bringelly Road east of The Northern Road (westbound)	856	Liverpool to Bringelly via Churchill Gardens and Prestons
2171421	Near 971 Bringelly Road	856	Liverpool to Bringelly via Churchill Gardens and Prestons
2171181	Bringelly Road west of Kelvin Park Drive (eastbound)	856	Bringelly to Liverpool via Prestons and Churchill Gardens
2171177	Bringelly Road west Kelvin Park Drive (westbound)	856	Liverpool to Bringelly via Churchill Gardens and Prestons

4.5.3 Pedestrian and cyclist facilities

Pedestrian crossings are provided on the northern and western legs of the intersection of The Northern Road, Bringelly Road and Greendale Road. A pedestrian refuge is located on Greendale Road, just west of The Northern Road, to assist pedestrians crossing to and from Bringelly Public School.

Formalised pedestrian footpaths are limited within the study area, however a footpath is provided at the front of Bringelly Public School on Greendale Road and The Northern Road and a path exists on the west side of The Northern Road to serve the small businesses on the south western corner of the intersection. For the remainder of the study area, pedestrians are using grassed or gravel verges.

There are no dedicated cycling facilities in the study area however cyclists can travel within The Northern Road shoulder lanes.

4.6 Community values

Community values relate to the quality of life and wellbeing for local residents. Community consultation completed by Camden and Liverpool councils for their community strategic plans indicate that the rural elements of the LGAs are as valued as access to jobs and services. The current amenity and character of the locality of Bringelly stems from the agricultural setting and large rural residential blocks. Native vegetation is retained in pockets and contributes to the scenic rural character. Setbacks to dwellings from main roads minimise the potential for noise impacts and many properties have a high degree of privacy from neighbours and public streets.

Feedback from the community outlined in the Liverpool community strategic plan demonstrates key values for Liverpool communities including:

- A clean and cared for City with attractive public streets and places
- A strong community identity and image
- High quality open spaces with opportunities for walking and cycling.

During consultation for this SEIA in June 2015, Liverpool Council's Community Development Manager noted that the Bringelly community is known to value the rural residential amenity and the lifestyle that it allows. Privacy, the ability to undertake agricultural pursuits, and separation from urban areas are valued. The community is experiencing a period of uncertainty associated with change as a result of infrastructure upgrades and urban development.

The community is known to value well maintained roads. Major improvements to roads have, in some cases, been deferred by Council pending new road layouts in future urban development. This is a source of concern to some within the community.

The community values open and effective communication about planned changes to enable decision making about life decisions, including moving within or outside the local government area.

During consultation for *Camden 2040*, residents identified that roads and transport should be a significant priority in the future, which included the need to upgrade local footpaths. The consultation identified a "clear desire to see the area retain its rural and country town heritage, backdrop and community pride". The community also identified that they would like to maintain a sense of community and a linkage with small/rural town characteristics.

The residents of Liverpool LGA identified a need for high quality open space with opportunities for walking and cycling. A strategy of the Liverpool community strategic plan is to deliver high quality and accessible services, programs and facilities.

4.7 Economic profile

4.7.1 Income and employment

At \$590 per week, the individual income of residents in the local study area is less than Greater Sydney (\$619 per week). However, the average household income within the local study area at \$1660 is more than the average for Greater Sydney at \$1447. The local study area has a slightly lower unemployment rate than the regional study area (3.3 per cent compared with 4.6 per cent).

In the local study area, a high proportion of residents are employed as technicians, trades and machinery operators. This aligns with the industries of employment illustrated in Figure 4.3, which indicates that construction, retail trade, manufacturing, transport and warehousing and agriculture are the main areas of employment.

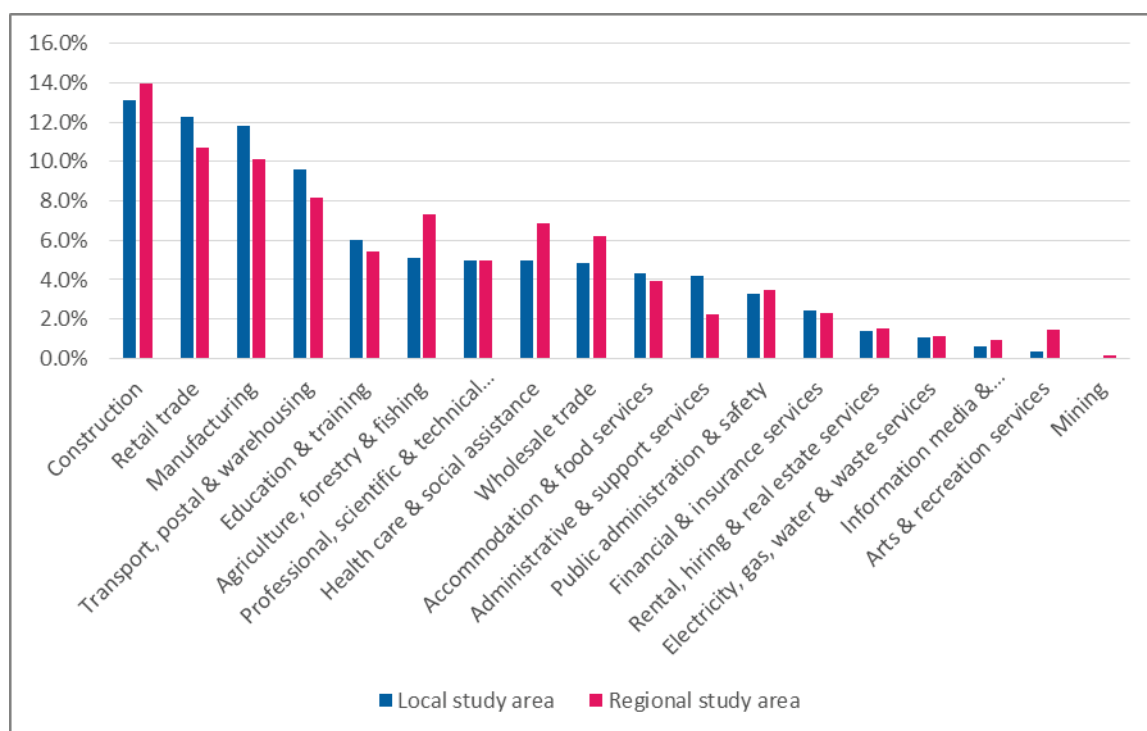


Figure 4.3 Key industries of employment

4.7.2 Local business and industry

A small neighbourhood shopping complex, known as Bringelly Village, is situated on the south-western corner of the intersection of The Northern Road, Bringelly Road and Greendale Road. Businesses at Bringelly Village (refer list in in Table 4.4) service the local study area and may also benefit from passing trade associated with the location of the businesses on the corner of two main roads and the proximity to the Bringelly Public School.

Businesses in the local study area located within about one kilometre of the proposal site were identified from web-based research and a site visit. These are also listed in Table 4.4 and are shown on Figure 4.4. Other local businesses that are not advertised on the web or with signage may be identified through consultation.

Table 4.4 Businesses in the study area

Business	Street address
Bringelly Village businesses, including: <ul style="list-style-type: none"> • Australia Post • SPAR supermarket • Ray White Real Estate • Bringelly Cellars • Bringelly Take Away • Bringelly Pharmacy, • Redback Pet and Stockfeeds • Mechanics/petrol station 	1197 Bringelly Road
United Realty	1193 Bringelly Road
Boral Bricks and Pavers/Bringelly Brickworks	2 Greendale Road
Bringelly Nursery and Watergardens	900 Bringelly Road
Event Linen	131 Jersey Road
Kelvin Homestead	30 The Retreat
Bringelly Concrete	50 Kelvin Park Drive
Australian Koi Farm	83 Jersey Road

4.8 Social infrastructure

Social infrastructure incorporates the facilities and services that are used for the physical, social, cultural or intellectual development or welfare of the community. It includes physical infrastructure such as libraries, community centres and cultural facilities that facilitate the delivery of social services and activities, as well as open spaces, parks, recreation areas and sport fields that support sport, recreational and leisure uses. Importantly, social infrastructure also incorporates the services, activities and programs that operate within these built facilities.

The Bringelly Public School is located on the north-western corner of The Northern Road and Greendale Road. The Bringelly Recreation Reserve (Thompsons Creek) and Bringelly Community Centre are located on Greendale Road adjacent to the school site. Liverpool City Council's Community Development Manager noted the importance of the Bringelly Community Centre to the local and broader community.

The community centre building is relatively large and in good condition. It was refurbished in 2012 and is well used. Regular user groups include:

- Playgroup
- Physical culture dance
- Dance/drama
- Senior Citizens Support Groups
- Cancer Council.

The social infrastructure located within about one kilometre of the proposal site is listed in Table 4.5 and shown on Figure 4.4.

Table 4.5 Social infrastructure in the study area

Social infrastructure	Street address
Bringelly Public School	1205 The Northern Road
Bringelly Rural Fire Brigade	5-7 Greendale Road
Bringelly Community Centre	5 Greendale Road
Bringelly Recreation Reserve	5-7 Greendale Road
Bringelly Vineyard Church	915 Bringelly Road
Bus stops	The Northern Road and Bringelly Road, as shown on Figure 4.4.

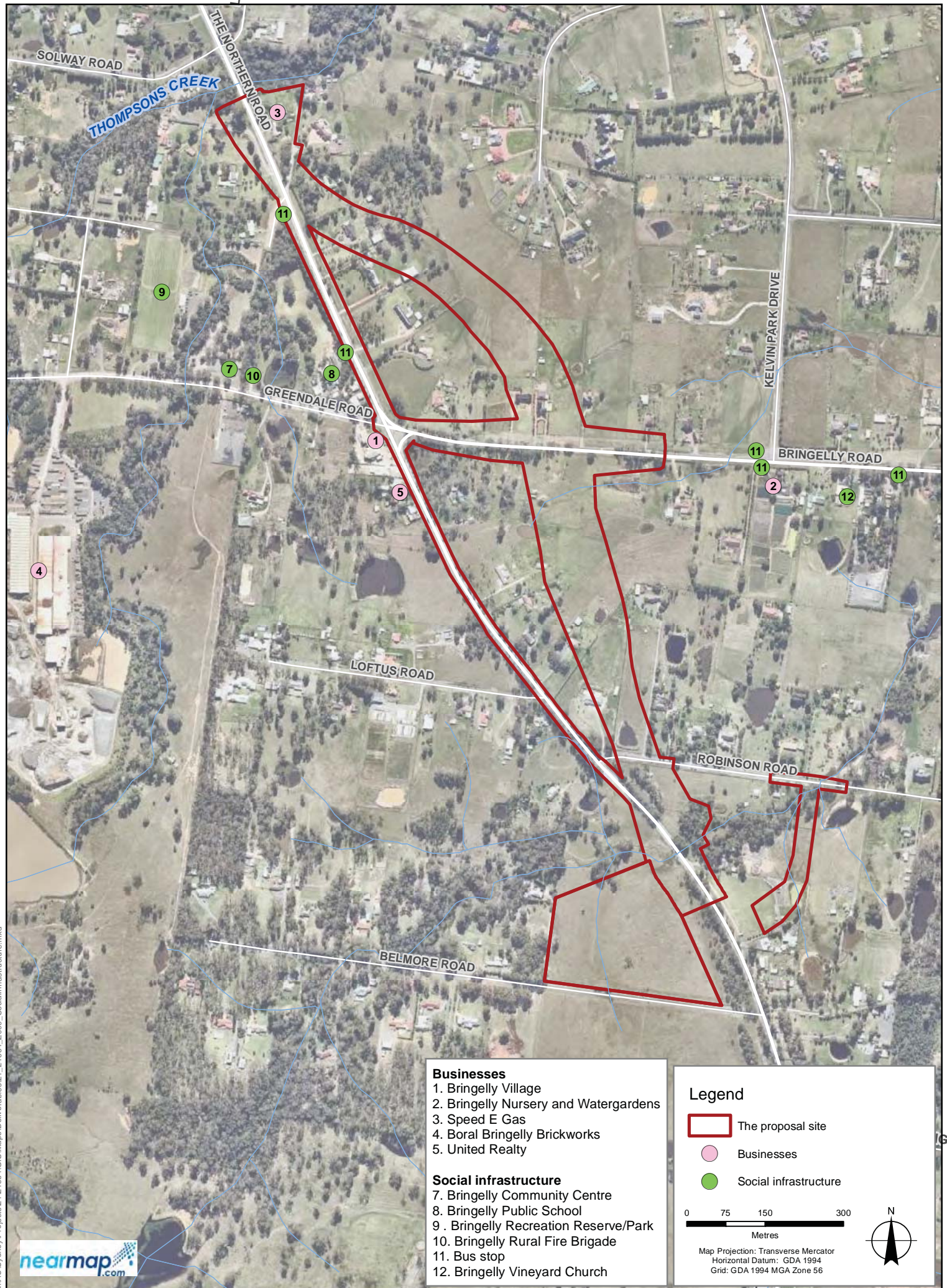


Figure 4.4 Social infrastructure and businesses in the vicinity of the proposal site

Data source: Nearmap, Aerial imagery, captured July 28.7.2015; LPI, Topographic base data, 2012. Created by: MWeerakoon

5. Consultation outcomes

The results of community consultation to date for the proposal and other Western Sydney Infrastructure Plan projects are summarised in the *Western Sydney Infrastructure Plan Community Consultation Report* (Roads and Maritime, 2015). An extract from the report noting the issues raised by the community and Roads and Maritime's responses to these issues is provided in Appendix L of the REF. Key issues raised by community members to date are summarised in Table 5.1.

Table 5.1 Summary of issues raised by the local community

Issue category	Issue raised
Consultation	Unsure what properties are affected by the interchange.
	Concerned about the change in design from the community update in July 2015.
	Concern about timeframes, process and lack of understanding of impact on properties.
Design	Dual turning lanes are required from Bringelly Road onto the Northern Road.
	Need for flyover ramp below the intersection bridge to allow movements between Leppington and the airport.
	Design should not include traffic lights as the topography lends itself to an overpass.
	Design needs to minimise impacts to landowners.
	Concerns about the height of interchange and proximity to residents.
	Design needs to maintain access to Bringelly Public School. What is the access strategy for buses and cars at the school?
	Consider the location of Boral Brickworks as an alignment to the west.
Traffic	Speed limit should be 80 km/h.
	Impacts to the Belmore Road access.
	Impact to Solway Road.
Pedestrian access	Impacts to pedestrian access at school.
Property	How will the proposal impact on property values?
	Property acquisition concerns.
	Some properties are impacted by both the proposal and other infrastructure projects.
	Will all partially acquired properties have access to the new The Northern Road?
	When will extent of acquisition be confirmed?
	Sterilisation of the remaining land after partial acquisition.
	Impacted residents are prevented from capitalising on growth and redevelopment occurring in the area.
Noise and air quality	What are the predicted traffic noise levels and the mitigation measures proposed?
	Impact on air quality and mitigation measures
Construction impacts	Disruption to buses from Greendale Road /Bringelly Road
	Concern about potential impacts on the local community and businesses during construction, such as property damage, property access, dust and reduced speed zones.
	Compensation to businesses to cover loss of trade during construction.
	What mitigation measures would be implemented during construction?

6. Socio-economic impact assessment

6.1 Overview

This section provides an assessment of the potential socio-economic impacts of the proposal. The impacts have been identified through an assessment of the existing demographic profile; locations of potentially affected social infrastructure; a review of relevant outcomes of community consultation; review of the results of other specialist environmental assessments (including the noise, traffic and transport, and landscape and visual assessment); and a site visit by the report author in July 2015.

Social impacts can be defined as significant events experienced by people as a result of changes to:

- Their way of life – how they live, work, play and interact on a daily basis
- Their culture – shared beliefs and customs
- Their community – its cohesion, stability, character, services and facilities
- Their health – including physical and mental health.

Economic impacts can be defined as changes to:

- Businesses – how they conduct business on a daily basis, including how customers access businesses
- Employment – location and the industries of employment, workforce population.

The potential socio-economic benefits and impacts of the proposal are considered in the following sections.

6.2 Construction

6.2.1 Property impacts

Acquisition

The proposal would involve:

- Full acquisition of 10 properties
- Up to 25 partial/strip acquisitions, of which 14 would gain an additional road boundary as a result of the proposal. Roads and Maritime Services will make a dual offer to the owners of these properties. The owner will have the choice of total or partial acquisition. Properties affected by acquisition are listed in Appendix B.

Choosing a new home, and moving house, especially for property owners and long term tenants can be some of the most significant events in people's lives. A house provides the focus for the daily life of its householders, and people often form strong connections to their homes, as well as the communities in which they live.

For properties that are fully acquired, residents would be required to relocate, with the potential for loss of community connections. Factors that would affect the significance of this impact include:

- The length of tenure of households
- The proximity of other family members who rely on or are relied upon by the relocated family for support

- The ability of the landowner to purchase a comparable property in the locality if desired
- The stage at which children within families are at in relation to school education
- Whether the property also provides or is integral to the owner or occupier's ability to earn an income such as agricultural pursuits or workshop or truck parking associated with a trade or transport operation.

Potential future urban development of land in the local study area may have an effect on the availability of comparable properties in the locality. Properties in areas already released or rezoned for development typically attract somewhat higher prices than rural properties. The study area and the properties to be acquired are located within Western Sydney Priority Growth Area and South West Priority Land Release Areas. Other localities within a 10 km radius to the north, south and east are similarly within future urban development precincts. This may limit readily available properties unencumbered by urban development plans to those to the west of the proposal area, that is, outside the growth centre. If all properties are acquired in a similar timeframe, this may create pressure on local property prices if all property owners wish to relocate locally.

If households are required to move away from the local area as a result of property acquisition, they may lose connections to their local community. Social networks established between community members may be dislocated, for example if families have children attending local schools who may be required to move their children to a new school outside the area.

Roads and Maritime has been communicating with affected property owners since mid-July 2015. This has included consultation with directly affected owners to outline the potential impacts of property acquisition and the process that would be undertaken. Roads and Maritime would continue to consult with affected property owners, as noted in section 5 of the REF.

While the community profile indicates a relatively low level of disadvantage within the local study area, there may be some residents who are from vulnerable groups, such as seniors, people with a disability, Indigenous, and people from culturally and linguistically diverse (CALD) backgrounds. People within these groups may be more vulnerable to the impacts of property acquisition, particularly if they are required to relocate outside of their local area, leading to loss of social connections.

Properties for which partial acquisition is required would be affected to varying extents. For up to 32 properties, a small strip at the front of the property would be acquired, reducing the setback of dwellings to the road to a minor extent. Impacts may vary for each property, and may be related to changes to property access and amenity, such as noise impacts resulting from reduced setbacks to the realigned road.

Other properties affected by partial acquisition would retain less than half of the original land area. In seven instances, the existing dwelling would be in relatively close proximity to the proposal. Roads and Maritime Services would consider the residual impact of the road operation when determining the final scope of properties to be acquired. The owners of properties that would have a dual road frontage as a result of the proposal would be offered the opportunity for full acquisition. Where practicable, the detailed design of the proposal would incorporate features to ameliorate impact on adjoining properties such as loss of privacy and access.

All acquisition would be undertaken in accordance with Roads and Maritime's Land and Acquisition Policy and the *Land Acquisition (Just Terms Compensation) Act 1991*. The Act provides for compensation for property purchase at its market value (without the impact of the project) and for the costs associated with relocation.

The extent of property impacts would be refined and confirmed during detailed design in consultation with the property owners.

In relation to partial acquisition, it is Roads and Maritime's policy that all property adjustment works to offset impacts be undertaken in consultation with the property owner. Property adjustment plans would be developed in consultation with the affected property owners.

Access

During construction the proposal would result in some temporary changes to property access. Impacts would include changes to the access arrangements for some properties, and changes to the movement of traffic around the local area. This would affect the route that some residents use to access the local shops, school, Bringelly Road and The Northern Road. These changes, which are described and assessed in the Traffic and Transport Impact Assessment (Appendix C of the REF), could result in a change to the route and an increase or decrease in the distance travelled for some residents. To minimise the potential socio-economic impacts of these changes, temporary access changes to properties would be managed in consultation with the property owner/occupant. With appropriate arrangements for temporary access to private properties, the impact would be limited to a minor, short-term impact for residents and business operators.

Bus stops on Bringelly Road, east of The Northern Road, would need to be relocated during construction. This would have a temporary impact for users of these stops. Mobility impaired or elderly bus users may be more vulnerable to these changes.

The route travelled by commuters, including those travelling to Leppington Station, may be temporarily affected during construction. These impacts are expected to be minor and short-term. Motorists travelling to the north and west from the study area would be largely unaffected by construction.

The movement of pedestrians and cyclists through the study area would be affected by the construction process. These changes are described and the impacts are assessed by the traffic and transport report (Appendix D of the REF) and are summarised in section 6.1 of the REF.

The proposal would not impact on parking at Bringelly Village or the availability of private parking.

Utility impacts

Construction activities may result in occasional utility outages (e.g. disruptions to water and electricity supply). This would be a temporary, minor short-term impact for local residents and businesses. Older people and those operating agricultural businesses may be more vulnerable to impacts.

Other property impacts

The proposal may affect some farm dams during construction. Civil works in close proximity may require the removal, relocation or modification of dams. Impacts would need to be identified during planning for acquisition and property adjustments.

Dams that are not in land to be acquired would be maintained where practicable. The modification and/or relocation of dams may have a short term impact on the use of land for agricultural purposes. During detailed design, consultation would be undertaken with the owners of these properties regarding the potential impacts and the preferred options to mitigate the impacts (such as modification or relocation of the dam or provision of a temporary water supply for agricultural purposes).

The drainage design for the proposal does not involve discharge of any pavement drainage directly into existing farm dams.

6.2.2 Social and community impacts

Community values

The community consultation outcomes indicated that key community values relate to rural land use and character, access to employment and other services and road safety. The proposal has the potential to impact negatively on some of these values during construction. For example, construction activities would result in some changes the landscape character of this semi-rural area. Construction may involve the removal of vegetation, dwellings, farm outbuildings, dams and rural fencing. These impacts are described and assessed in the Landscape and Visual Impact Assessment (Appendix I of the REF).

Access to employment opportunities could be improved temporarily during construction through provision of jobs associated with the construction phase.

Other potential benefits may include improved road safety during construction as stringent traffic controls and clear signage would be in place for the duration of construction and commissioning. These would reduce road speeds with some loss of convenience but improvement in safety. Overall these impacts are expected to be positive.

Changes in access to social infrastructure

Reduced road speeds, lane closures and additional construction traffic could affect access to social infrastructure. These impacts are considered to be short-term, minor impacts on users of these facilities. The Bringelly Park located west of the intersection and the Bringelly Recreation Reserve, located east of the intersection would not be directly affected by the proposal.

Residents accessing infrastructure in local and regional centres to the south and east may be affected during construction. This would relate to increased travel time as a result of temporary construction traffic controls and the need for road users to use alternate routes. People travelling to social infrastructure by buses may also be impacted by the temporary relocation of bus stops. These are considered to be short-term, minor impacts for the local community.

Amenity

The proposal would have the potential to impact on local amenity during construction depending on the proximity of residential properties, businesses and community facilities to the work area, the construction compound and along haulage routes.

Amenity for dwellings close to The Northern Road and Bringelly Road may be impacted by existing traffic volumes and the movement of heavy vehicles in particular.

Amenity for dwellings along the construction diversion route (i.e. Jersey Road / Carrington Road and Robinson Road) would also be reduced during the construction period due to increased traffic on these local roads. Amenity impacts would include increased noise, potential increased dust and vibration, and changes to air quality. Increased traffic may also lead to reduced safety for pedestrians and cyclists on these roads.

Construction of the proposal may result in amenity impacts for residents adjoining and within the vicinity of the proposal because of the following:

- Potential increase in traffic due to the delivery of plant, materials and construction personnel and disruptions to access
- Increase in noise due to the operation of plant and equipment and increased traffic
- Visual impacts

- Potential dust disturbance.

These issues have been assessed in other studies related to this proposal:

- Noise and vibration assessment
- Traffic and transport assessment
- Landscape and visual assessment.

Amenity impacts would be temporary and appropriately managed with the safeguards provided in the above reports. Loss of privacy during construction is a potential impact that can be addressed by appropriate screening.

The possible construction compound on the corner of Belmore Road may have localised amenity impacts. Two dwellings are within 100 m of the boundaries of the site. Impacts are outlined in the Noise Study and Visual Impact Assessment Study.

6.2.1 Economic and business impacts

The impact of modified road frontages on local businesses along The Northern Road and Greendale Road was assessed by the REFs for the upgrading of The Northern Road and Bringelly Road (SKM, 2012 and nghenvironmental, 2011). This report focuses on the impacts of the current proposal which results in less impact on the Bringelly Village.

The shopping village is the closest and most conveniently located relative to the proposal site. As outlined in section 4.4.3 the shopping village consists of local shops that typically service the local community. The introduction of a temporary construction workforce may temporarily increase trade at the local centre, in particular for the takeaway food operations and businesses offering convenience retail goods. This would be a short-term benefit for these businesses.

The customers and suppliers of businesses at the western and northern edges of the proposal may also be affected during construction as a result of reduced road speeds along Bringelly Road and The Northern Road. This may have an impact on travel times for staff and customers. Reduced travel times may also affect business operations, for example, if businesses rely on transportation of goods by road. Safe temporary road surfaces would be provided to enable continued access for businesses so the impact is unlikely to be substantial.

Construction of the proposal would generate employment. It is anticipated that a workforce of about 60 personnel would be required during peak construction. On either side of this peak period, daily workforce numbers would fluctuate between about 20 and 40 personnel. The source of the workforce is unknown. However, it is assumed that at least some of the workforce would come from western Sydney.

6.3 Operation

6.3.1 Property impacts

Access

The presence and operation of the proposal would result in changes to access arrangements for some properties and local residents as assessed by the traffic and transport assessment provided in Appendix D of the REF. This would include changes to the location of some driveways; permissible turning movements to and from properties; and the route that some residents use to travel within and through the local areas, and to the local shops, school, Bringelly Road and The Northern Road. In summary the changes to property access include

- Some property accesses to Robinson Road may need to be modified as a result of the proposed Belmore Road/Robinson Road connection

- A shared left in-left out driveway access would be required for some properties south of Thompsons Creek to enable them to safely access The Northern Road
- Properties on Thames Road would require access to The Northern Road via a connection to the proposed cul-de-sac on the existing alignment of The Northern Road
- Existing driveways on Bringelly Road would be reconfigured to suit the proposal with left in-left out access
- Properties facing the existing alignment of The Northern Road would retain access and would access the main alignment of The Northern Road via the existing intersection and the proposed interchange.

A property access strategy has been developed to ensure safe and legal access is provided for all properties with access to The Northern Road and Bringelly Road. Roads and Maritime would consult with individual property owners to identify appropriate access arrangements that are consistent with the proposal.

These changes could lead to increased travel distances and times for some members of the local community, and some inconvenience in cases where occupants can only turn left, and need to drive to a place to make a safe turn. The greatest increase in travel time would be up to three minutes for those travelling from Robinson Road at The Northern Road to the intersection of The Northern Road and Loftus Road. Further information on the changes is provided in section 6.1 of the REF and the property access strategy is provided in Appendix F of Appendix D of the REF.

The proposal includes a dedicated shared pedestrian and cycle path. This would improve pedestrian and cycle access, leading to a long-term benefit for the local community. The new pathway would improve safety for pedestrians and cyclists as it would be separated from the vehicle lanes.

Bus stops on Bringelly Road would be permanently relocated within the interchange. The relocated bus stops would be designed to contemporary standards and would represent an overall improvement for local community members who use the local buses.

Road users travelling along The Northern Road and Bringelly Road, such as commuters, bus passengers and freight operators would benefit from the proposal, which would, together with the upgrades of The Northern Road and Bringelly Road, result in a safer, more efficient road network, with reduced travel times.

6.3.2 Social and community

Amenity

Amenity for some residents would improve as a result of the proposal and would be reduced for others. In summary this relates to the change in the relationship between existing dwellings and business with the road alignment. The alignment moves to the east, closer to some properties and away from others.

Traffic along the new section of The Northern Road would travel in a cutting, which would act as a noise and visual screen. Most traffic will continue through the intersection, reducing amenity impacts. This is because stopping, starting and idling of engines will occur less frequently compared with current conditions.

Amenity would improve for the occupants of residential properties along the existing section of The Northern Road (to the west of the proposal) because of the reduction of traffic volumes on the remaining section of road. Bringelly Public School would also experience lower traffic volumes passing the school on the eastern boundary (The Northern Road boundary). Traffic-

related noise may also decrease in these areas as a result of the removal of traffic on these roads. This would be a positive, long-term impact for residents in this area.

The proposal would provide benefits in relation to safety and amenity associated with the use of the existing intersection by heavy vehicles travelling to and from the Boral Bringelly Brickworks. The expansion of the brickworks will result in a substantial increase in the number of heavy vehicles travelling to and from the brickworks. Currently, the vehicles from the brickworks turn left from Greendale Road onto The Northern Road, northbound. There is insufficient space for heavy vehicles to turn left at this location, and as such, vehicles:

- Regularly mount the kerb, presenting a hazard to pedestrians waiting on the corner
- Drive into the opposing travel lanes for southbound traffic
- Can become stuck whilst turning left due to insufficient space, causing blockage of the intersection and pedestrian crossings.

The proposal would eliminate this left turn movement and provide a suitable left turn at the new interchange. It would also mean that vehicles are not accelerating and decelerating (with associated noise impacts) adjacent to the school.

Reduced traffic volumes and reduced noise on the existing section of The Northern Road would provide opportunities for use of new pedestrian and cycle pathways which would be implemented as part of the proposal. This would be a long-term benefit for the local community.

Conversely some properties would experience a potential reduction in amenity associated with the longer term growth in traffic volumes and operation of the road. Properties within the local study area with potential to experience reduced amenity through exposure to increased traffic volumes and an associated increase in noise include:

- Properties along The Northern Road to the north and south of Bringelly Road where partial acquisition would result in the new alignment being closer to the dwelling than the current alignment
- Properties located on Robinson Road and Bringelly Road to the east of and adjacent to the new alignment
- Properties in Medich Place which are closest to the new road alignment and as identified in the noise assessment.

It is expected that the design of the proposal, which would create an underpass for The Northern Road to pass under Bringelly Road, would assist with reduced visual and noise related impacts for the local area compared with the existing at-grade intersection.

The operation of the proposal would result in a change in the noise environment in the study area. Noise impacts on residents have the potential to affect sleep patterns and if not mitigated by design can lead to additional stress and health impacts. Some residences would experience lower levels of noise as the main route for traffic to, from and along The Northern Road would be located further to the east. Those residents located in close proximity to the proposal site have the potential to experience higher levels of noise. Potential noise impacts and mitigation measures are considered discussed in section 6.2 of the REF.

The proposal would result in the introduction of a substantial and visible piece of transport infrastructure in what is currently a semi-rural area. This would result in a change in the character of those properties that are directly impacted by the proposal, and a change in views from those viewpoints and properties with views to the proposal. Potential landscape character and visual impacts are discussed in section 6.8 of the REF. These impacts would be greater in the short to medium term. In the longer term, local land uses and the nature and character of the study area is likely to change as development increases. As the Bringelly precinct is

developed, urban densities increase, and additional roads and transport infrastructure (including the proposed extension of the South West Rail Line) are developed, the difference between the character of the proposal and the study area would be less.

Community values

The proposal would alter the landscape of Bringelly village centred on the existing intersection by changing the location at which the major roads separate parts of the community. In the short to medium term the connectivity between local residents could improve in those parts of the proposal area that would experience reduced traffic volumes. The increased potential for walking and cycling locally promotes the health and wellbeing. It also increases the opportunity for local people to meet when travelling by foot rather than car, enhancing local community connections. This could benefit the local community.

Changes in access to social infrastructure

The operation of the proposal has the potential to improve access to social infrastructure for motorists, pedestrians and cyclists. This is because the proposal introduces shared pathways for pedestrians and cyclists that would better connect communities to local and regional social infrastructure as outlined in section 4.5. However, Robinson Road residents would have a greater distance to travel via car to the Bringelly Community Centre and Bringelly Public School. The impact on social infrastructure access is expected to be positive.

6.3.3 Economic and business impacts

As noted in section 3.4, the proposal was selected to minimise impacts on existing land uses in the Bringelly town centre and retain access to the existing Bringelly Village shops. The proposal would not result in any direct impacts to local businesses which is a positive impact when compared to the approved project. The main potential impact on businesses is expected to be on those located in and around Bringelly Village. The proposal would convert the existing section of The Northern Road to the west of the proposal to a no-through road. The local community would continue to have access to the shopping centre via The Northern Road and Greendale Road. Conversion of this section of The Northern Road to no-through road may remove the need for a double white line. Right turn movements into and out of Bringelly Village may be enabled by the removal of double white lines, facilitating easier access to the centre.

After commissioning of the proposal there may be the potential for some reduction in passing trade because The Northern Road would be diverted away from the shopping centre. This would reduce visibility of the shopping village from The Northern Road, and traffic volumes on the existing section of The Northern Road would be substantially reduced. It is expected that those businesses which may have some reliance on passing trade would include:

- Australia Post
- SPAR supermarket
- Bringelly Cellars
- Bringelly Take Away
- Bringelly Pharmacy
- Mechanics/petrol station.

GHD has not surveyed the businesses to determine the proportion of business that constitutes passing trade as the centre's primary function is a local village centre, servicing the local community. A review of the literature on the economic impacts of highway bypasses on towns demonstrates that in the long term, highway bypasses do not have adverse economic impacts on towns (Parolin, 2012). This is dependent on a number of factors, including the size and

economic base of the town, and distance to larger economic centres. With a population of over 1,800 people in 2011, the local community is larger than those small towns (with less than 1,000 people) which are generally more at risk compared to medium sized towns. Up to eight of the businesses in Bringelly Village may be somewhat dependent on highway generated trade, which represents around half of the businesses in the local area. The nearest town of Luddenham is around eight kilometres away, which may result in passing motorists continuing past Bringelly Village. These factors may indicate that the businesses in Bringelly Village which rely on some passing trade may be at risk of short term adverse economic impacts resulting from the proposal.

There is potential that the short term impact for these businesses may be offset by longer term benefits. These include potential for improved local amenity, and increased urbanisation of the area.

The removal of traffic from the bypassed section of The Northern Road would also improve amenity of the local area by reducing noise from passing vehicles and improved air quality, and lead to a safer and more pedestrianised environment. This could enhance the amenity of the local shopping village and the ability of local people to access the shops. It is also likely that the local community would also continue to access Bringelly Village, particularly as key social infrastructure including the public school, community centre, and park, are located to the west of the proposal. In the longer term, the improved amenity of the local area could also lead to opportunities for existing and new businesses, for example, outdoor dining.

The proposal is being implemented to enable broader development of Western Sydney as discussed in Section 3.3, including the proposed western Sydney airport, Western Sydney Priority Growth Area and South West Priority Land Release Area. These and other development projects in the area will lead to increased urbanisation of Bringelly. This may lead to increased trade in the long term, for example from construction workers in the area on other large scale jobs, and from future residents and workers.

The proposal would benefit the operation of the Boral Bringelly Brickworks as it would provide safer and more efficient access for heavy vehicles to and from The Northern Road and regional road freight routes.

The longer term development of the region for housing, employment and the proposed western Sydney airport would be supported by the proposal. Large scale developments within and surrounding the study area for the proposal (as noted in section 3) are likely to substantially increase traffic demand over the next thirty years. The proposal is one of a number of road improvement projects proposed and underway to cater for increased traffic volumes from the planned developments, by improving road and intersection capacity. Development of the proposal would benefit regional economic development.

7. Management and mitigation strategies

Table 7.1 outlines the recommended management and mitigation strategies to address the potential socio-economic impacts that may result from the proposal.

Table 7.1 Management and mitigation strategies

Impact	Environmental safeguards	Responsibility	Timing
Pre-construction and construction			
Construction impacts on the community	<p>A communication plan would be prepared and included in the construction environmental management plan. The communication plan would include (as a minimum):</p> <ul style="list-style-type: none"> • Requirements to provide details and timing of proposed activities to affected residents, the local community and businesses, and the local bus operator • Consultation actions in relation to access arrangements and servicing requirements, including for local businesses, the bus operator and Bringelly Public School • Complaints handling procedure • Contact name and number for complaints • Procedure to notify adjacent land users for changed conditions during the construction period such as traffic, pedestrian or driveway access. <p>The communications plan would be prepared in accordance with G36 requirements and Roads and Maritime <i>Community Engagement and Communications Manual 2012c</i>.</p>	Construction contractor	Pre-construction
	Local residents, businesses and other stakeholders would be notified before work starts in accordance with the communications plan.	Construction contractor	Pre-construction
	Local residents, businesses and other stakeholders would be kept regularly informed of construction activities during the construction process through the implementation of the communication plan. The complaints handling procedure would be maintained for the duration of construction.	Construction contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
Amenity	<p>Implementation of measures to manage the potential construction and operation access, noise and vibration, visual, and air quality impacts as listed in sections 6.1.4, 6.2.6, 6.8.4 and 6.9.3 of the REF.</p> <p>Ensure that these measures include:</p> <ul style="list-style-type: none"> • Communication with the community with timely and relevant information to enable them to understand the likely nature, extent and duration of vibration, dust, noise and utility impacts and access changes • Targeted communication with Bringelly Public School, Liverpool Council, Bringelly Village shopping village and other businesses in regard to timing of the most noise intensive works • Communication with Bringelly Public School and Liverpool and Camden Councils in regard to road access changes and any risks to pedestrian safety especially for young children • Particular attention should be given to ensuring any vulnerable (elderly or low income) households identified during consultations are appropriately informed • Communications would include roadside signage, letterbox dropped newsletters, newspaper advertisements, Roads and Maritime web based information, a complaints line, and advice to specific service providers such as community transport and seniors organisations • Consider appropriate measures to reduce amenity impacts on neighbours of construction compounds and ancillary activities including design of entry, exit siting of amenities and screening of work areas • Notify affected residents in advance of any unavoidable out of hours deliveries and construction work. 	Construction contractor	Pre-construction, construction
Business impacts	A business survey would be undertaken prior to works commencing	Roads and Maritime	Detailed design
Access and connectivity	During construction, road users, pedestrians and cyclists would be informed of any changed conditions.	Construction contractor	Construction
	Signage would be provided during construction to communicate changes, and ensure safety for pedestrians near to construction work.		
	Access to bus stops would be maintained.		
	The traffic management plan would include measures to minimise heavy vehicle usage and parking on local roads.		
	Property access would be maintained wherever practicable. Prior to any unavoidable disruption to access, consultation would be undertaken with the affected property owner.		
	Access would be maintained for emergency vehicles in the vicinity of construction works. Ongoing consultation would be undertaken with emergency services during construction to ensure that potential impacts are identified and appropriately managed.		

Impact	Environmental safeguards	Responsibility	Timing
Construction impacts on utilities and services	Residents and businesses would be informed before any interruptions to utility services that may be experienced as a result of utilities relocation.	Construction contractor	Construction
Bus stops	Crime prevention through environmental design principles would be considered as part of the design of the bus stops.	Roads and Maritime	Design
Farm dams	Consultation would be undertaken with the owners of properties containing dams that would be impacted by the proposal regarding options to mitigate the impacts including the maintenance of a supply of water for agricultural purposes..	Roads and Maritime	Pre-construction
Acquisition	All land acquisitions would be conducted in accordance with the <i>Roads and Maritime Land Acquisition Policy</i> and the requirements of the <i>Land Acquisition (Just Terms) Compensation Act 1991</i> .	Roads and Maritime	Detailed design
	<p>Acquisition arrangements and associated consultation would consider:</p> <ul style="list-style-type: none"> • The ability of property owners/occupants to relocate, within the timeframe required, to comparable accommodation that meets the owners/occupants needs • The introduction of a new road frontage and the impact of partial acquisition on the potential amenity and value of the remaining part of the property. Roads and Maritime Services would make a dual offer of either partial or full acquisition to owners of affected properties. • The need to liaise and consult on an ongoing basis with affected owners/occupants • Providing assistance to households as a required, with a focus on any vulnerable groups identified (older people, people with a disability, people from culturally and linguistically diverse backgrounds), 	Roads and Maritime	Detailed design
Business impacts	Signage at key locations along The Northern Road and Bringelly Road would be investigated during detailed design to promote the town of Bringelly	Roads and Maritime	Operation

8. Conclusion

The proposal would have a number of benefits for the local community and the broader region, particularly in relation to improvements to access and safety. The proposal would also have the potential to impact on the local and regional socio-economic environment.

The main potential socio-economic benefits of the proposal are considered to be:

- Generation of employment and increase in local trade during construction
- Benefits to the local and regional economy – together with the upgrades of The Northern Road and Bringelly Road, the proposal would improve access for the local and regional community and businesses, to and through the Western Sydney Priority Growth Area, South West Priority Land Release Area, the Western Sydney Employment Area and the proposed western Sydney airport
- The removal of through traffic from the remaining section of The Northern Road would improve amenity along this section and could benefit the local shopping environment and the ability of people to access the Bringelly Village shops
- Heavy vehicles associated with the operation of the expanded Boral Bringelly Brickworks would no longer turn north or south onto The Northern Road from Greendale Road – this would provide amenity and safety benefits for the school, village shops, and residents along the remaining section of The Northern Road.

The main potential socio-economic impacts of the proposal are considered to be:

- The relocation of families residing in the properties that are to be fully acquired has the potential to impact on local community cohesion
- The acquisition of property and associated relocation of residents has the potential to change the community structure in the locality
- Conversion of The Northern Road south of Bringelly Road would reduce passing traffic which may affect trade at the Bringelly shopping centre. Improved access to the area because of the grade separated interchange may offset this and turning movements into and out of The Northern Road would be easier with reduced traffic volumes
- Construction would result in temporary changes to access within and through the local areas
- Local amenity impacts on residents and nearby businesses, including noise and vibration as well as visual impacts.

The implementation of safeguards and management measures would mitigate some of the potential impacts on the socio-economic environment during construction and operation, and ensure that proposal's benefits are realised.

Consultation with affected property owners, businesses and communities has started. This would continue throughout the design, pre-construction and construction phase to minimise the potential socio-economic impacts of the proposal. Appropriate support for landowners and occupiers affected by acquisition would reduce the potential impacts on these community members. Communication with the broader community throughout construction would also assist in refining the construction phase management measures and mitigate the potential project impacts.

9. References

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NSW Government, 2005, *South West Growth Structure Plan (Edition 3)*

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NSW Government, 2014, *A Plan for Growing Sydney*, December 2014

Parolin, Bruno (2012), *Economic Evaluation of Town Bypasses Final Report*, Roads and Maritime

Roads and Maritime Services, 2013, *Environmental Impact Assessment Practice Note – Socio-economic assessment (EIA-N05)*

SKM, 2012, *The Northern Road upgrade, Narellan to Bringelly, Review of Environmental Factors*, October 2012

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Appendices

Appendix A Demographic data

Note: percentages have been rounded to one decimal place

	Local study area		Regional study area		Camden LGA		Liverpool LGA		Greater Sydney	
	No	%	No	%	No	%	No	%	No	%
Population:										
Total persons	1,893	100.0%	16,287	100.0%	56,720	100.0%	180,143	100.0%	4,391,674	100.0%
Age groups:										
0 to 4 years	101	5.3%	1,009	6.2%	4,576	8.1%	14,082	7.8%	298,901	6.8%
5 to 11 years	168	8.9%	1,615	9.9%	6,449	11.4%	19,808	11.0%	382,759	8.7%
12 to 17 years	199	10.5%	1,506	9.2%	5,361	9.5%	16,678	9.3%	325,761	7.4%
18 to 24 years	176	9.3%	1,569	9.6%	5,126	9.0%	17,888	9.9%	418,841	9.5%
25 to 34 years	212	11.2%	1,950	12.0%	7,471	13.2%	26,391	14.7%	676,888	15.4%
35 to 49 years	395	20.9%	3,303	20.3%	13,109	23.1%	40,158	22.3%	960,970	21.9%
50 to 59 years	305	16.1%	2,104	12.9%	6,495	11.5%	20,918	11.6%	537,646	12.2%
60 to 69 years	220	11.6%	1,793	11.0%	4,385	7.7%	13,252	7.4%	394,342	9.0%
70 to 84 years	100	5.3%	1,205	7.4%	2,979	5.3%	9,408	5.2%	314,495	7.2%
85 and over years	16	0.8%	233	1.4%	769	1.4%	15,59	0.9%	81,073	1.8%
Under 18 years	468	24.7%	4,130	25.4%	16,386	28.9%	50,568	28.1%	1,007,421	22.9%
15 years and over	1,525	80.6%	12,934	79.4%	42,957	75.7%	137,897	76.5%	3,548,458	80.8%
Median age (years)	39		37		34		33		36	
Cultural diversity:										
Indigenous persons	21	1.1%	225	1.4%	1,117	2.0%	2,676	1.5%	54,747	1.2%
Persons born in Non Main English Speaking countries	269	14.2%	3,523	21.6%	4,835	8.5%	64,739	35.9%	1,156,222	26.3%
Language spoken at home other than English	521	27.5%	5,150	31.6%	5,794	10.2%	89,766	49.8%	1,425,535	32.5%
Speaks English Only	1,169	61.8%	9,848	60.5%	48,973	86.3%	80,045	44.4%	2,732,446	62.2%
Speaks other language and speaks English very well or well	220	11.6%	2,136	13.1%	3,023	5.3%	47,009	26.1%	801,897	18.3%
Household characteristics:										
Family households	434	87.1%	3,843	83.4%	14,963	83.7%	44,019	82.1%	1,112,635	73.1%
Lone person household	55	11.0%	689	15.0%	2,589	14.5%	8,596	16.0%	343,810	22.6%
Group household	9	1.8%	76	1.6%	323	1.8%	980	1.8%	64,952	4.3%
Average household size (number of persons)	3.3		3.2		3.0		3.2		2.7	
Family characteristics:										
Total families	488		4,128		15,462		46,563		1,152,551	
Couple family with children	278	57.0%	2,215	53.7%	8,494	54.9%	26,421	56.7%	563,887	48.9%
Couple with children under 15 years	159	32.6%	1,313	31.8%	5,921	38.3%	17,661	37.9%	374,595	32.5%
Couple with children over 15 years	119	24.4%	902	21.9%	2,573	16.6%	8,760	18.8%	189,292	16.4%
Couple family without children	152	31.1%	1,292	31.3%	4,635	30.0%	11,058	23.7%	385,716	33.5%
One parent family	58	11.9%	575	13.9%	2,182	14.1%	8,478	18.2%	181,216	15.7%
One parent with children under 15 years	28	48.3%	290	50.4%	1,216	55.7%	4,313	50.9%	84,520	46.6%
One parent with children over 15 years	30	51.7%	285	49.6%	966	44.3%	4,165	49.1%	96,696	53.4%
Other family	-	0.0%	46	1.1%	151	1.0%	606	1.3%	21,732	1.9%

	Local study area		Regional study area		Camden LGA		Liverpool LGA		Greater Sydney	
	No	%	No	%	No	%	No	%	No	%
Other characteristics:										
Need for assistance	68	3.6%	877	5.4%	2,218	3.9%	9,643	5.4%	192,325	4.4%
Dwellings:										
Separate house	497	95.9%	4,358	88.5%	16,398	87.2%	40,344	72.1%	926,062	56.5%
Semi-detached, terrace house, townhouse	-	0.0%	110	2.2%	1019	5.4%	6354	11.4%	194169	11.8%
Flat, unit or apartment	-	0.0%	23	0.5%	277	1.5%	6763	12.1%	391889	23.9%
Other dwellings	4	0.8%	110	2.2%	154	0.8%	87	0.2%	7004	0.4%
Not stated	-	0.0%	10	0.2%	25	0.1%	47	0.1%	2274	0.1%
Total occupied private dwellings	501	96.7%	4,611	93.6%	17873	95.0%	53595	95.8%	1521398	92.8%
Unoccupied private dwellings	17	3.3%	314	6.4%	933	5.0%	2363	4.2%	118801	7.2%
Tenure type:										
Fully owned	227	46.6%	1,925	43.4%	4,648	26.7%	12,908	25.0%	462,150	31.4%
Owned with a mortgage	173	35.5%	1,351	30.5%	9,422	54.1%	22,454	43.5%	529,907	36.0%
Rented (Total):	87	17.9%	1,157	26.1%	3,347	19.2%	16,301	31.6%	480,608	32.6%
Real estate agent	59	67.8%	598	51.7%	2,115	63.2%	8,351	51.2%	299,835	62.4%
State or territory housing authority	-	0.0%	23	2.0%	323	9.7%	4,218	25.9%	69,047	14.4%
Person not in same household	24	27.6%	382	33.0%	713	21.3%	2,124	13.0%	82,565	17.2%
Housing co-operative/community/church group	-	0.0%	12	1.0%	56	1.7%	349	2.1%	9,866	2.1%
Other landlord type	4	4.6%	89	7.7%	81	2.4%	964	5.9%	11,732	2.4%
Landlord type not stated	-	0.0%	53	4.6%	59	1.8%	295	1.8%	7,563	1.6%
Other Tenure Type	-	0.0%	36	3.1%	152	4.5%	296	1.8%	11790	2.5%
Not stated	11	12.6%	141	12.2%	306	9.1%	1638	10.0%	36943	7.7%
Individual income:										
Median Individual Income (\$/weekly)	590		505		690		510		619	
Negative/nil Income	162	10.8%	1,275	9.9%	3,605	8.4%	14,899	10.8%	348,429	9.8%
\$1-\$199	94	6.3%	920	7.1%	3,144	7.3%	11,397	8.3%	250,980	7.1%
\$200-\$299	113	7.5%	1,423	11.0%	3,406	7.9%	16,246	11.8%	329,101	9.3%
\$300-\$399	121	8.1%	1,272	9.8%	3,607	8.4%	12,573	9.1%	307,162	8.7%
\$400-\$599	157	10.4%	1,530	11.8%	4,426	10.3%	14,157	10.3%	362,337	10.2%
\$600-\$799	177	11.8%	1,356	10.5%	4,523	10.5%	15,132	11.0%	344,041	9.7%
\$800-\$999	125	8.3%	1,049	8.1%	3,970	9.2%	12,184	8.8%	287,887	8.1%
\$1,000-\$1,249	107	7.1%	1,032	8.0%	4,198	9.8%	11,175	8.1%	282,736	8.0%
\$1,250-\$1,499	82	5.5%	602	4.7%	3,188	7.4%	7,215	5.2%	205,701	5.8%
\$1,500-\$1,999	82	5.5%	534	4.1%	3,911	9.1%	6,927	5.0%	254,589	7.2%
\$2,000 or more	56	3.7%	417	3.2%	2,498	5.8%	3,903	2.8%	289,668	8.2%
Individual income not stated	227	15.1%	1,532	11.8%	2,478	5.8%	12,089	8.8%	285,825	8.1%
Household income:										
Median household income (\$/weekly)	1,660		1,319		1,727		1,299		1,447	
Negative/nil Income	7	1.6%	70	1.7%	160	1.0%	641	1.3%	23,649	1.7%
\$1-\$199	13	2.9%	68	1.6%	186	1.1%	942	1.9%	22,511	1.6%
\$200-\$299	3	0.7%	112	2.7%	239	1.4%	1,571	3.2%	37,883	2.7%
\$300-\$399	9	2.0%	191	4.6%	671	4.1%	2,728	5.5%	78,126	5.6%

	Local study area		Regional study area		Camden LGA		Liverpool LGA		Greater Sydney	
	No	%	No	%	No	%	No	%	No	%
\$400-\$599	27	6.1%	375	9.0%	1,058	6.4%	4,364	8.9%	115,376	8.2%
\$600-\$799	36	8.2%	358	8.6%	1,064	6.5%	4,283	8.7%	108,318	7.7%
\$800-\$999	41	9.3%	366	8.8%	1,075	6.5%	3,942	8.0%	103,467	7.4%
\$1,000-\$1,249	33	7.5%	377	9.1%	1,215	7.4%	4,528	9.2%	110,822	7.9%
\$1,250-\$1,499	33	7.5%	330	7.9%	1,233	7.5%	4,062	8.3%	103,674	7.4%
\$1,500-\$1,999	51	11.6%	517	12.4%	2,558	15.5%	6,545	13.3%	172,068	12.3%
\$2,000-\$2,499	59	13.4%	424	10.2%	2,329	14.1%	5,355	10.9%	128,349	9.2%
\$2,500-\$2,999	37	8.4%	315	7.6%	1,806	11.0%	3,686	7.5%	145,339	10.4%
\$3,000-\$3,499	26	5.9%	200	4.8%	1,213	7.4%	2,339	4.8%	86,841	6.2%
\$3,500-\$3,999	22	5.0%	114	2.7%	562	3.4%	1,106	2.2%	45,048	3.2%
\$4,000 or more	27	6.1%	184	4.4%	765	4.6%	1,488	3.0%	83,133	5.9%
All incomes not stated	17	3.9%	161	3.9%	355	2.2%	1,583	3.2%	36,822	2.6%
Labour force:										
Labour force participation	898	58.9%	7,475	57.8%	29,969	69.8%	80,187	58.1%	2,188,853	61.7%
Total employed	868	96.7%	7,134	95.4%	28,758	96.0%	74,567	93.0%	2,063,266	94.3%
Employed full-time	579	66.7%	4,659	65.3%	19,295	67.1%	50,804	68.1%	1,358,189	65.8%
Employed part-time	231	26.6%	1,954	27.4%	7,762	27.0%	18,696	25.1%	584,778	28.3%
Unemployed persons	30	3.3%	341	4.6%	1,211	4.0%	5,620	7.0%	125,587	5.7%
Not in labour force	440	28.9%	4,229	32.7%	11,365	26.5%	48,665	35.3%	1,149,800	32.4%
Occupation:										
Managers	118	13.7%	1,222	17.1%	3,742	13.0%	7,316	9.8%	273,916	13.3%
Professionals	92	10.7%	847	11.9%	5,035	17.5%	11,479	15.4%	526,564	25.5%
Technicians and trades	167	19.4%	1,248	17.5%	4,364	15.2%	11,717	15.7%	251,471	12.2%
Community and personal service	32	3.7%	470	6.6%	2,750	9.6%	6,834	9.2%	182,059	8.8%
Clerical and administrative	157	18.2%	1,112	15.6%	5,030	17.5%	13,084	17.5%	333,435	16.2%
Sales	89	10.3%	636	8.9%	2,890	10.0%	6,712	9.0%	185,951	9.0%
Machinery operators and drivers	117	13.6%	775	10.9%	2,403	8.4%	7,809	10.5%	118,136	5.7%
Labourers	70	8.1%	676	9.5%	2,114	7.4%	7,828	10.5%	151,324	7.3%
Not stated	20	2.3%	152	2.1%	430	1.5%	1,789	2.4%	40,413	2.0%
Key industry:										
Agriculture, forestry & fishing	44	5.1%	523	7.3%	298	1.0%	548	0.7%	7,796	0.4%
Mining	-	0.0%	11	0.2%	135	0.5%	79	0.1%	4,353	0.2%
Manufacturing	102	11.8%	725	10.2%	3,193	11.1%	10,411	14.0%	175,274	8.5%
Electricity, gas, water & waste services	9	1.0%	81	1.1%	376	1.3%	693	0.9%	18,528	0.9%
Construction	113	13.1%	999	14.0%	2,844	9.9%	6,328	8.5%	145,529	7.1%
Wholesale trade	42	4.9%	442	6.2%	1,517	5.3%	4,138	5.5%	108,522	5.3%
Retail trade	106	12.3%	763	10.7%	3,156	11.0%	7,788	10.4%	202,737	9.8%
Accommodation & food services	37	4.3%	282	4.0%	1,380	4.8%	3,956	5.3%	127,863	6.2%
Transport, postal & warehousing	83	9.6%	585	8.2%	2,045	7.1%	5,857	7.9%	109,360	5.3%
Information media & telecommunications	5	0.6%	67	0.9%	402	1.4%	1,187	1.6%	61,795	3.0%
Financial & insurance services	21	2.4%	165	2.3%	1,082	3.8%	3,489	4.7%	135,224	6.6%

	Local study area		Regional study area		Camden LGA		Liverpool LGA		Greater Sydney	
	No	%	No	%	No	%	No	%	No	%
Rental, hiring & real estate services	12	1.4%	110	1.5%	523	1.8%	956	1.3%	36,223	1.8%
Professional, scientific & technical services	43	5.0%	353	4.9%	1,434	5.0%	3,358	4.5%	198,026	9.6%
Administrative & support services	36	4.2%	161	2.3%	817	2.8%	2,528	3.4%	72,123	3.5%
Public administration & safety	28	3.2%	246	3.4%	1,922	6.7%	5,120	6.9%	115,587	5.6%
Education & training	52	6.0%	388	5.4%	2,664	9.3%	4,316	5.8%	156,628	7.6%
Health care & social assistance	43	5.0%	491	6.9%	2,811	9.8%	7,560	10.1%	224,833	10.9%
Arts & recreation services	3	0.3%	102	1.4%	382	1.3%	846	1.1%	33,121	1.6%
Other services	54	6.3%	395	5.5%	1,150	4.0%	2,881	3.9%	75,364	3.7%
Not Stated	29	3.4%	249	3.5%	627	2.2%	2529	3.4%	54383	2.6%
Educational attainment:										
Completion of Year 12 (or equivalent)	426	27.9%	3,988	30.8%	17,484	40.7%	63,884	46.3%	1,935,166	54.5%
Without post-school qualifications	765	50.2%	6,757	52.2%	19575	45.6%	69104	50.1%	1436030	40.5%
Educational institution attending:										
Total	666	100.0%	5,455	100.0%	18,140	100.0%	61,996	100.0%	1,390,703	100.0%
Pre-school attending:										
Pre-school	23	3.5%	285	5.2%	1,425	7.9%	3,174	5.1%	78,948	5.7%
Infants/primary education attending:										
Government	68	10.2%	818	15.0%	3,973	21.9%	10,875	17.5%	227,478	16.4%
Catholic	57	8.6%	349	6.4%	1,204	6.6%	3,736	6.0%	72,693	5.2%
Other non-government	24	3.6%	253	4.6%	784	4.3%	2,424	3.9%	42,513	3.1%
Total	149	22.4%	1,420	26.0%	5,961	32.9%	17,035	27.5%	342,684	24.6%
Secondary education attending:										
Government	73	11.0%	578	10.6%	2,697	14.9%	8,572	13.8%	158,754	11.4%
Catholic	64	9.6%	400	7.3%	1,190	6.6%	3,600	5.8%	73,561	5.3%
Other non-government	29	4.4%	211	3.9%	660	3.6%	1,990	3.2%	50,945	3.7%
Total	166	24.9%	1,189	21.8%	4,547	25.1%	14,162	22.8%	283,260	20.4%
Technical or further educational institution(a):										
Full-time student:	-		-							
Aged 15-24 years	3	0.5%	66	1.2%	225	1.2%	1,099	1.8%	20,474	1.5%
Aged 25 years and over	3	0.5%	29	0.5%	70	0.4%	803	1.3%	17,992	1.3%
Part-time student:	-		-							
Aged 15-24 years	20	3.0%	169	3.1%	480	2.6%	1,074	1.7%	25,247	1.8%
Aged 25 years and over	13	2.0%	90	1.6%	440	2.4%	1,650	2.7%	40,304	2.9%
Full/Part-time student status not stated	-	0.0%	11	0.2%	19	0.1%	77	0.1%	1,371	0.1%
Total	39	5.9%	365	6.7%	1,234	6.8%	4,703	7.6%	105,388	7.6%
University or other tertiary institution attending:										
Full-time student:	-		-							
Aged 15-24 years	24	3.6%	266	4.9%	856	4.7%	3,944	6.4%	123,386	8.9%
Aged 25 years and over	7	1.1%	34	0.6%	189	1.0%	752	1.2%	37,314	2.7%
Part-time student:	-		-							

	Local study area		Regional study area		Camden LGA		Liverpool LGA		Greater Sydney	
	No	%	No	%	No	%	No	%	No	%
Aged 15-24 years	6	0.9%	66	1.2%	170	0.9%	576	0.9%	14,736	1.1%
Aged 25 years and over	9	1.4%	88	1.6%	557	3.1%	1,287	2.1%	52,363	3.8%
Full/pPart-time student status not stated	4	0.6%	3	0.1%	13	0.1%	63	0.1%	1,574	0.1%
Total	50	7.5%	457	8.4%	1,785	9.8%	6,622	10.7%	229,373	16.5%
Other type of educational institution attending:										
Full-time student	-	0.0%	14	0.3%	69	0.4%	452	0.7%	13,541	1.0%
Part-time student	10	1.5%	42	0.8%	243	1.3%	714	1.2%	23,853	1.7%
Full/Part-time student status not stated	-	0.0%	3	0.1%	7	0.0%	39	0.1%	758	0.1%
Total	10	1.5%	59	1.1%	319	1.8%	1,205	1.9%	38,152	2.7%
Type of educational institution not stated	229	34.4%	1,680	30.8%	2,869	15.8%	15,095	24.3%	312,898	22.5%
Mobility:										
Lived at same address 1 year ago	1,528	80.7%	13,043	80.1%	46,182	81.4%	147,254	81.7%	3,513,769	80.0%
Lived at same address 5 years ago	1,189	62.8%	9,923	60.9%	30,085	53.0%	101,327	56.2%	2,319,489	52.8%
Transport:										
Households without a motor vehicle	13	2.7%	153	3.4%	599	3.4%	5,026	9.8%	184,242	12.5%
One motor vehicle	66	13.6%	937	21.1%	4,388	25.1%	16,426	31.9%	584,187	39.6%
Two motor vehicles	184	37.9%	1,585	35.6%	8,275	47.3%	19,711	38.3%	500,581	33.9%
Three motor vehicles	98	20.2%	898	20.2%	2,712	15.5%	6,932	13.5%	140,633	9.5%
Four or more motor vehicles	125	25.7%	874	19.7%	1,510	8.6%	3,433	6.7%	66,229	4.5%
Journey to work (by one method only):										
Train	18	2.3%	243	3.7%	1,763	6.7%	7,823	11.3%	283,760	15.0%
Bus	-	0.0%	45	0.7%	195	0.7%	1,429	2.1%	119,783	6.3%
Ferry	-	0.0%	-	0.0%	0	0.0%	11	0.0%	9,175	0.5%
Tram (includes light rail)	-	0.0%	-	0.0%	7	0.0%	23	0.0%	1,920	0.1%
Taxi	-	0.0%	4	0.1%	17	0.1%	108	0.2%	5,984	0.3%
Car, as driver	556	69.6%	4,476	68.0%	20,586	78.3%	49,313	71.1%	1,138,129	60.2%
Car, as passenger	52	6.5%	354	5.4%	1,460	5.6%	4,903	7.1%	106,703	5.6%
Truck	82	10.3%	475	7.2%	591	2.2%	1,350	1.9%	21,977	1.2%
Motorbike/scooter	-	0.0%	21	0.3%	108	0.4%	241	0.3%	12,645	0.7%
Bicycle	-	0.0%	13	0.2%	54	0.2%	250	0.4%	15,624	0.8%
Other	4	0.5%	53	0.8%	89	0.3%	398	0.6%	9,473	0.5%
Walked only	15	1.9%	181	2.7%	355	1.4%	1,662	2.4%	84,553	4.5%
Worked at home	72	9.0%	722	11.0%	1,068	4.1%	1,853	2.7%	81,612	4.3%

Appendix B Property impacts

Schedule Number	Lot / (Sec/) DP	Property Address	Acq type	Impact by project (80% concept design)
2	2 / A / 2650	1262 The Northern Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
3	1 / A / 2650	1262 The Northern Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
4	2 / 712840	1254 The Northern Road BRINGELLY	Partial	No acquisition required but need to provide access
5	3 / 712840	1250 The Northern Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
6	4 / 712840	1232 The Northern Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
7	5 / 712840	1222 The Northern Road BRINGELLY 2556	Dual offer	Potential total acquisition (rear of property; part of pool and shed impacted)
8	6 / 712840	1212 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (rear of property; DA approved for shed at back)
9	7 / 712840	1200 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (rear of property)
10	8 / 712840	1250 Bringelly Road BRINGELLY 2556	Dual offer	Partial acquisition (strip at front and rear of property)
11	9 / 712840	1232 Bringelly Rd, BRINGELLY	Total	Total acquisition (dwelling impacted)
12	10 / 712840	1230 Bringelly Rd BRINGELLY	Total	Total acquisition (dwelling impacted)
13	11 / 712840	1220 Bringelly Rd BRINGELLY	Dual offer	Partial acquisition (strip at front); immediately adjacent to interchange
14	12 / 712840	1202 Bringelly Rd BRINGELLY	Partial	Partial acquisition (strip at front)
17	910 / 803166	23 Medich Place BRINGELLY	Dual offer	Partial acquisition (rear of property)
18	911 / 803166	25 Medich Place BRINGELLY	Dual offer	Partial acquisition (rear of property)
19	912 / 803166	16 Medich Place BRINGELLY	Dual offer	Partial acquisition (rear of property)
22	121 / 794437	953 Bringelly Rd Bringelly	Partial	Partial acquisition (strip at front); immediately adjacent to interchange
23	120 / 794437	971 Bringelly Road BRINGELLY 2556	Total	Total acquisition (location of interchange)
24	10 / 812153	1180 The Northern Road BRINGELLY 2556	Partial	Partial acquisition (strip at front); immediately adjacent to interchange
25	2 / 918331	991 Bringelly Road BRINGELLY 2556	Partial	Partial acquisition (strip at front)
27	5 / 233637	1178 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (rear of property)
28	4 / 233637	1160 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (alignment through middle of property)
29	3 / 233637	1152 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (alignment through middle of property)
30	2 / 233637	1146 The Northern Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
31	1 / 233637	3 Robinson Road BRINGELLY 2556	Total	Total acquisition (dwelling impacted)
32	4 / 232188	9 Robinson Road BRINGELLY 2556	Dual offer	Partial acquisition (part of front); need to provide access
33	5 / 232188	11 Robinson Road BRINGELLY 2556	Dual offer	Partial acquisition (part of front)
34	6 / 773405	30 Robinson Road	Partial	Partial acquisition (part of

Schedule Number	Lot / (Sec/) DP	Property Address	Acq type	Impact by project (80% concept design)
		BRINGELLY 2556		front)
35	2 / 11 / 2650	1110 The Northern Road BRINGELLY 2556	Dual offer	Partial acquisition (strip at front and back)
36	3 / 11 / 2650	1092 THE NORTHERN ROAD BRINGELLY 2556	Total	Total acquisition (link road through property)
37	B / 414758	1089 The Northern Road BRINGELLY	Partial	Partial acquisition (strip at front); proposed compound site
38	101 / 826948	1115 THE NORTHERN ROAD BRINGELLY	Partial	Partial acquisition (part of south-eastern corner)
44	2 / D / 2650	1251 The Northern Road BRINGELLY 2556	Partial	Partial acquisition (strip at front)
45	3 / D / 2650	1265 The Northern Road BRINGELLY 2556	Partial	Partial acquisition (strip at front)
46	4 / D / 2650	4 Solway Road BRINGELLY 2556	Partial	Partial acquisition (strip at front)

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