7.7 Social and Economic

This chapter provides an assessment of social and economic impacts associated with the project. A business impact assessment has been prepared to inform the potential economic impacts of the project. The technical working paper: business is provided in **Appendix K**.

Table 7-158 sets out the Director-General's Requirements as they relate to social and economic impacts and where in the environmental impact statement these have been addressed.

Table 7-158 Director-General's Requirements – social and economic

Director-General's Requirement	Where addressed
Social and economic impacts to businesses along Pennant Hills Road and the Pacific Highway, and the community associated with traffic, access, property, public domain and amenity related changes.	Social and economic impact assessment in **Section 7.7.3** including consideration of traffic, access, property, public domain and amenity related changes. Additional assessments are also provided as follows: • Traffic and access impacts in **Section 7.1**. • Property impacts in **Section 8.1**. • Amenity impacts in **Section 7.2** (Noise and vibration), **Section 7.3** (Air quality) and **Section 7.5** (Urban design, landscape character and visual amenity).

7.7.1 Assessment methodology

The social and economic assessment has been undertaken in accordance with the comprehensive assessment guidelines in Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (Roads and Maritime, 2013b).

The assessment is based on a combination of quantitative data such as population statistics and qualitative data such as location and types of social infrastructure.

Data for the assessment has been primarily sourced from the Australian Bureau of Statistics (ABS) Census and the Department of Planning and Environment (DP&E) and has been summarised in **Section 7.7.2**. Data has also been collected from Commonwealth, State and local government agencies.

The methodology for the social assessment included:

- Definition of the study area for the social impact assessment.
- Development of a baseline profile for the social environment within the study area.
- An assessment of positive and negative impacts as a result of the project during construction and operation.
- Identification of measures to mitigate or manage the potential social impacts associated with the project.

The methodology for the economic assessment included:

- A review of previous assessments undertaken for the project to provide context and background to the project.
- Definition of the study area for the economic impact assessment.
- A desktop analysis of businesses within the study area.
- Development of a baseline profile for the economic environment within the study area.
- Development of baseline profiles for potentially indirectly and directly impacted businesses. For indirectly impacted businesses this involved the use of data collected through a business survey. For directly impacts businesses this involved the use of data from industry benchmarking.
- Analysis of key stakeholder issues, including a business survey of business that were identified as having the potential to be indirectly impacted by the project.
- Quantification of positive and / or negative impacts on the businesses as a result of the construction and operation of the project. Measures used to assess impacts included:
  - Employment: The projected net change in the number of people employed in local businesses.
  - Turnover: The projected net change in turnover ($) generated by local businesses.
  - Other: Additional components of business operations that may be impacted by the project, which can be assessed but are more difficult to quantify.
- Identification of measures to mitigate or manage the potential impacts on businesses.

Further details of the economic impact methodology are provided in the technical working paper: business (**Appendix K**).

Study area

The study area for the assessment includes the project, the areas immediately adjacent to the project and the wider catchment as it relates to the usage of Pennant Hills Road and the Hills M2 Motorway. The study area has been identified based on 'level 2 statistical areas', as described in detail below. The statistical areas chosen were those through which the project passes and those which are most likely to experience social and economic impacts as a result of the construction and operation of the project.

Establishment of baseline profiles

Baseline social and economic profiles for the communities along the project have been established by examining the data for the Australian Statistical Geography Standard (ASGS), level 2 statistical areas (SA2s) as defined by the ABS. The ABS collects a wide variety of information at all scales across Australia. Data collected by the ABS includes economic, environmental and social data.

A baseline profile for social impacts as a result of the project has been established using data from the following SA2s:

- Pennant Hills – Cheltenham SA2.
- Normanhurst – Thornleigh – Westleigh SA2.
- Hornsby – Waitara SA2.
- West Pennant Hills SA2.
- North Rocks SA2.
- Carlingford SA2.
- Wahroonga – Warrawee SA2.

The location of level two statistical areas is shown in **Figure 7-73**.

The project extends slightly into the SA2 areas of Baulkham Hills (east) and Northmead at the western end of the Hills M2 Motorway tie-in. The works within these SA2s is limited and the affected community would be broadly consistent with the adjacent SA2s considered in this assessment. As such, these statistical areas were not included in the assessment.

A baseline profile for economic impacts has been established using the following SA2s:

- West-Pennant Hills SA2
- Pennant Hills – Cheltenham SA2.
- Normanhurst-Thornleigh-Westleigh SA2.
- Hornsby-Waitara SA2.
- Wahroonga – Warrawee SA2.
- Turramurra SA2.
- Pymble SA2.

Unlike social impacts, which occur at a community level, positive and negative impacts to businesses that manifest themselves in changes to turnover or employment generally occur at the location of the business activity. This is due to the fact that businesses generally rely on the attractiveness and accessibility of their location to induce business activity. As such businesses that reside far beyond the boundaries of the project are unlikely to be significantly impacted by the project. Consequently the SA2s chosen to establish baseline economic profiles differ from those used in the social assessment and reflect the concentration of business activities within the Pennant Hills Road corridor.

The SA2s chosen for the economic baseline profile have been identified based on their proximity to the project and their ability to best represent the business profile and geographical location of potentially impacted businesses.

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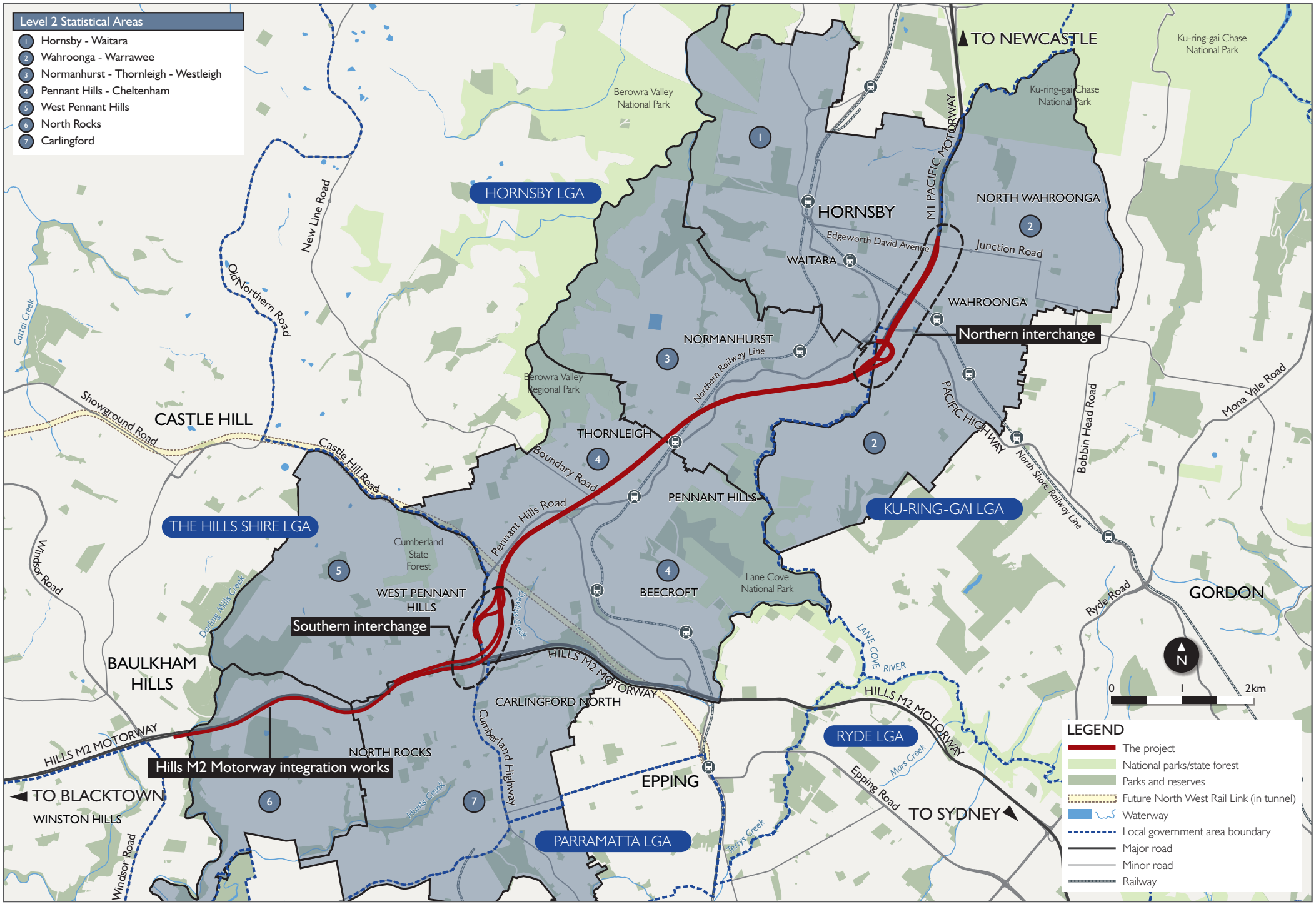

Figure 7-73 Level 2 statistical areas

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Business survey

A business survey was conducted to assess indirect impacts on business operations, turnover and employment as a result of a potential loss in passing trade. Businesses chosen to be interviewed were those that were expected to draw a considerable proportion of their business activity from passing traffic. Interviewed businesses fell into three categories:

- Service stations.
- Cafes / restaurants.
- Accommodation.

A number of businesses were identified as being potentially impacted by changes in passing trade. Survey results were captured from around 70 per cent of these businesses and have been included in the technical working paper: business (**Appendix K**).

Key interview topics included:

- The key characteristics of businesses including main activities, number of persons employed in operating the business, business floor space, parking arrangements and business hours.
- The dependence of business operations on through traffic travelling to or from the M1 Pacific Motorway or the Hills M2 Motorway.
- Identification of potential impacts and changes to the business as a result of the project such as impacts on local traffic trade, accessibility of the business or amenity.

Identification of impacts and mitigation measures

Potential social and economic impacts have been assessed in the context of other studies within the environmental impact statement including noise and vibration, land use and property, air quality, landscape and visual and traffic and transport. Consideration has also been given to the local communities' perception of impacts given that these perceptions may influence tolerance of change.

The assessment of social and economic baseline profiles and potential impacts has been used to identify strategies to avoid, minimise, mitigate or manage impacts and to enhance or maximise social and economic benefits related to the project.

Potential for cumulative impacts with nearby construction projects, being the North West Rail Link and the Epping to Thornleigh Third Track project during construction and operation have also been identified.

7.7.2 Existing environment

The study area incorporates suburbs across the Hornsby, The Hills, and Ku-ring-gai Local Government Areas (LGAs) and is defined by physical, economic and social characteristics. The physical quality of the area is one of established suburban communities for which Pennant Hills Road forms a subregional focal point and transport link. Communities within the area are generally well connected through a broad range of social infrastructure and overall are relatively economically advantaged.

The assessment of the existing social and economic environment in the study considered:

- Population and demography.
- Families and housing.
- Socio-economic status.
- Travel behaviour.
- Labour force, income and employment.
- Social infrastructure.
- Community character and cohesion.
- Workforce.
- Economy and business.
- Tourism.
- Freight and commercial travel patterns.

Population and demography

Key population and demographic characteristics of the study area are as follows:

- The estimated resident population within the study area as of June 2012 was 136,543 people. Over the period from 2001 to 2006, most areas showed a marginal decrease in population or remained about the same with the exception of the Normanhurst – Thornleigh – Westleigh SA2 and the Hornsby – Waitara SA2 which increased six per cent and 15 per cent respectively.
- From 2006 to 2011 all areas increased in population with the exception of West Pennant Hills SA2 which decreased by about one per cent. Wahroonga – Warrawee SA2 experienced the greatest growth over this time period with an increase of about 12 per cent.
- Hornsby – Waitara SA2 showed the greatest increase in population from 2001 to 2011 with a growth of about 27 per cent.
- Population forecasts for the Hornsby, Ku-ring-gai and The Hills local government areas show expected moderate to high levels of growth from 2011 to 2031 for all regions with total increases of 22.7, 28.8 and 55.5 per cent respectively.
- The median age within the study area ranges from 36 to 41. Census data from 2001 to 2011 show that the median age for all areas is increasing with the exception of Hornsby – Waitara SA2 where the median age remained 36 years old from 2001 to 2011.
- The percentage of individuals in the study area identified as Aboriginal, Torres Strait Islander or both is comparatively low ranging from 0.14 per cent to 0.45 per cent.
- The population features a moderate amount of cultural diversity with an average of 36 per cent of persons being born overseas and 30 per cent speaking a language other than English at home. The area with the highest migrant population is Hornsby – Waitara SA2 with around 47 per cent of the population being born overseas.

- Around 12 per cent of the population on average resided at a different address within the 12 months prior to the census. Around 32 per cent of the population on average resided at different address within the five years prior to the census.
- The percentage of persons requiring assistance for core activities ranges from around 2.4 to four per cent, with the North Rocks SA2 having the highest percentage of persons requiring assistance.

Families and housing

Dwellings in the study area comprise predominately separate houses ranging from 72 to 88 per cent of the total number of dwellings. The Hornsby – Waitara SA2 is the exception to this with only 36 per cent of the dwellings comprising separate houses and 50 per cent of dwellings being flat, unit or apartment type.

The majority of households within the study area are family households ranging from 70 to 90 per cent of the total number of households. Of these, around 25 to 30 per cent are couples with no children whilst another 25 to 30 per cent are comprised of couples with children under 15. The remainder of households are largely made up of couples with no children under 15, with a small portion (less than 15 per cent) made up of single parent families or other family types.

Median rental costs range from $400 to $550 per week. Wahroonga – Warrawee SA2 has the highest median cost at $550 per week while Hornsby – Waitara SA2 has the lowest median cost of $400 per week.

On average, 41 per cent of houses within the study area are owned outright and 40 per cent are owned with a mortgage. Hornsby – Waitara SA2 has the lowest percentage of homes owned outright at 25 per cent whilst North Rocks SA2 has the highest at 46 per cent. The remainder of houses across the study area are predominately rented with Hornsby – Waitara SA2 having the highest rental rate of 39 per cent.

Socio-economic status

An estimate of the socio-economic status of the study area has been based on socio-economic index for advantage (SEIFA) data published by the Australian Bureau of Statistics. Two measures have been used:

- The index of relative socio-economic advantage and disadvantage (IRSAD).
- The index of economic resources (IER).

IRSAD summarises information about the economic and social conditions of people and households within an area. A low score on the index indicates a relatively greater disadvantage. A high score indicates a relative lack of disadvantage. On the IRSAD most SA2s in the study area achieve the highest rating, falling within the 10th decile. Only the Carlingford SA2 and the Hornsby – Waitara SA2 have lower ratings, achieving the 9th and 8th deciles respectively.

IER focuses on the financial aspects of relative socio-economic advantage and disadvantage. A low score indicates a relative lack of access to economic resources while a high score indicates a relatively greater access to economic resources in general. On the IER the majority of SA2s within the study area fall within the 10th decile. The exceptions to this are Carlingford SA2 (within the 9th decile) and Hornsby – Waitara SA2 (within the 5th decile).

These indices show that, in general, the study area is relatively affluent.

Travel behaviour

The study area is highly reliant on motor vehicles as a mode of transport with the majority of households across the study area having two or more vehicles. Hornsby – Waitara SA2 is the exception to this with around 31 per cent of households having two or more vehicles and 51 per cent having only one vehicle. Hornsby – Waitara SA2 also has the highest percentage of households with no vehicles at around 15 per cent. The number of houses with no vehicles is less than six per cent for all other SA2s.

The majority of people within the study area travel to work by car as a passenger or driver, making up around 74 per cent of journeys to work on average. The second and third most common forms of travel to work are via bus or train comprising 15 and five per cent of journeys respectively. Walking to work is the fourth most common and is most prevalent in Hornsby – Waitara SA2 comprising around eight per cent of journeys to work.

Pennant Hills Road is the major transport route between the Hills M2 Motorway and the M1 Pacific Motorway. It provides a connection between the NSW north coast, the north shore and Sydney's north-western suburbs and is also a major local road connection. The road provides a key link between the centres of Pennant Hills, Thornleigh and Hornsby and provides access to other major link roads such as the Hills M2 Motorway, Beecroft Road, Castle Hill Road and the Pacific Highway.

Public transport within the area is largely provided by bus and trains. Buses utilise Pennant Hills Road in both directions connecting to the surrounding road network. Railway lines within the project area include the Northern Railway Line and the North Shore Railway Line.

Pedestrian and cycle networks

A variety of cycle and pedestrian facilities exist throughout the study area. At the southern interchange, cyclists use the shoulders the Hills M2 Motorway of both the eastbound and westbound carriageways except for along the eastbound carriageway between Pennant Hills Road and Delhi Road where cyclists are currently excluded during the construction of the Lane Cove Road on-ramp project.

Road cycle symbols and lane markings are also provided on Pennant Hills Road around the Hills M2 Motorway interchange. However, Pennant Hills Road is not formally identified as a cycle route for any significant distance around this interchange.

The length of Pennant Hills Road between the southern and northern interchanges is not listed as a cycle route. However, a length of dedicated cycle way is provided on the northern side of the road from Duffy Avenue to Dartford Road.

At the northern interchange cyclist use the shoulders of the M1 Pacific Motorway from the Pennant Hills Road intersection to Berowra. The remainder of the northern interchange does not provide dedicated cycling infrastructure. However, a cycle route exists along the Pacific Highway between the Hornsby and Berowra Railway Stations. This route can be accessed by other cycle routes along Edgeworth David Avenue, Wahroonga and College Crescent in Hornsby.

Pedestrian facilities are provided in the form of footpaths across the majority of the study area. Pedestrian infrastructure for each area of the project is outlined in **Table 7-159**.

Table 7-159 Pedestrian facilities

Project area	Pedestrian facilities
Hills M2 Motorway integration works	Pedestrians are able to cross the Hills M2 Motorway at: • The Oakes Road underpass. • The Barclay Road overpass. • Under Darling Mills Creek viaduct. • The Windsor Road overpass.
Southern interchange	• Footpaths along Pennant Hills Road. • Signalised crossings at the Hills M2 Motorway / Pennant Hills Road interchange.
Southern tunnel support facility (Wilson Road site)	• Footpaths along Pennant Hills Road. • Pedestrian bridge over Pennant Hills Road near the intersection with Beecroft Road. • Signalised crossing of Pennant Hills Road at the intersection with Beecroft Road.
Northern tunnel support facility (Trelawney Street site)	• Footpaths along Pennant Hills Road. • Signalised and zebra crossings at the Pennant Hills Road / Loch Maree / Phyllis Avenue intersection.
Northern interchange	• Footpaths along Pennant Hills Road and the Pacific Highway. • Pedestrians are able to cross the M1 Pacific Motorway at the Pacific Highway overpass, a pedestrian overpass south of the North Shore Railway Line, Alexandra Parade overpass and Edgeworth David Avenue overpass.

Labour force, income and employment

The median household income varies across the study area between $1466 per week in Hornsby – Waitara SA2 to $2856 per week in West Pennant Hills SA2. Low income households (less than $600 per week income) comprise between eight and 18 per cent of the households across the study area. Hornsby – Waitara SA2 has the greatest number of low income households at 18 per cent and West Pennant Hills has the least at eight per cent.

The rate of unemployment in the area is relatively low with rates as a percentage of the total labour force ranging from 2.5 per cent to 3.8 per cent. Hornsby – Waitara SA2 has the highest rate of unemployment whilst North Rocks has the lowest.

Social infrastructure

The project area is located within a well established urban area and consequently features a wide variety of community facilities and assets, ranging from places of worship to sporting grounds as well as recreational and educational facilities. Locally significant social infrastructure and infrastructure that may potentially be directly or indirectly impacted by the project has been identified in the following sections. Impacts to the identified facilities have been outlined in **Section 7.7.3**.

Educational facilities

Numerous educational facilities including child care, primary schools, secondary schools and tertiary education facilities are located within the study area. These facilities form an integral part of the suburban landscape and contribute to the appeal of living in the area.

A number of educational facilities are provided adjacent to Pennant Hills Road between the southern and northern interchanges. Educational facilities located within the immediate vicinity of project works are detailed in **Table 7-160**. Other significant facilities in the region include Pennant Hills Public School (senior) and Loreto Normanhurst.

Table 7-160 Education facilities within the vicinity of the proposed works

Facility	Type	Location
Hills M2 Motorway integration works		
Our Lady of Lourdes Primary School	Primary school	East of the proposed Windsor Road compound, across Windsor Road
Muirfield High School	High school	Adjacent to the southern side of Hills M2 Motorway on Barclay Road, North Rocks.
Royal Institute of Deaf and Blind Children	School	Southern side of Hills M2 Motorway on Barclay Road, North Rocks.
Wilson Road tunnel support facility		
Mount Saint Benedict Centre School	School	West of the site on the opposite side of Pennant Hills Road, Pennant Hills.
Northern interchange		
Abbotsleigh Girls Senior School	High school	East of the northern interchange on the southern side of the Pacific Highway, Wahroonga.
Abbotsleigh Girls Junior School	Primary school	Adjacent to the North Shore Railway Line and the M1 Pacific Motorway and Woonona Avenue, Wahroonga.

Health, emergency and aged care facilities

The two major health care facilities within the study area are Hornsby Ku-ring-gai Hospital in Hornsby and the Sydney Adventist Hospital in Wahroonga. A number of other facilities exist within the study area including community health centres, ambulance stations, police stations and fire stations. These facilities are mainly located within the town centres. Facilities located in the immediate vicinity of the project include:

- Belvedere Community Aged Care Centre located on the Pacific Highway to the north of the northern interchange.
- Netherby Aged Care Facility on the Pacific Highway to the north of the northern interchange.

Sport, recreation and cultural facilities

The study area affords many opportunities for both passive and active recreation and features a large number of sporting facilities, open spaces, places of worship and community halls. These types of facilities provide important opportunities for social interaction and participation in recreational activities. These facilities also help to connect community members and define the character of the community. Sporting and recreation facilities are spread across the study area while places of worship are frequently located adjacent to Pennant Hills Road. Major sporting facilities in the region include Pennant Hills Golf Club, Muirfield Golf Club, Brickpit Park and Pennant Hills Park. Facilities within the immediate proximity of the project are detailed in **Table 7-161**.

Table 7-161 Sport, recreation and cultural facilities

Facility	Type	Location
Southern interchange and Hills M2 Motorway integration works		
Bidjigal Reserve	Recreation – bushland	Located to the north and south of the Hills M2 Motorway around Darling Mills Creek viaduct
Muirfield Golf Club	Sporting facility	Southern side of Hills M2 Motorway tie-in on Barclay Road, North Rocks
Pennant Hills Golf Club	Sporting facility	On the eastern side of Pennant Hills Road adjacent to the southern interchange works, Pennant Hills
Murray Farm Reserve	Recreation / sporting facility	On the southern side of the Hills M2 Motorway on Carmen Drive, Carlingford
Rainbow Farm Reserve	Recreation – park	On the southern side of the Hills M2 Motorway on Coral Tree Drive, Carlingford
Ashley Avenue Reserve	Recreation – park	At the end of Ashley Avenue, West Pennant Hills
Unnamed Reserve	Recreation – park	On the western side of the southern interchange on Eaton Road
Larchmont Place Reserve	Recreation – park	On the western side of the southern interchange works on Larchmont Place West Pennant Hills
Wilson Road tunnel support facility		
Observatory Park	Recreation – park	Directly south of the site on the opposite side of Pennant Hills Road
Trelawney Street tunnel support facility		
Chinese and Australian Baptist Church	Cultural – church	Directly south of the site on the opposite side of Loch Maree Avenue
Pioneer Avenue compound (C5)		
Brickpit Park	Recreation – park and sporting facility	Located to the east across the Northern Railway Line.
Northern interchange and M1 Pacific Motorway tie-in works		
St Pauls Anglican Church	Cultural – church	Adjacent to Pennant Hills Road works on the end of Ingram Road, Wahroonga
Carrington Park	Recreation – park	Directly adjacent to the M1 Pacific Motorway on Coonanbarra Road, Wahroonga

Community networks

Much like sporting and cultural facilities, community networks such as sporting clubs, historical societies, resident associations, and scouts help to connect community members and foster community spirit. A large number of these types of networks exist throughout the region and are generally associated with sporting and cultural facilities. Key networks within the study area are as follows:

- Scouts (including the 1st Murray Farm Scouts near the southern interchange and Baden Powell Scout Centre in Pennant Hills).
- Ku-ring-gai Historical Society.
- Hornsby Shire Historical Society.
- Hills District Historical Society.
- Beecroft and Cheltenham History Group.
- Wahroonga conservation group.
- Friends of Ku-ring-gai Environment.
- Community Voice – Hornsby.
- Westleigh Progress Association.
- West Pennant Hills Valley Progress Association.
- Beecroft-Cheltenham Civic Trust.

Shopping centres

Shops and shopping centres are spread throughout the study area and form an important focal point for communities. Major shopping centres include Hornsby Westfield on Edgeworth David Avenue and North Rocks Westfield on North Rocks Road. Shopping areas also exist around the town centres of Pennant Hills and Thornleigh. Smaller collections of shops are present on the corner of Pennant Hills Road and Castle Hill Road in West Pennant Hills and on Carmen Drive in Carlingford.

Transport and access

Census data shows that the local population greatly relies on motor vehicles as a form of transport. Consequently, the road network forms an important part of the social infrastructure linking communities and providing access to facilities. Key roads in the area include:

- Pennant Hills Road.
- The Hills M2 Motorway.
- Barclay Road.
- Castle Hill Road.
- Boundary Road.
- Fox Valley Road.
- The Comenarra Parkway
- Duffy Avenue.
- The Pacific Highway.
- The M1 Pacific Motorway.
- Edgeworth David Avenue / Junction Road.

Pennant Hills Road also provides a connection for tourist route 15 along on Castle Hill Road.

Public transport assists with connecting communities internally as well as to external areas and is an important aspect in the liveability of an area. Public transport in the study area is predominately composed of bus and train networks.

Pennant Hills Road is a main route for bus services, providing a connection to the adjacent suburbs and arterial road network. Within the study area, bus stops are provided at regular intervals along Pennant Hills Road and surrounding roads and within the Hills M2 Motorway median at Barclay Road and Oaks Road. The M1 Pacific Motorway does not form part of local bus routes and does not provide bus stop facilities.

Rail infrastructure within the study area comprises the North Shore Railway Line and the Northern Railway Line, including the following stations:

- Normanhurst.
- Waitara.
- Hornsby.
- Thornleigh.
- Pennant Hills.
- Wahroonga.

Train services run in both directions from these stations and allow connection to the greater Sydney railway network.

Construction of the North West Rail Link has recently commenced and is expected to be complete around 2019. Public transport patronage is likely to change upon the completion of the North West Rail Link, which will provide train services into the north-west. Along with the addition of train services, bus routes are likely to change to feed passengers into the stations, providing fast and efficient transport to Macquarie Park, Chatswood and the Sydney central business district.

Community character and cohesion

'Community cohesion' refers to intangible concepts such as sense of belonging, attachment to a group, willingness to participate in activities and share in outcomes and the bonds that people feel with the broader community.

The level of community cohesion can be measured by the presence of and participation in community groups. As described above, numerous community groups exist throughout the study area including sporting clubs, historical societies, places of worship and community associations. These facilities are fundamental to creating and maintaining a sense of community cohesion throughout the region.

Transport can play a major role in fostering a cohesive community by providing important links. Conversely, transport corridors can also result in an obstruction to a cohesive community through introduction of physical barriers.

The presence of major roadways currently creates barriers to community cohesion. This includes the M1 Pacific Motorway, the Hills M2 Motorway and Pennant Hills Road, although vehicle and pedestrian linkages are provided across these barriers at regular intervals.

Economic environment

Workforce

Around 41,000 people were employed by businesses within the study area in 2011. This represents over half of the employment in the Hornsby local government area. The highest employing industries in the study area were:

- Health / social assistance at around 20 per cent.
- Education / training at around 13 per cent.
- Professional / scientific / technical services at around 13 per cent.
- Retail trade at around 12 per cent.

The study area has a higher proportion of employment in health care / social assistance, retail trade and education / training than the NSW averages.

Employment in the study area is predominately on a full-time basis at around 57 per cent. However, part time employment (at around 38 per cent) is higher than the state average of 30 per cent. The Pennant Hills – Cheltenham, Wahroonga Warrawee and Turramurra SA2s had the highest proportion of part time employment at 42, 46 and 51 per cent respectively.

The majority of employees, about 60 percent, earn a total weekly income of less than $1000 per week. This is higher than the NSW average of 55 per cent.

In general, employees in the study area mostly reside in suburbs surrounding their location of employment.

Economy and businesses

The Hornsby local government area has a relatively diverse economy that is not heavily reliant on one industry. Gross regional product in 2011 to 2012 was estimated at around $6 billion with the largest contributing industries being manufacturing, health care / social assistance, professional / scientific / technical services and education / training, all contributing around eight to nine per cent of total industry contribution to the economy.

There were 14,200 businesses within the study area in 2012 (ABS, 2013) with the largest number of businesses in the professional / scientific / technical services, construction and rental / hiring / real estate services. Around 66 per cent of these businesses were small businesses (having an annual turnover of less than $200,000) and 97 per cent of businesses employed fewer than 20 employees.

Upwards of 100 businesses are located along Pennant Hills Road between the M1 Pacific Motorway and the Hills M2 Motorway interchanges. These fell within the following industries:

- Retailers, including supermarkets and pharmacies.
- Cafés, restaurants, pubs and bars.
- Accommodation services.
- Service stations and mechanics.
- Car dealers.
- Other service providers such as funeral homes, gyms, travel agents, real estate agents, physiotherapists, dry cleaners, dentists, beauty and hair salons.

Businesses are generally clustered around main transport hubs with Pennant Hills and Thornleigh Railway Stations attracting the majority of business activity. Clusters of businesses within the region are situated around:

- Thompson's Corner (the corner of Pennant Hills Road and Castle Hill Road).
- Pennant Hills, Thornleigh and Hornsby Railway Stations.
- The town centres of Carlingford, Normanhurst, Beecroft, Westleigh, Wahroonga, Warrawee, Turramurra and Pymble.

Tourism

The total number of day trip visitors to the study area between September 2011 and September 2013 was about 946,000 (TRA, 2013). The Hornsby – Waitara SA2 was the most popular destination within the study area comprising about two thirds of the total visits. Around 50 per cent of day trips were to visit friends or relatives, 20 per cent were for holiday or leisure and around 15 per cent were for business.

The study area is generally not a destination but is significant in its provision of services to tourists passing through on their way to or from the M1 Pacific Motorway. These services include:

- Five accommodation establishments.
- Sixteen service stations along Pennant Hills Road and the Pacific Highway near the M1 Pacific Motorway interchange.
- Eight cafes and fast food restaurants.

Regional tourism is significant to the study area in terms of economic activity and job creation resulting from passing trade from holiday traffic.

The M1 Pacific Motorway via Pennant Hills Road and the Pacific Highway provides access to the NSW North coast, the Central Coast and the Hunter Regions. These are popular tourist destinations for domestic and international tourists attracting almost 37 million day trips and 20 million overnight trips between September 2011 and September 2013 (TRA, 2013).

Additionally, the Hills M2 Motorway provides access to the Sydney Orbital Network for tourists travelling from the north, with subsequent connections to tourist destinations within Sydney and the NSW South Coast.

Freight and commercial travel patterns

The M1 Pacific Motorway, the Hills M2 Motorway and the stretch of Pennant Hills Road between the two motorways forms part of the National Road Network. The National Road Network is based on national and inter-regional transport corridors including connections through urban areas, links to ports and airports, rail, road and intermodal connections that together are of critical importance to national and regional economic growth, development and connectivity.

The2004 report found that the M1 Pacific Motorway was utilised by around 11,300 heavy vehicles each weekday including more than 5,500 articulated tucks. Many of these trips occur during night-time hours. Pennant Hills Road is utilised by around 8,800 heavy vehicles each weekday including 4,400 articulated trucks.

Pennant Hills Road and the Pacific Highway play a vital role in connecting the M1 Pacific Motorway to Sydney and the wider freight network.

7.7.3 Assessment of potential impacts

Social and economic impacts have the potential to occur during the construction and operation phases of the project.

Construction

Potential positive and negative social and economic impacts from construction of the project would include:

- Amenity related impacts.
- Traffic and access related impacts.
- Impacts on community cohesion and severance.
- Impacts on community facilities.
- Impacts to economic output.
- Business acquisition.
- Cumulative impacts with other construction projects.

Amenity related impacts

Amenity impacts during construction would include factors that affect the ability of a resident, visitor or business owner to enjoy their home, business and / or daily activities. These impacts may affect individuals in private homes, as well as the general public's use of educational facilities, shopping centres, cultural, sport and other recreational facilities.

Amenity related impacts would result from the introduction of construction sites and construction activities into the area and would be generally associated with noise and vibration, air quality and visual impacts. These potential impacts on residential receivers and businesses, and the identification of feasible and reasonable mitigation measures, are described in **Section 7.2** (Noise and vibration), **Section 7.3** (Air quality) and **Section 7.5** (Urban design, landscape character and visual amenity) respectively.

Generally, temporary changes in amenity in the study area during construction would occur as a result of:

- Increases in noise and vibration, including increases in road traffic noise and periods when night-time works would be required and the presence of construction vehicles.
- Increased dust emissions associated with surface disturbance and / or the handling, transport and disposal of spoil.
- Changes in visual amenity due to the introduction of construction compounds or activities.

The majority of construction activities would occur underground, which would limit the extent of amenity related impacts along the project corridor.

Due to the location of the project within an urban area there is potential for residential properties to experience amenity related impacts as a result of construction.

Changes to amenity can have an impact on customers' decisions about where to shop. The amenity impacts on a business could potentially result in loss of trade as customers shop elsewhere during periods of elevated amenity impacts. Amenity impacts to businesses could occur from construction works, transport of spoil or other construction materials, vibration from tunnelling and potential ground-borne noise impacts. Business that are within proximity of construction compounds that have the potential to experience amenity impacts as a result of construction include:

- Pennant Hills Veterinary clinic and the White Lady funeral home near the Wilson Road compound (C6).
- Businesses along Pennant Hills Road, Phyllis Avenue and Central Avenue around the Trelawney Street compound (C7).
- Pennant Hills Golf Course and shops on Carmen drive in the vicinity of the southern interchange (C5).
- A hotel on Ingham Road near the northern interchange (C9).

During construction, businesses such as outdoor restaurants, cafes and eateries would stand to be the most affected by noise and air quality impacts. However, businesses along Pennant Hills Road and the Pacific Highway are likely to already experience reduced amenity from traffic along these roads.

Traffic and access

Construction of the project has the potential to result in impacts to the local traffic network associated with the establishment of traffic management measures, the introduction of spoil haulage and other heavy vehicles and physical alterations to local roads. Impacts to the local road network may also impact the general public's access to community facilities, shopping centres, educational facilities and health care.

Construction works may also necessitate physical alterations to private property access and / or the provision of a temporary alternative access during the construction phase. Changes or disruptions to residential or business access a result construction are expected to be minimal. However, in the event that changes to the access are unavoidable, consultation would be undertaken with the property owner and / or tenant to develop an appropriate alternative access arrangement. This may involve provision of a temporary access point or signage in the case of businesses.

The construction works has the potential to impact on public transport utilising Pennant Hills Road. In particular, the bus stop located northbound on Pennant Hills Road around 100 metres north of the Hills M2 Motorway would be temporarily removed during the construction works.

Other bus stops which may be impacted at times during the construction works would include:

- The Barclay Road bus stop on the Hills M2 Motorway.
- The Oakes Road but stop on the Hills M2 Motorway.
- Pennant Hills Road adjacent to the Wilson Road compound.
- Pennant Hills Road northbound between Russell Avenue and Edwards Road.
- Pennant Hills Road southbound opposite Russell Avenue.

Alterations to bus stops may involve temporary removal or relocation of the bus stop. Appropriate alternative arrangements would be determined during construction planning in consultation with Sydney Buses and the relevant bus operators.

Construction of the Hills M2 Motorway integration would necessitate the temporary exclusion of cyclists from the Hills M2 Motorway westbound carriageway and the M1 Pacific Motorway between Pennant Hills Road and Ku-ring-gai Chase Road. An alternative off motorway cycle route would be provided during this period. Further information is provided in **Section 7.1** (Traffic and transport).

It is anticipated that a number of construction workers would travel to project construction sites in private vehicles and require parking. This has the potential to impact on local parking availability. This may result in impacts to both local residents and nearby business. Local residents may be impacted by the reduction in amenity and parking availability during construction. A reduction in parking availability around business areas could also affect customers' decisions on where to shop and have a negative impact on businesses. Impacts to local parking availability would be mitigated through the provision of dedicated parking facilities within construction compounds and an employee parking / bus transfer facility at the Pioneer Avenue compound (C8). Additional mitigation measures would be considered during detailed design in consultation with local councils such as the provision of restricted parking zones around compounds.

Businesses that rely on deliveries to and from their premises may experience some increase in transit times due to changes in local traffic conditions during construction. Delivery times may be increased which may in turn marginally affect delivery costs, particularly those costs associated with fuel and labour.

Further traffic and access related impacts, and the identification of feasible and reasonable mitigation measures, are described in **Section 7.1** (Traffic and transport).

Community facilities

The project construction works would directly impact Bidjigal Reserve located to the north and south of the Hills M2 Motorway around Darling Mills Creek viaduct. A public walking track exists immediately to the west of Darling Mills Creek passing underneath the viaduct. As construction works would be required at ground level to construct new piles and piers for the viaduct, the walking track would be closed during the construction period to ensure the safety of the public. Despite this, options would be investigated to erect safety fencing and open the walking track on weekends or at other times when works are not actively occurring in the area. During times of closure, alternate routes would be identified and signage would be erected to alert the community of any changes in access.

A number of other community facilities may be indirectly impacted by construction works as they are located near or directly adjacent to project construction areas (as identified in **Table 7-161**). Indirect impacts may be associated with traffic, access to the facilities and amenity as described above.

With the implementation of amenity and traffic related mitigation measures, as detailed in their respective sections of this environmental impact statement, the potential impacts on community facilities are expected to be minimal.

Community cohesion and severance

Community severance refers to reduced access to local amenities and disruption of local social networks caused by the introduction of a physical barrier, such as a major road, or through significant increases in traffic volumes on a road that was not originally regarded as a barrier.

The project construction works have the potential to impact on community cohesion, and result in severance, if local road closures around the interchanges, the Hills M2 Motorway integration works, the M1 Pacific Motorway tie-in works and other construction ancillary facilities produce a hindrance to movement.

Whilst the project has the potential to result in short term disruptions to local roads during construction, existing access and movement arrangements would generally be maintained throughout the construction period. As such, there is limited potential for the project to result in severance impacts during the construction period.

Impacts to economic output

Construction expenditure for the project would be of significant benefit to the local, regional and state economies. Businesses within the study area would principally benefit from purchases made by construction contractors and their associated workers.

Economic impacts can be split into direct and indirect impacts. Businesses whose turnover may directly benefit from the project would include local contractors, local suppliers of goods and businesses who service the construction industry such as food and beverage retailers, accommodation providers and other retail outlets that would service the day to day needs of the construction workforce.

Indirect impacts are those to the wider state economy. The project would result in the following indirect and direct economic impacts:

- Around $2.9 billion generated in direct construction expenditure with flow-on (indirect) effects of around $1 billion.
- Around $500 million of household income with flow-on effects of around $200 million.
- Direct employment of around 5,060 full-time equivalent (FTE) positions per year for four years. Flow-on employment would be about 3,649 FTE positions per year for four years.
- Valued added attributable to the construction of the project is estimated to be around $900 million directly, with flow-on effects of $400 million, giving an estimated total value added contribution of $1.3 billion. This is the estimated contribution to Gross State Product (GSP).

During construction there may also be employment opportunities for local residents as part of the construction workforce or in a secondary business supporting construction. Around 1,250 jobs would be directly created at the peak of the construction period. This would include both the staff and labour workforce. Further jobs in the local area are likely to be indirectly supported by the project. Increasing demand for employees may also increase wages within the area.

Overall wealth and / or disposable income in the region would be expected to grow as a result of increases in local business turnover and employment of local residents.

Business acquisition

Land acquisition would be required for construction and operational facilities. Acquisition of business land may result in business closure or relocation. This would have an impact on the economic productivity and / or viability of the business. There are five private businesses that would effected by property acquisition as a result of the project. All five businesses would be fully acquired and used for both construction and operational facilities. The ongoing operation of the project would result in permanent acquisition of this land and as such impacts to these businesses have been discussed in relation to operational impacts below.

The potential impacts of property acquisition, and the identification of mitigation measures is described in **Section 8.1** (Land use and property).

Cumulative impacts

Cumulative impacts to the local economy and businesses are most likely to result from the construction of the North West Rail Link in the Hornsby, The Hills and Blacktown local government areas and the Epping to Thornleigh Third Track project in the Hornsby local government area.

The North West Rail Link is estimated to support more than 16,200 jobs (NSW Government, 2011) during construction and inject $25 billion (directly and indirectly) into the NSW economy (NSW Government 2011). The Epping to Thornleigh Third Track project involves the construction of six kilometres of new rail track between Epping and Thornleigh and is a significant employer of construction workers (around 320 direct jobs during peak construction) from 2014 until completion of construction (Transport for NSW, 2012b).

Cumulative impacts may potentially increase the construction impacts outlined above, particularly impacts relating to local employment and economic stimulus. The demand for labour for major projects such as this project, the North West Rail Link and the Epping to Thornleigh Third Track project would increase employment opportunities for local residents and potentially increase wages as demand for construction workers increases.

The opportunity for local businesses to supply goods or services to the construction phase of these projects and their construction workforces has the potential to increase business turnover due to high demand from multiple projects.

There is also the potential for cumulative adverse traffic and noise impacts to businesses and the local community resulting from the concurrent construction of Epping to Thornleigh Third Track and North West Rail Link. Cumulative traffic impacts have been discussed in **Section 7.1** (Traffic and transport) and cumulative noise impacts in **Section 7.2** (Noise and vibration).

Operation

Potential positive and negative social and economic impacts during the operation of the project would include:

- Impacts to business turnover and employment.
- Amenity related impacts.
- Traffic and access related impacts.
- Impacts on community facilities.
- Impacts on community cohesion and the social character of the area.
- Business acquisition.
- Impacts on passing trade.
- Cumulative impacts.

Impacts to business turnover and employment

It is estimated that direct and indirect impacts to business turn over and employment as a result of the operation of the project would include:

- Generation of around $32 million directly, through flow-on (indirect) effects of $17 million, per year of operation.
- Around $7 million of household income, with flow-on effects of $2 million per year of operation.
- Around 93 FTE positions per year of operation. Flow-on employment is estimated to average 28 FTE positions per year of operation.
- Value added attributable to the operation of the project of about $13 million directly, with flow-on effects of $3 million per year of operation, giving an estimated total value added contribution of $16 million per year. This is the estimated contribution to Gross State Product (GSP).

Amenity related impacts

A reduction in traffic, congestion and heavy vehicle numbers along Pennant Hills Road and the Pacific Highway has the potential to contribute towards amenity related improvements along these existing road corridors, including improvements in air quality, traffic noise and public safety.

Reductions in road traffic noise and potential improvements in air quality would be advantageous to the business community with accommodation establishments and cafes / restaurants likely to experience the greatest benefit.

This has the potential to make local commercial centres more accessible and attractive to local residents and change existing shopping and dining patterns. This could increase local business turnover and consequently employment numbers.

Improvements to local amenity could also contribute to a reinvigoration of the Pennant Hills Road corridor over the longer term. Land use changes, such as residential and commercial developments (in particular retail) may result through improvements in desirability of the area. The project would also facilitate future consideration of local embellishments including cycling infrastructure and public transport initiatives by the relevant authorities and infrastructure providers, which may further improve accessibility (although such embellishments do not form part of this project). This in turn may increase the customer base for existing or future businesses in the area.

The location of operational facilities has aimed to minimise amenity related impacts to surrounding land uses as much as possible. Despite this, specific locations around the northern and southern interchanges, the Hills M2 Motorway integration works, the M1 Pacific Motorway tie-in works, the tunnel support facilities and the ventilation facilities may experience amenity related impacts. Amenity impacts may include decreased visual amenity due to the presence of new infrastructure, increased noise levels and / or decreased air quality. Reduced amenity may potential impact local residents if not sufficiently mitigated. Decreases in amenity also have the potential to impact on the viability of a business, depending on the type of business and the ability of that business to respond to amenity changes.

The following businesses may be impacted by operational facilities:

- Commercial centre at Thornleigh near the Trelawney Street tunnel support facility.
- Pennant Hills Golf Course near the southern interchange.
- Several retail stores on Carmen Drive Carlingford in the vicinity of the southern interchange.

The impact to businesses near the northern tunnel support facility would be minor. The facility would be of low scale and would not detract from the more continuous established commercial area located on the western side of Pennant Hills Road at Thornleigh. Once landscaping is established, the visual prominence of the facility would be further reduced.

Infrastructure and new buildings, such as the motorway control centre, would be located to the west of the Pennant Hills Golf Course, separated by Pennant Hills Road and screened by existing vegetation on the western boundary of the golf course. Pennant Hills Road and the Hills M2 Motorway already have an impact on the outlook and amenity of this space for users of the golf course. Views to the project from the golf course would be effectively screened by existing vegetation, which would not be altered by the project. Increases in road traffic noise as a result of the project would be unlikely to further detract from the use of this space. As such, it is unlikely that the project would significantly impact on the desirability of the golf course, and therefore the future operations of the golf club.

Noise and vibration and air quality impacts have been assessed in **Section 7.2** (Noise and vibration) and **Section 7.3** (Air quality). The air quality assessment determined that the expected pollutant concentrations resulting from the project are low and within the relevant criteria. No noise exceedences are predicted at operational ancillary facilities, and feasible and reasonable noise mitigation measures (such as low noise pavement and noise barriers) have been identified for road traffic noise which would provide benefit for both residential and non-residential receivers.

Traffic and access

The project would remove a significant proportion of heavy vehicle off Pennant Hills Road as well as a proportion of light vehicle through movements. The performance of Pennant Hills Road would improve at certain locations as a result of the project, however, background growth caused as a result of local trips would mean that some key intersections would experience congestion irrespective of the project.

The project would also involve regulation of heavy vehicles to encourage non-local heavy vehicle movements to utilise the tunnel. Regulatory measures would include signage, vehicle detection, classification and video equipment. Gantries would be provided at the northern and southern ends of Pennant Hills Road to support regulatory equipment.

Whilst the use of the tunnel would result in increased operating costs in terms of tolls, this would be balanced by the anticipated operating cost savings of time and fuel associated with the improved travel time.

Due to the reduction in heavy vehicle movements on Pennant Hills Road, the project also provides the opportunities for more efficient on-road public transport operations in the corridor. There are no specific opportunities being proposed as part of the project, but measures such as bus priority may be considered further by the relevant authorities and would be subject to a separate planning process in consultation with key stakeholders.

The operation of the project would necessitate alterations to existing traffic and access conditions. Although the project would alter some sections of the local road network and some access arrangements for private properties, the project would maintain the same level of access and traffic movements to and from all properties.

The bus stop located northbound on Pennant Hills Road around 100 metres north of the Hills M2 Motorway would be relocated approximately 300 metres to the north of its current position. This would ensure residents are provided with a similar level of access to public transport as is currently the case.

There are no proposed changes to access arrangements for individual businesses or retail centres as part of the project. However, in the event that changes to access to businesses are unavoidable, consultation would be undertaken with the property owner and / or tenant to develop an appropriate alternative access arrangement.

A reduction in heavy vehicle numbers would result in improved travel times along Pennant Hills Road, which may change the travel and shopping patterns of local residents. In addition to this, reduced traffic would improve access and connectivity for businesses and make it easier for businesses to make and receive deliveries. This has the potential to reduce business costs, particularly those associated with fuel and labour.

Potential operational traffic impacts, including identification of feasible and reasonable mitigation measures, are described in **Section 7.1** (Traffic and transport).

Impacts to freight

Long distance freight traffic on the M1 Pacific Motorway is forecast to increase significantly over the next 20 years as the population of south-eastern Australia continues to grow. Congestion on Pennant Hills Road would continue to reduce the efficiency of freight movement over time, and would place increased stress on road infrastructure along Pennant Hills Road and the Pacific Highway. There are currently 22 sets of traffic signals between the Pennant Hills interchange at the Hills M2 Motorway and the M1 Pacific Motorway interchange at Wahroonga that would be bypassed as a result of the project. This would result in travel time savings of around six to 15 minutes in 2019 and nine to 25 minutes in 2029.

The reduced travel times would reduce operational costs associated with fuel and wages and improve safety by reducing the number of times trucks have to stop for traffic lights. In 2013 travel time for freight movement has been valued by Transport for New South Wales at $57.84 per vehicle, per hour, demonstrating significant benefits associated with reduced travel times.

Reduce travel times would also improve the efficiency of freight movements given the improvements in connections between the M1 Pacific Motorway with the M2 Hills Motorway, and beyond. This would also lead to improvements in the efficiency and reliability of Sydney's freight network, facilitating more efficient movement of goods through the supply chain and ultimately enhancing productivity.

Community facilities

Community facilities, including recreational and cultural areas have a role in promoting cohesion and interaction among community members. The project may have both positive and negative impacts on community facilities along the project corridor.

Existing community facilities would not be directly impacted by the operation of the project, including operational ancillary infrastructure. A number of community facilities, however, are located near or directly adjacent to operational project elements (as identified in **Table 7-161**). At these locations, there is potential for indirect impacts to community facilities, including in relation to traffic and access arrangements, and amenity related impacts as described above.

With the implementation of the amenity and traffic related mitigation measures, as detailed in the respective sections of this environmental impact statement, the potential impacts on community facilities are expected to be minimal.

The reduction in heavy vehicle use of Pennant Hills Road could provide for future opportunities for improvements to or establishment of new community facilities along the corridor. For example, the project may increase the desirability of the community to utilise existing recreational areas such as local parks.

Community cohesion and social character impacts

Community cohesion and social character impacts would arise as a result of:

- Changes to community connectivity, including changes to access and movement arrangements.
- Changes to community wellbeing from impacts such as property acquisition.

As described above, the project would maintain the same level of access and traffic movements for all properties. As such, the risk of severance or loss of connectivity from altered access arrangements would be minimal.

Land acquisition may result in changes to the lives of those affected, giving rise to a sense of anxiety or uncertainty, a loss of amenity, financial costs and isolation. However, residents whose property would be acquired as a result of the project would relocate to an alternative location. Land owners would be compensated for land acquisition in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

Pennant Hills Road currently forms a barrier to the connectivity and cohesion of communities along the corridor. The reduction in heavy vehicles along Pennant Hills Road and the associated improvements in amenity would improve the quality of the suburban environment for businesses and the local community. The project would also provide the opportunity to improve connections between communities across Pennant Hills Road. These changes may result in positive outcomes in terms of community wellbeing, connectivity and cohesion.

Business acquisition

Five businesses would be permanently impacted by land acquisition for operational facilities. This has the potential to impact on the economic productivity and the viability of those businesses. Consultation has commenced with these businesses and is ongoing.

Businesses that would be directly impacted by the project due to acquisition include:

- A landscaping company at the southern interchange.
- A tyre company at the Trelawney Street tunnel support facility.
- A computer repair store at the Trelawney Street tunnel support facility.
- A mobile accessory store at the Trelawney Street tunnel support facility.
- A design store at the Trelawney Street tunnel support facility.

Land acquisition and impacts to business would occur prior to the commencement of construction. Closure or relocation of a business would potentially result in changes to business output and employment numbers. Closure of the five businesses (assuming that the business do not continue to operate at an alternative location) would result in a potential loss of employment of around 25 full-time employees.

The impact on employment within the study area would be minor, representing around 0.1 per cent of the workforce in the area.

While the project would result in a minor loss of employment through business acquisition it would present long term employment opportunities in the area including around 93 FTE positions per year of operation and a flow on of about 28 FTE per year of operation.

The assessment of business impacts has been conducted using the worst case scenario of business closure, ie it is assumed that none of the directly impacted businesses would re-establish elsewhere. Under this assessment the impact would be overstated if businesses choose to relocate to another site within the region. Business land acquisition would occur in accordance with the Land Acquisition Information Guide (Roads and Maritime, 2012c) and the requirements of *Land Acquisition (Just Terms Compensation) Act 1991*.

The potential impacts of property acquisition, and the identification of mitigation measures is described in **Section 8.1** (Land use and property).

Impacts on passing trade

Businesses within the region that rely on passing trade may be negatively impacted by the reduction in traffic. This would be particularly the case for motor services, food and beverage outlets and accommodation establishments. To assess the potential impact the project would have on passing trade, changes in traffic volumes for key major roads were reviewed. Further information regarding the potential changes on key major road is provided in **Section 7.1** (Traffic and transport). These results have been used in conjunction with the business survey data to estimate the impact of the project on passing trade. A reduction in passing trade would negatively impact both employment and business output. The resulting estimated potential losses are summarised in **Table 7-162.**

Table 7-162 Potential impacts on passing trade

Type of business	Number of businesses	Annual potential loss of output ($)	Potential loss of employment (FTE positions)
Hotels	5	42,000	0
Cafes and fast food restaurants	9	913,000	6
Service stations including those with car wash facilities	17	4,626,000	12
Total	31	5,580,000	18

Under the worst case scenario there would be a reduction in turnover of around 5.6 million dollars annually. This would result in the potential loss of 18 jobs. This equates to a loss of 7.8 per cent of total output and 6.4 per cent of full-time equivalent employment of the surveyed businesses. This assessment does not take into account the potential increase in turnover from local customers due to increased amenity and accessibility, or the ability of affected businesses to adapt to the new environment. As a result the impact is potentially overstated.

As discussed above, positive impacts from the project such as potentially increased amenity and accessibility have the potential to result in increases in turnover and employment.

Several businesses within the study area use signage / advertising to attract passing trade to their operations. With the reductions in traffic along Pennant Hills Road and the Pacific Highway the visibility of this advertising would be reduced. This may result in changes to advertising methods to continue to attract customers.

Cumulative impacts

Cumulative impacts to the local economy and businesses are most likely to result from the concurrent operation of the North West Rail Link and the Epping to Thornleigh Third Track project. Cumulative impacts are likely to intensify the impacts identified above through changes in traffic on Pennant Hills Road and the surrounding road network from transport mode shifts from private vehicles or freight to rail. This would intensify the impacts on amenity, accessibility and changes in passing trade described above.

It is not anticipated that the North West Rail Link would reduce vehicle traffic on Pennant Hills Road or the Pacific Highway and therefore would not impact on passing trade.

The Epping to Thornleigh Third Track project is a key component of the Northern Sydney Freight Corridor Program, an initiative to improve the capacity and reliability for freight trains on the Main North Railway Line between Sydney and Newcastle. As detailed in the **Section 7.1** (Traffic and transport), it is likely that any future capacity increase as a result of the Epping to Thornleigh Third Track project would be taken up by the projected freight growth by 2031, and is unlikely to impact on the heavy vehicle movements on Pennant Hills Road.

In the event that the Epping to Thornleigh Third Track project resulted in an additional reduction in freight vehicles on Pennant Hills Road and the Pacific Highway, this may result in an intensification of the potential passing trade impacts described above.

7.7.4 Environmental management measures

Mitigation and management measures would be implemented to avoid, minimise or manage social and economic impacts. As described above, a number of potential social and economic impacts are associated with changes to amenity (such as noise, air quality and visual) and changes in traffic and access during the construction and operation period. Mitigation measures identified in each of those respective sections are relevant to managing potential social and economic impacts. Consultation with the community during the construction phase of the project is outline in the Community Communications Framework (**Appendix D**).

Additional mitigation and management measures specific to social or economic impacts are listed in **Table 7-163**.

Table 7-163 Environmental management measures – social and economic impacts

Impact	No.	Environmental management measure	Timing
Construction			
Traffic delays and road closures	SEc1	A community involvement plan would be developed and implemented to provide timely, regular and transparent information about changes to access and traffic conditions, details of future work programs and general construction progress throughout the construction phase of the project. Information would be provided in a variety of ways including letter box drops, media releases, internet site, signage and a hotline.	Pre-construction and construction
Reduced parking availability	SEc2	Where feasible and reasonable construction parking would be limited to facility sites to minimise the impact on public parking.	Construction
	SEc3	The need for parking restrictions around the Trelawney Street compound (C7) would be monitored and discussed with Hornsby Shire Council.	Construction
Reduced access to businesses	SEc4	Appropriate signage would be provided to ensure motorists' understanding of access to local businesses adjacent to construction works, including signage relating to parking for stopping motorists.	Construction
Impacts to business	SEc5	A business impact risk register would be maintained to identify and manage the specific impacts associated with construction related works for individual businesses.	Construction
	SEc6	The business stakeholder forum would continue to run throughout the detailed design and construction stages to ensure business concerns are addressed.	Construction