

# northern expressway

## environmental report

### social and demographic profile

### technical paper



Australian Government



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# **Northern Expressway**

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## **Social and Demographic Profile Technical Paper**

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**28 February 2007**

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### Revision History

Revision	Date	Comment	Signatures		
			Originated by	Checked by	Authorised by
0	11/1/07	AEC517.003-U-REP-002 Issue for client review	TKB	MOC	MEJ
1	28/2/07	AEC517.003-U-REP-002 Issue for use			

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## Attachment

Attachment A	Socio-Economic Analysis
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# List of Abbreviations

ABS	Australian Bureau of Statistics
CBD	Central Business District
CD	Collector district
CFS	Country Fire Service
CNAHS	Central Northern Adelaide Health Service
CWA	Country Women's Association
CYWHs	Children's, Youth and Women's Health Service
DSTO	Defence Science and Technology Organisation
LSA	Local Service Areas (Police)
SAMFS	South Australian Metropolitan Fire Service
MOSS	Metropolitan Open Space System
NOS	Northern Operations Service (Police)
SAAS	South Australian Ambulance Service
SAHS	Southern Adelaide Health Service
SEIFA	Socio-Economic Indexes for Areas
WWTP	Wastewater Treatment Plant



# **1 Effects of the Northern Expressway**

## **1.1 Demographic and social profile**

This section discusses the social profile for the study area that surrounds the Gawler to Port Wakefield Road section of the Northern Expressway route and the effect that the alignment of that route will have on the communities that live within that area.

The detailed socio-economic analysis can be found in Attachment A.

The study area effected upon by the Gawler to Port Wakefield Road section of the Northern Expressway route is largely located to the west of the urban areas of northern metropolitan Adelaide and includes the townships of Angle Vale and Virginia and their rural hinterlands, new housing areas south of Gawler and west of Elizabeth/Munno Para, the rural communities of Ward Belt and the Gawler River and the dispersed rural living communities in the Gawler Belt, Penfield Gardens and Macdonald Park areas.

Section 1.2 is a profile of the socio-economic and demographic characteristics, using 2001 ABS Census data by suburb areas.

Section 1.3 summarises the respective indexes used from the Socio-Economic Indexes for Areas (SEIFA) which provide a summary of the status of the suburb areas and allow their consideration in accord with certain characteristics.

Section 1.4 provides an account of the social infrastructure in the study area, its type and location with particular reference to activity and community centres, and health, education, community, emergency, recreation and public transport services.

Section 1.5 builds on the analysis of socio-economic and demographic characteristics to define the broad communities of interest within the study area.

Section 1.6 provides an overview of the effects of the Gawler to Port Wakefield Road section of the Northern Expressway and in particular the impact that it will have on accessibility.

Section 1.7 addresses management issues for dealing with the effects on the communities living in the study area at the time of construction and when the Expressway becomes operational.

## **1.2 Socio-economic and demographic profile**

### **1.2.1 Introduction**

To show differences in characteristics between local communities, the demographic analysis has been carried out at a suburb area level.

The suburb areas have been compiled from Australian Bureau of Statistics (ABS) Collector districts (CDs) and data analysed is from the 2001 Census. Collector districts are small areas of approximately 250 to 300 houses. Note that the suburb areas chosen are compiled from the CDs that are the best fit along the proposed route and these 'suburb areas' do not necessarily indicate the full geographical extension of a 'real' suburb. This is particularly true for areas such as Gawler.

There are twelve suburb areas making up the study area. (Table 1.1 and Figure 1.1).

**Table 1.1 Suburb areas and population size, Gawler to Port Wakefield Road section**

<b>Figure 1.1 Map ref.</b>	<b>Suburb area*</b>	<b>Population of area</b>
1	Andrews Farm	2,599
2	Angle Vale	1,765
3	Edinburgh (DSTO)	443
4	Evanston, Hillier	1,912
5	Gawler Belt	1,018
6	Gawler River, Ward Belt	458
7	Gawler West, Willaston, Hewett	8,399
8	Macdonald Park, Penfield Gardens	686
9	Munno Para West	2,650
10	Penfield	590
11	Smithfield Plains, Davoren Park	14,129
12	Virginia	2,343

\* Note suburb areas do not necessarily cover the full geographical extent of the suburb and are a compilation of collector districts.

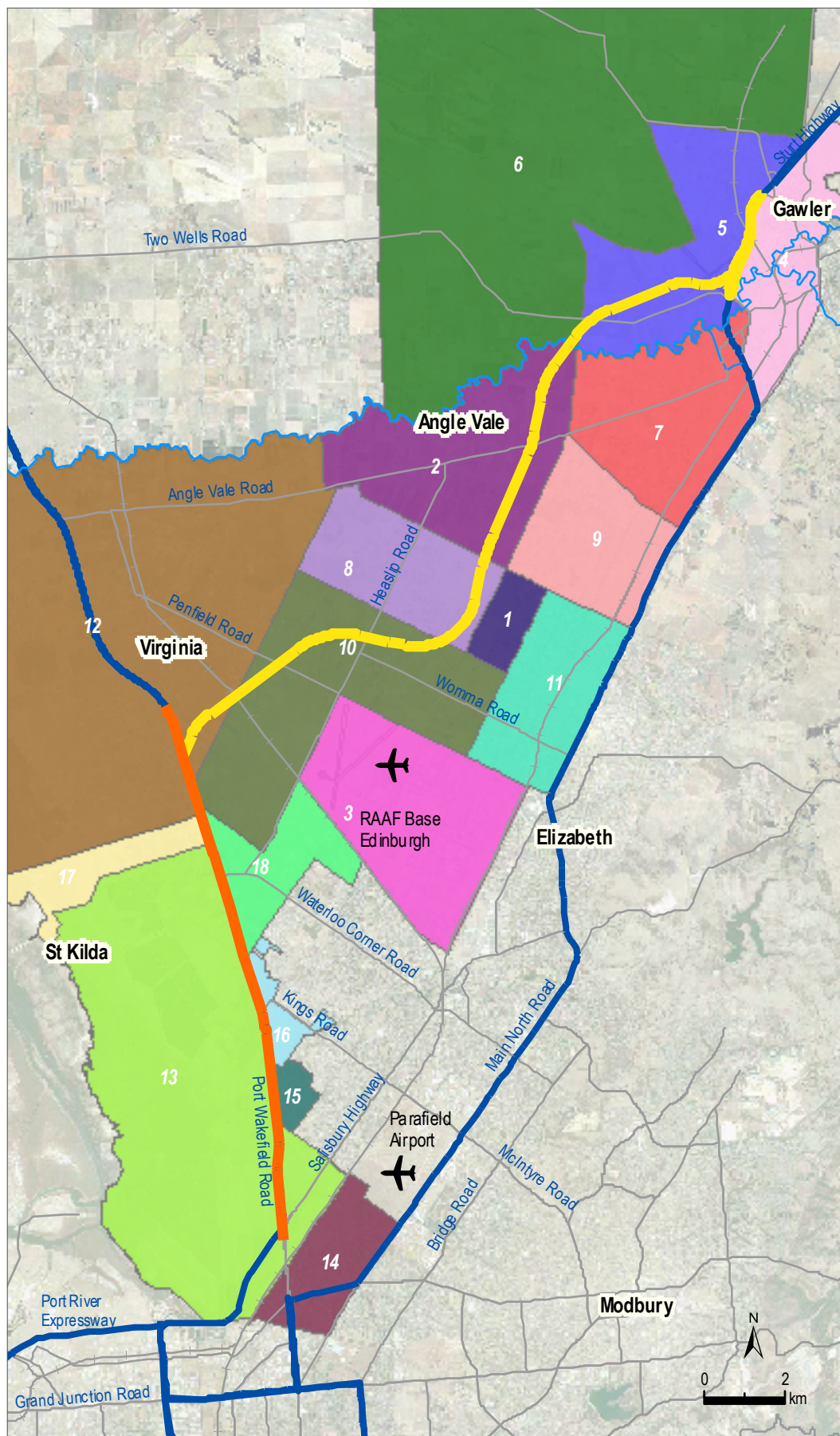
Source: ABS Census 2001.

## 1.2.2 The suburb areas – description

Andrews Farm is an area of detached housing, begun in the 1980s, stages of which are still being developed.

Angle Vale is one of the early towns established on the northern Adelaide plains which has been added to by more recent housing development. The town facilities, including retailing and the local Reception to Year 7 school, serve both the town and its hinterland.

Edinburgh comprises the Defence Science and Technology Organisation (DSTO) facilities, the RAAF Base Edinburgh and manufacturing activities associated with Defence and motor vehicle components. 'On-base' Defence personnel make up the population in the area.



Refer Chapter 1 for suburb area identification

Figure 1.1: **ABS suburb areas - study area**  
**Gawler to Salisbury Highway**

Evanston/Hillier is an area on the northern fringe of Adelaide near Gawler comprising suburban detached housing, rural living activities, productive horticultural and viticultural areas, and a caravan park.

Gawler Belt is a predominantly small holding rural living area with some extensive farming, and a gliding field and trotting track which are both regionally significant.

Gawler River/Ward Belt is an area to the north of the Gawler River with predominantly extensive farming comprising livestock, cropping and a dispersed farmhouse population.

Gawler West/ Willaston/Hewett includes some of the older and newer suburbs (housing, community, retail and commercial uses) associated with the town of Gawler.

Macdonald Park/Penfield Gardens largely comprises rural living activities at low population densities and horticultural activities with a dispersed farmhouse population.

Munno Para West is a mixture of rural living, horticulture and orchard activities and detached houses in suburban areas.

Penfield is an area with some rural living activities, some metropolitan open space land but mainly comprises horticulture, orchard and viticultural activities with a dispersed farmhouse population.

Smithfield Plains and Davoren Park are detached and semi-detached housing suburbs with local retail facilities, Reception to Year 7 and Year 8 to twelve schools. The areas were developed in the 1960s by the South Australian Housing Trust and are earmarked for major urban renewal under the Playford North project.

Virginia comprises a local rural town on the northern Adelaide plains, with local commercial, retail, education and community facilities, and the horticultural hinterland.

Detailed tabulations and discussion of demography is available in Attachment A. Below is an overview summary of the key characteristics of the population in the study area.

### **1.2.3 Population**

The age profile in the area is dominated by the middle-aged and older population. There is a low percentage of young children or young adults, except in the growing suburb of Andrews Farm where young adults are establishing themselves in work, study and housing.

Edinburgh is a particular case where it has a significant proportion in the 20 to 29 age group. This will increase as the Defence force expands over the next few years.

The more established suburbs around Gawler such as the Gawler Belt, Gawler West/ Willaston/Hewett and Evanston/Hillier as well as Macdonald Park/Penfield Gardens, Penfield and Virginia have a significant proportion of residents in the 40 plus age groups. These areas grew significantly in the 1960s and 1970s and now the population is older and established. As well, there is a significant proportion of aged persons in the established suburbs of Evanston/Hillier, Gawler West/ Willaston/Hewett, Penfield and Virginia.

The ethnic composition of the study area is an important consideration to ensure that all communication and consultation is capable of being delivered in languages other than English. Virginia has a high proportion of people born in Vietnam, Italy and Greece, and has significant

communities of each. Many of the older members of these communities have been involved in agricultural activities for many decades, have limited knowledge of English and may need translating or interpreting services. For example, the proportion of Vietnamese speakers is significant in Virginia.

Greek is also a significant language in Macdonald Park/Penfield Gardens. Virginia is also home to the largest Khmer-speaking population in South Australia. Other suburbs with a strong ethnic representation are Macdonald Park/Penfield Gardens, Parafield Gardens/Green Fields, Paralowie, Virginia and Penfield.

Conversely, the areas with the largest Australian-born group are Edinburgh, because of Defence services personnel, and the Gawler River/Ward Belt areas where there are established farming communities and where English is the dominant language.

Religious practices are tied to ethnicity. There is a large proportion of Buddhists and Catholics in the agricultural areas, reflecting the patterns of migration from Italy and South East Asia.

Evanston/Hillier, Munno Para West, Penfield and Smithfield Plains/Davoren Park contain the highest proportions of the population born in the United Kingdom, and in many of these suburbs, Anglicans are well-represented.

## **1.2.4 Households**

The study area has a great variety of housing tenure and household types. Home ownership is concentrated in the established suburbs of Virginia, Macdonald Park/Penfield Gardens and Penfield. The suburb areas with the highest proportion of households purchasing a home are the newer suburbs of Andrews Farm and the outskirts of Gawler such as Gawler Belt and Evanston/Hillier.

As expected, because of on-base accommodation, there is little home ownership, but very high rental accommodation in Edinburgh. Rental accommodation is highly concentrated in the suburb areas of Smithfield Plains/Davoren Park, Evanston/Hillier and Munno Para West. These areas are traditional 'Housing Trust' suburbs, with a long history of public rental tenants. In contrast, a number of areas register very little rental accommodation, notably Macdonald Park/Parafield Gardens and Gawler Belt.

Family households predominate in both South Australia and in the study area, and are predominant in growing suburban areas. They are well represented in Angle Vale, Gawler River/Ward Belt, Gawler Belt, Macdonald Park/Penfield Gardens and Andrews Farm.

There are several suburbs with high proportions of lone person households. Gawler West/Willaston/Hewett and Smithfield Plains/Davoren Park are suburbs where the ageing of the population may account for this occurrence.

Again because of Defence personnel a significant share of group housing is found in Edinburgh.

## **1.2.5 Transport**

Transport is, perhaps, the most important aspect of this report, as the proposed Northern Expressway will emphasise a safe and efficient transport route for all modes of transport in this area and will impact on other road and transport networks. Cars dominate the transport modes

for the study area and for South Australia in total. Suburb areas that have the highest proportion of households with no car are limited in mobility. These areas tend to exhibit low socio-economic status and are Smithfield Plains/Davoren Park – with 43% of houses without cars, Gawler West/Willaston/Hewett and Munno Para West. People in these areas are reliant on other modes of transport or face isolation.

Households with one vehicle were Evanston/Hillier, Edinburgh and Penfield. Many Edinburgh residents walk to work as they live and work on the Defence base.

The suburb areas with larger percentages of two car ownership are a mixture of relatively affluent commuter and/or family areas such as Andrews Farm, Angle Vale, Gawler Belt and Gawler River/Ward Belt.

The proportion of households that own two or more vehicles is much higher in the study area compared to South Australia. These households are in the more isolated and dispersed primary industry based communities of the study area and may use a variety of vehicles for farm work- the suburb areas are Virginia, Angle Vale, Gawler Belt, Gawler River/Ward Belt, Macdonald Park and Penfield Gardens.

Travel to work by car is most evident in the 'commuter suburbs' of Andrews Farm, Gawler Belt, Angle Vale and Gawler River/Ward Belt. The proposed Expressway should enable these commuters to travel to work more quickly.

Fewer people in the study area travelled to work by bus or train than in South Australia as a whole. The only suburbs that had a higher proportion travelling by that mode were Gawler West/Willaston, Smithfield Plains/Davoren Park, Evanston/Hillier and Munno Para West. These are areas well served by the Gawler rail line.

The trend for people to work from home was not particularly evident in the study area; however, a good proportion of people who live and work at home are in agricultural suburbs such as Virginia and Penfield.

## **1.2.6 Income**

The study area has a wide range of income levels with extremes at both ends of the income spectrum. More affluent suburbs are around the northernmost part of the study area – Gawler Belt, Gawler River/Ward Belt and Angle Vale, where higher household incomes can come from farming or professional employment.

The less affluent suburbs include some of the most disadvantaged areas in South Australia. These include Macdonald Park, Smithfield/Davoren Park, Evanston/Hillier, Penfield and Gawler West/Willaston/Hewett where there may be a considerable proportion of people on pensions and/or benefits.

The area has a low proportion of people with school or tertiary qualifications. The highest proportion of school completion or Year 12 attainment is in the suburb area of Edinburgh. However, Year 8 was the highest level of education achieved for 14% of the population in the study area compared to 11% in South Australia as a whole.

This generally low level of education varies across the study area, but the suburb areas with the greatest proportion of this low attainment level are rural area of Penfield and Virginia. Suburbs

with a larger proportion of tertiary attainment were Edinburgh, Gawler Belt, Angle Vale and Gawler River/Ward Belt, which also tend to be the more affluent suburbs.

### **1.2.7 Employment**

Employment directly impacts on income and can influence car ownership. Employment is also related to the level of educational attainment. The suburb areas with the highest levels of full-time workers are Edinburgh, (influenced by Defence work), Macdonald Park/Penfield Gardens, Virginia and the Gawler Belt. Macdonald Park has many full-time workers but they tend to be in low paid work.

Part-time work is an increasing trend and the suburbs with a high level of part-time workers are Gawler River/Ward Belt, Angle Vale, Penfield, Gawler Belt and Andrews Farm. Often these workers are females and/or older workers. Double income families, often with one parent being in part-time work, are found in the 'mortgage belt' new home buying areas.

Unemployment rates are also dispersed widely in the study area. Smithfield Plains/Davoren Park had an extremely high unemployment rate of 26%, more than three times the South Australia average. Other suburbs with high unemployment were Evanston/Hillier and Gawler West/Willaston/ Hewett.

The lowest unemployment rates were for Edinburgh and Angle Vale.

### **1.2.8 Industry**

Manufacturing and agriculture are the dominant industries. Manufacturing is a large employer in the study area. Employment is concentrated in Andrews Farm, Smithfield Plains/Davoren Park and Munno Para West. Agriculture plays a large role in the area and the suburbs with the highest proportions in the industry are, as expected, Virginia, Gawler River/Ward Belt and Penfield. As expected, Edinburgh has the highest concentration of government, administration and Defence employment with 89%.

### **1.2.9 Occupations**

The occupational mix in the area is quite narrow. As farmers and farm managers are classified as managers and administrators, there is naturally a high level in the rural suburbs – Virginia, Penfield and Gawler River/Ward Belt.

Clerical, sales and service occupations are well represented with more workers in advanced and intermediate levels living in Andrews Farm and Macdonald Park/Penfield Gardens and the elementary level of clerical occupations concentrated in Munno Para West and Smithfield Plains/Davoren Park.

Tradespersons is a major occupation type in the study area. The suburb areas with the highest concentration of this occupation are Edinburgh (due to the Defence industry) and Angle Vale. The study area has a low proportion of professionals. They live mainly in Gawler Belt, Gawler West/Willaston/Hewett, Penfield and Gawler River/Ward Belt.

Production and transport is another large occupational group in this area. The greatest concentrations can be found in Smithfield Plains/Davoren Park, Munno Para West and

Andrews Farm. There is a large proportion of labourers in the area which is related to the large amount of manufacturing and process work. The largest proportions of these workers are in Smithfield Plains/Davoren Park.

## 1.3 Socio-Economic Indexes for Areas (SEIFA)

Developed by the ABS and using data derived from the 2001 Census of Population and Housing, SEIFA provide a range of measures to rank areas based on their relative social and economic well-being. The two measures used for the Environmental Report are as follows:

- The Index of Relative Socio-Economic Advantage/Disadvantage. This new index was developed by the ABS at the 2001 Census. It is a continuum of advantage to disadvantage. A higher score on the Index of Relative Socio-Economic Advantage/Disadvantage indicates that an area has attributes such as a relatively high proportion of people with high incomes or a skilled workforce. It also means an area has a low proportion of people with low incomes and relatively few unskilled people in the workforce. Conversely, a low score on the index indicates that an area has a higher proportion of individuals with low incomes, more employees in unskilled occupations, etc. and a low proportion of people with high incomes or in skilled occupations.
- The Index of Relative Socio-Economic Disadvantage is derived from attributes such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage rather than measure specific aspects of disadvantage (e.g. indigenous and separated/divorced). High scores on the Index of Relative Socio-Economic Disadvantage occur when the area has few families of low income and few people with little training and in unskilled occupations. Low scores on the index occur when the area has many low-income families and people with little training and in unskilled occupations.
- Note: It is important to understand that a high score on the Index of Relative Socio-Economic Disadvantage reflects lack of disadvantage rather than high advantage, a subtly different concept.

(See ABS Census *Socio-Economic Indexes for Areas 2001. A comprehensive profile of the Australian people.*)

To maintain consistency with the other indexes, the higher an area's index value for the Index of Relative Socio-Economic Disadvantage, the less disadvantaged that area is compared with other areas. For example, an area that has a Relative Socio-Economic Disadvantage Index value of 1200 is less disadvantaged than an area with an index value of 900.

In the study area the indexes show an extreme contrast.

The study area average score for the Index of Relative Advantage/Disadvantage is 915.7, whereas the State average score for the Index of Advantage/Disadvantage is 973.

Edinburgh's Index of Relative Advantage/Disadvantage score is 1013.8 and its Index of Relative Disadvantage score is 1006.4.



Smithfield Plains/Davoren Park's Index of Relative Advantage/Disadvantage score is 777.4 and its Index of Relative Disadvantage score is 733.0, the lowest in the entire study area.

**Table 1.2 SEIFA indexes' scores for derived suburb level areas, Gawler to Port Wakefield Road section**

Derived suburb level areas <sup>(1)</sup>	Index of Advantage/ Disadvantage <sup>(2)</sup>	Rank Advantage/ Disadvantage <sup>(3)</sup>	Index of Disadvantage <sup>(2)</sup>
Study area Gawler to Port Wakefield Road section (Northern Expressway)	915.7		
Andrews Farm	902.5	11	941.6
Angle Vale	950.8	5	1001.8
Edinburgh (DSTO)	1013.8	2	1006.4
Evanston, Hillier	889.6	12	947.3
Gawler Belt	981.1	3	1040.6
Gawler River, Ward Belt	968.7	4	1019.8
Gawler, Gawler West, Willaston, Hewett	920.9	7	933.4
Macdonald Park, Penfield Gardens	924.4	6	995.6
Munno Para West	870.0	14	878.1
Penfield	884.9	13	942.7
Smithfield Plains, Davoren Park	777.4	17	733.0
Virginia	904.3	10	953.6
Study area Total average	918.9		949.3
South Australian average	973.0		N/A

(1) The suburb level areas are derived to indicate communities and may not include whole of suburbs. The data has been compiled from CDs that are close to or abutting the proposed Northern Expressway alignment. In the case of Port Wakefield Road because the alignment is in existence, CDs were chosen that directly abutted the road. The suburb areas for the new alignment from Port Wakefield Road to Gawler tend to be more extensive because of larger CDs and the need to capture broader characteristics associated with a totally new road alignment.

(2) These indexes have been compiled from individual CDs making up the suburb area and the average taken.

(3) Rank refers to the entire Northern Expressway route from Salisbury Highway to Virginia. Penfield and St Kilda share a ranking of 13.

Source ABS 2001 Census.

## 1.4 Social infrastructure

### 1.4.1 Activity centres

The nature of the urban form in the study area has determined that much of the community focus and the provision of facilities is located with retailing activities within activity centres.

At the highest order, in regard to the provision of goods and services, the Adelaide CBD is within 40 minutes of the Gawler to Port Wakefield Road section of the Northern Expressway via the direct route along Port Wakefield and/or Main North roads.

The major public and commercial activities, which service the study area communities, are located within the spine along the Main North Road – Gawler rail line corridor within Salisbury, Elizabeth Regional Centre, Munno Para District Centre and the Town of Gawler.

The lower order District, Neighbourhood and Local Activity Centres in the study area are located within the established residential areas. Shopping facilities within the study area vary in size and are generally situated at local centres, which also provide services such as convenience stores, food outlets, post offices, cafes and consulting rooms. Local centres are predominantly accessed by motor vehicle, as indicated by the large number of car parks provided, or by foot, if the centre is within walking distance.

The lower order centres in the study area include:

- Angle Vale
- Virginia
- Davoren Park (Peachey Road)
- Smithfield Plains
- Munno Para
- Andrews Farm.

It is emphasised that these centres have been influenced in the past ten years by the trade shadow cast by the larger centres to the east, particularly Munno Para District Centre and the Elizabeth Regional Centre that have recently undergone major expansion and now contain many of the retail and community services for the study area.

## **1.4.2 Health**

The South Australian Department of Health has developed three primary health care networks to support systems of integrated care and to engage a range of primary health care partners including general practitioners, hospitals, aged care providers and community health services.

From 1 July 2004 three metropolitan regional health boards became fully operational, replacing 12 hospital and health service boards. The three are:

- Central Northern Adelaide Health Service (CNAHS) which established two primary health care networks (western and north/north-east).
- Southern Adelaide Health Service (SAHS) which established the Southern Primary Health Care Network.
- Children's, Youth and Women's Health Service (CYWHS).

Secure broadband connectivity has been completed for 110 general practitioner clinics in the north, north-eastern, western and southern suburbs.

The initial focus of network activity is on improving the coordination of care for people with chronic disease by providing more services and support in the community. Another key focus is reducing the morbidity associated with uncontrolled chronic disease and controlling the risk factors that are precursors to the development of chronic disease.

The primary health care approach gives a greater focus to the social determinants of health and well-being, addressing health inequalities, health promotion and disease prevention. Primary health care strategies include:

- avoiding people entering the hospital system through early detection and provision of support and treatment outside the hospital setting
- assisting people to leave hospital more quickly with an appropriate level of community support
- preventing people going to hospital through early intervention, health promotion and improved access to services.

The study area is within the CNAHS region and includes a range of health care provision within the area or in adjacent suburbs. Health services including general practitioner, specialist and dental care are mainly located in the Gawler, Munno Para/Smithfield, and Elizabeth spine on the eastern side of the study area. In particular these include:

- Child and Youth Health, Northern Region: Morialta Drive, Smithfield
- Adelaide Road Clinic: Adelaide Road, Gawler
- Allcare Medical Centre: Cheek Road, Gawler East
- Galmec Specialist Suite Pty Ltd: Hutchinson Road, Gawler East
- Gawler Medical Clinic: Adelaide Road, Gawler
- Hyde and Partners: Adelaide Road, Gawler
- Murray Street Clinic: Murray Street, Gawler
- Munno Para Medical Centre: Munno Para Shopping City
- Playford Community Health Centre: Peachey Road, Davoren Park
- Muna Paiendi Community Health Centre (Lyell McEwin Hospital)
- Elizabeth Centre Clinic: Phillip Highway, Elizabeth
- Elizabeth City Medical Centre: Phillip Highway, Elizabeth
- Child and Youth Health (Elizabeth Clinic): Frobisher Court, Elizabeth
- Child and Youth Health (Smithfield Clinic): Morialta Drive, Smithfield
- Northern Women's Community Health Centre: Phillip Highway, Elizabeth
- Adelaide Road Dental Practice: Adelaide Road, Gawler
- Gawler Dental Clinic: Murray Street, Gawler
- Gawler and Districts Dental Care: Murray Street, Gawler
- Elizabeth Medical and Dental Centre: Phillip Highway, Elizabeth
- Sidney Chambers Dental: Elizabeth Shopping Centre.

Virginia has the only medical facilities outside the concentration of activities along the eastern extremities of the study area. These facilities are located at Virginia Medical Centre, Old Port Wakefield Road, Virginia.

School Dental Services are operational at Davoren Park and Smithfield Plains Primary Schools.

The public hospitals in the study area include Gawler Health Services (Hutchinson Road, Gawler East) and the Lyell McEwin Hospital (Haydown Road, Elizabeth Vale), while the Royal Adelaide Hospital (Adelaide), the Women's and Children's Hospital (North Adelaide) and the Queen Elizabeth Hospital at Woodville South are also accessible from the study area.

The following private hospitals are located within the study area or nearby:

- Harwin Private Hospital in Frost Road, Salisbury
- Central Districts Private in Jarvis Road, Elizabeth Vale
- Gawler Health Services (offers maternity facilities for private patients).

### 1.4.3 Education

Public Reception to Year 7 schools are spread throughout the study area following a principle of neighbourhood location, catering for population areas of approximately 5000 persons and largely based on the school planning that was predominant in South Australia when the study area was expanding over the last 50 years.

The study area has a high representation of private schools with Trinity College and St Columba College offering a significant number of places over a number of campuses.

Secondary schools (Year 8 to 12) have catchments that cover much broader areas and the private colleges in particular draw students from the entire study area and beyond. Gawler High has an enrolment zone that extends across to Virginia and to Two Wells (beyond the alignment of the Northern Expressway), and access for students more than 5 kilometres from the school is by school bus.

The reception and primary schooling occurs at the following school sites:

- Hewett: Kingfisher Drive, Hewett
- Evanston: Para Road, Evanston
- Evanston Gardens: Angle Vale Road, Evanston Gardens
- St Brigids: Para Road, Evanston
- Angle Vale: Fradd Road, Angle Vale
- Trinity College (Gawler River Campus Reception to Year 9): Heaslip Road, Angle Vale
- Munno Para: Maltarra Road, Munno Para
- St Columba College: President Ave, Andrews Farm
- Smithfield Plains: Buchanan Road, Smithfield Plains
- Davoren Park: Skewes Street, Davoren Park
- Swallowcliffe: Oldford Street, Davoren Park
- Virginia: Park Road, Virginia.

Public and private Year 8 to 12 secondary schooling is represented by:

- Xavier College: Mallala Road, Gawler Belt

- Gawler High: Para Road, Evanston
- Trinity College (Senior Main Campus): Alexander Avenue, Evanston South
- St Columba College (Senior Campus): President Ave, Andrews Farm
- Para West Adult Campus: Crafter Street, Davoren Park
- Smithfield Plains High: Beaumont Road, Smithfield Plains.

The study area has tertiary level education establishments including:

- Murray Institute of TAFE (Gawler Campus): High Street, Gawler
- University of Adelaide (Roseworthy Campus): Roseworthy
- Regency Institute of TAFE (Elizabeth Campus): Woodford Road, Elizabeth
- Regency Institute of TAFE (Salisbury Campus): Wiltshire Street, Salisbury.

#### **1.4.4 Libraries, community centres and meeting places**

The City of Playford has library facilities at Elizabeth and Munno Para as well as a mobile library that covers the overall study area.

Gawler has library facilities associated with the Civic Centre in Murray Street, Gawler.

Many activities focus on the central places of Elizabeth, Smithfield/Davoren Park/Munno Para, Virginia, Angle Vale, Gawler and Hewett and these are considered to be points of major focus for community interaction in the study area.

In particular:

- Elderly Centre in Fourteenth Street, Gawler provides for a community focus and functions, and the delivery of community care and home assist programs.
- Gawler Community House: Scheibener Terrace, Gawler.
- Angle Vale Primary School Hall: Heaslip Road, Angle Vale.
- Playford Council Civic Centre complex in Elizabeth offers meeting facilities and a library and the adjacent Grenville Connections Hub has services and recreation for the over fifties age group. Also within the Elizabeth Centre is the Northern Sound System catering for youth activities.
- Davoren Community Centre at Oldford Road, Davoren Park offers facilities for community use as well as more specific adult education and financial counselling services.
- John McVeity Centre: Peachey Road, Smithfield Plains is available for recreation as well as community functions, 'market garden' and kindergym.
- Munno Para Senior Citizens Club: Peachey Road, Davoren Park.
- Virginia Institute at Old Port Wakefield Road, Virginia is a facility for hire for the use of local community groups.
- RAAF Base Community Centre, Ikara Lane, Edinburgh offers a community focus centre for Defence services personnel and their families.

Social support agencies involved with personal and family services are mainly grouped in the main centres of Elizabeth, Salisbury and Gawler but with particular services in areas of significant social stress such as Davoren Park/Smithfield Plains.

### 1.4.5 Recreation and sport

The study area has a range of passive and active recreation opportunities for both the local community and for the region.

There are significant regional facilities within the study area and in particular:

- Adelaide Soaring Club, Gawler Airfield: Two Wells Road, Gawler
- Gawler Harness Racing Club: Weaver Road, Gawler
- STARplex recreation complex (which includes swimming facilities): Alexander Ave, Evanston South
- Central Districts Oval: Goodman Road, Elizabeth
- Aquadome Swimming Centre: Elizabeth Way, Elizabeth
- Shedley Theatre: Frobisher Road, Elizabeth
- North Lakes Golf Club: Stebonheath Road, Munno Para West
- Northern Equestrian Centre: Argent Road, Penfield
- Adelaide International Raceway: Port Wakefield Road, Virginia
- Speedway City: Supple Road, Virginia
- Womma Park: Womma Road, catering for softball and soccer
- Cinemas at Salisbury, Elizabeth and Gawler.

In addition to the high profile venues and sporting activities, there are a number of other recreational considerations within the study area:

- Virginia has a community oval and a joint use recreation centre with the primary school that caters for a range of sports including netball, football and soccer.
- Angle Vale has a school/community oval and recreation centre that is utilised by the Angle Vale Soccer and Community Club.
- Andrews Farm has a shared use community/school oval.
- An archery club operates at Petherton Farm, Petherton Road which is directly adjacent to the Northern Expressway alignment.
- Willaston has a par 3 golf course and football club on the Two Wells Road.
- The Karbeethan Sporting Association is located on the Karbeethan Reserve on Angle Vale Road at Evanston Gardens. This reserve is close to the proposed Northern Expressway route.

The major residential development suburb areas within the study area are well provided for with passive and active recreation space. These parks range in size and use, and include playgrounds and open space reserves.

There are a number of social facilities, activities and clubs within the study area, which cater for a variety of cultural, recreational and social needs.

Recreational groups are involved with a very wide range of the major sporting activities.

The study area has several service groups including a Lions Club and the Country Women's Association (CWA) at Virginia and Rotary Club chapters at Elizabeth and Munno Para.

## **1.4.6 Emergency services**

### **Fire**

The study area is covered by existing South Australian Metropolitan Fire Service (SAMFS) fire stations and appliances based at Salisbury (Frost Road), Elizabeth (Elizabeth Way) and Gawler (Ayres Street). In the case of significant emergencies, units can attend from outside this area or can also be supported by the Country Fire Service (CFS), particularly Two Wells (Old Port Wakefield Road), Virginia (Leach Street), Gawler River (Wilkinson Road) and Salisbury (Wiltshire Street).

Because of the expanding population in the Munno Para West/Angle Vale/Evanston area, a proposal is currently being considered by the SAMFS to locate a new fire station at Angle Vale.

The fire services which could attend emergencies directly associated with the Northern Expressway would be involved in responding to road traffic accidents or spillages of toxic materials.

### **Police**

The study area is contained within the South Australian Police Northern Operations Service. This is responsible for the provision of policing services at the local level.

The Northern Operations Service (NOS) in general covers that part of the metropolitan area north of the River Torrens, and the country areas north of Adelaide, providing an operational policing service to a greater proportion of the State.

The NOS is divided into Local Service Areas and the Elizabeth and Barossa LSAs have the coverage of the suburb areas surrounding the Northern Expressway route and would be involved in any road traffic or spillage emergencies associated with the route itself.

The Elizabeth LSA maintains a community policing service which is customer focused and provides a policing response to the Salisbury, Playford, Gawler and Mallala Council areas covering some 1,767 km<sup>2</sup> with 217,051 residents (estimated resident population as at 30/6/2004).

Throughout the LSA, policing services are located at Elizabeth, Salisbury, Gawler, Two Wells and Mallala Police Stations providing the policing functions of mobile patrols, criminal investigation, traffic, intelligence, crime scene, criminal justice, community programs and victim support services which are there to support and service the needs of the community providing assistance when required.

The Barossa Yorke LSA covers an area of 15,699 km<sup>2</sup> with a resident population of approximately 67,000 persons. The headquarters station at the Nuriootpa Police Complex is

supported by significant police stations at Kadina and Clare with an additional 17 police stations. Policing that would impact on part of the study area is coordinated through Barossa Operations, based at Nuriootpa.

The Northern Operations Executive is based at the Holden Hill Police Complex and provides additional support to the LSAs in the areas of policing, operations coordination, operations planning, finance, administrative planning, multicultural services and intelligence coordination.

## **Ambulance**

The study area is served by the South Australian Ambulance Service (SAAS), staffed by teams of full-time career and volunteer staff, which operates throughout South Australia.

There are three ambulance stations that cover the study area: Salisbury, Playford (Elizabeth) and Gawler.

Paramedics are qualified to deal not only with everyday call-outs but also to respond to large-scale emergencies.

SAAS is responsible for its ambulance fleet of 200 vehicles, ambulance equipment, and the education of all its personnel.

From the stations in the study area or using nearby support, SAAS can attend traffic accidents or other emergencies directly associated with the Northern Expressway.

### **1.4.7 Public transport**

Public transport services in the study area are focused on serving the Adelaide–Gawler/Barossa rail line and the Elizabeth Regional and Munno Para District Centres. This includes provision of bus feeder services along Main North Road, Womma Road and Curtis Road to the Smithfield, Elizabeth and Salisbury rail stations. No Metro ticket bus service is provided along Heaslip Road but a number of school bus services use Heaslip, Angle Vale and Two Wells roads.

## **1.5 Communities of interest within the study area**

The study area is largely located to the west of the urban areas of northern metropolitan Adelaide and includes the townships of Angle Vale and Virginia and their rural hinterlands, new housing areas south of Gawler and west of Elizabeth/Munno Para and the dispersed rural living communities in the Penfield Gardens and Macdonald Park areas.

The significant communities of interest within the study area are (Figure 1.2):

### **Gawler township and environs**

The core of the town and its main street dates from the 19th century when it was established as a major manufacturer of farm and transport machinery. Much of this activity is now closed but the township has continued to grow during the last 50 years with expansion to the south at Evanston and in Gawler West and the Gawler Belt areas. The Gawler Belt contains the Gawler



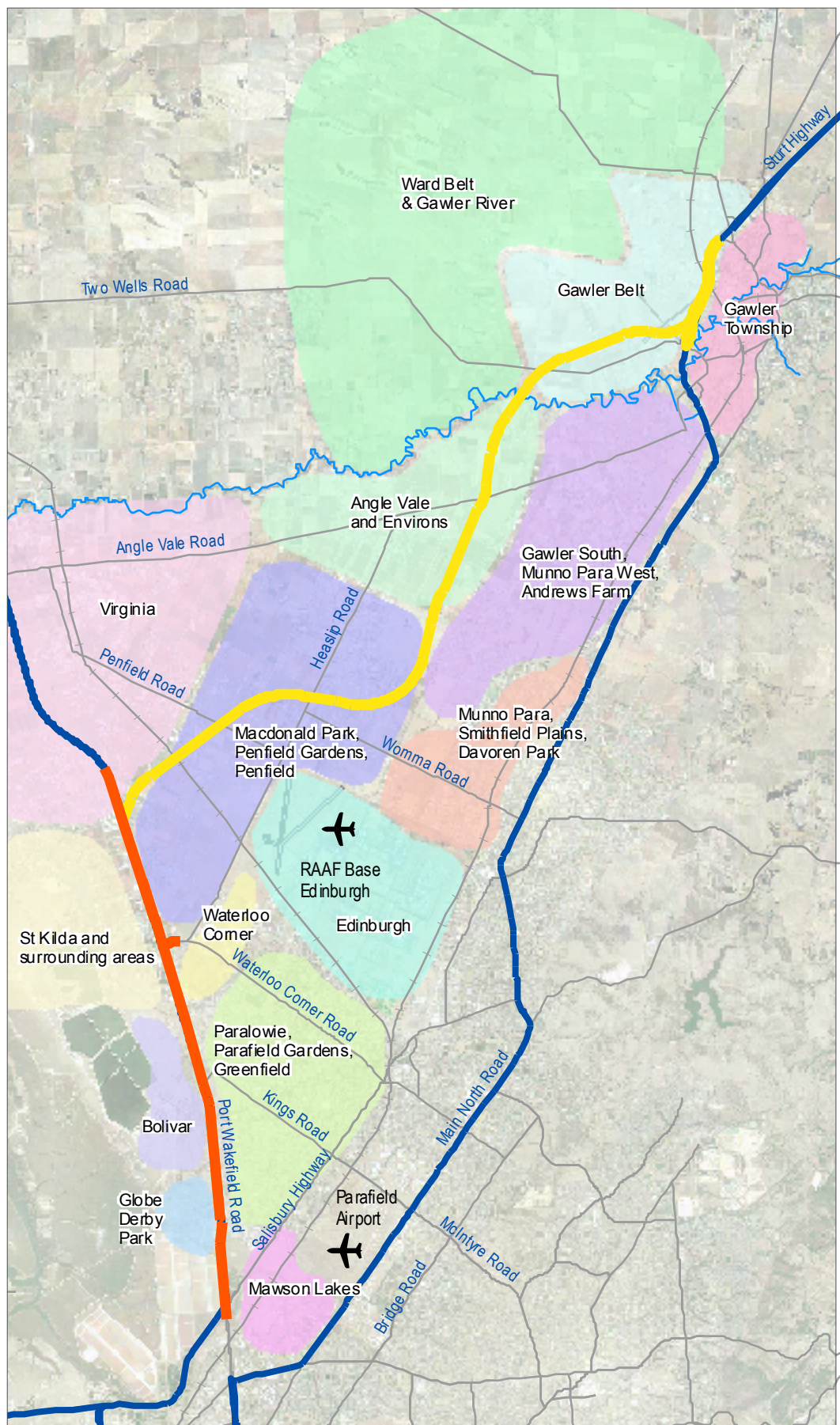


Figure 1.2: Communities of Interest

Trotting Track and the Adelaide Soaring Club and both of these activities are supported by participants from wider afield. In the last 10 years there has been substantial development and the addition of younger families in the northern fringe suburb of Hewett.

### **Established suburbs of Playford Council including Munno Para, Smithfield, Smithfield Plains, Davoren Park and Elizabeth West**

The northern suburbs of the City of Playford contain areas that were largely developed in the 1950s and 1960s by public housing activity. These areas contain a mixture of younger and older households and are characterised by some significant pockets of socio-economic stress. Recent plans (Playford North) have been announced for urban renewal in these areas.

### **Edinburgh**

Edinburgh includes the Defence establishments associated with the RAAF Base Edinburgh and the DSTO laboratories, and motor vehicle manufacturing and suppliers associated with General Motors Holden. These areas contain low residential population but high employment numbers, mainly associated with manufacturing, Defence technology and on-base activities associated with the Defence services. The area covered by these activities is a significant 650 ha located in a strategically central part of the study area requiring good access to major arterial routes and the proposed Expressway. Future plans have been announced in regard to the expansion of Defence services.

### **Expanding suburban areas of Gawler South, Andrews Farm and Munno Para West**

The northern suburbs have been a major focus of growth for metropolitan Adelaide and this growth has continued at high levels over the past 50 years. The most recent suburban fringe is located in the expanding areas of Gawler South, Andrews Farm and Munno Para West. These areas are characterised by households in their formative stages with newly arrived couples and young families who are commuting to employment within the northern employment areas or further afield to the Adelaide CBD.

### **Rural living areas of Macdonald Park/Penfield Gardens, and the Petherton and Gawler Belt/Ward Belt agricultural areas**

Rural living areas are lifestyle opportunities characterised by larger allotments (in the order of 10,000 m<sup>2</sup>) that have been attractive to a large number of people wishing to undertake a range of activities, particularly animal keeping (equine/canine) and other pursuits such as organic farming and various hobby activities. These areas are extensive and in some cases, such as Penfield Gardens and Macdonald Park, contain significant numbers of people.

The Ward Belt and Gawler River areas contain extensive farming operations and in this case the rural living component is overshadowed by more commercial activities.

The Petherton area contains a mixture of small and extensive viticultural and horticultural activities. Parts of this area also contain under-utilised land.

## **Virginia – rural service centre and hinterland**

Virginia is a service town within the horticultural area providing retail, commercial and light industrial support to the surrounding community. The town's ageing population structure is being offset by new housing development that is not necessarily involved in the local industry and, because of proximity to Adelaide, has become more commuter-based.

The northern Adelaide plains support a significant farming community which is involved largely with horticultural activities. This community is dispersed, living on their individual farm holdings and is characterised by a wide range of ethnic backgrounds. The increase in the intensity of farming and the opportunities for food exports have sustained continuing production values and population growth.

## **Angle Vale – township and hinterland**

Angle Vale sits within a rural hinterland and exhibits much of the characteristics of an outer suburban settlement with significant commuting to employment elsewhere. The town is growing and is characterised by a young family population and has a community focus with a primary school, community hall and local shopping centre. The hinterland to Angle Vale contains commercial agricultural operations including chicken/egg production, viticulture, horticulture and almond orchards.

# **1.6 Effects of the project**

## **1.6.1 Anticipated changes and effects**

The roadworks associated with the Gawler to Port Wakefield Road section of the Northern Expressway will have a number of positive and negative impacts on the communities living within the study area and in particular:

- Land and house acquisition will be a direct and concerning impact for the community and the directly affected individuals along the entire route with an estimated 79 properties or parts of properties being acquired of which 27 are individual residential dwellings. Some of these dwellings may need to be demolished and the owners compensated because of projected roadworks. (Number of properties affected may change as detailed design is further developed.)
- The Expressway will effect directly on the livelihood of some individuals and in some cases their employees as it will sever land parcels and areas of ownership and will divide productive functions on that land. In some cases it may be possible to adjust land parcels to offset any losses of land and/or adjust for loss through suitable monetary compensation.
- It is considered that a major impact of the road will be on residents who are close enough to the road to be effected upon by its externalities and in particular, noise, visual appearance and exhaust pollution. This effect will decline as the distance from the road increases. However, these impacts will be a matter of perception and will vary between individuals. Nevertheless these effects can cause significant

stress to some people and communities particularly as many people have chosen to live in a quiet rural setting.

- The analysis of social infrastructure in the study area indicates that the major grouping of significant social infrastructure is along the Main North Road spine in the east of the study area in the centres of Gawler, Munno Para, Elizabeth, Salisbury and Mawson Lakes. To a lesser extent, some services have gravitated to the low socio-economic areas of high need within the suburbs of Davoren Park or Smithfield Plains or within the small but influential townships of Virginia and Angle Vale. This current separation of supporting social infrastructure for the northern region has the potential to be further exacerbated if the Northern Expressway reduces accessibility by not providing convenient routes across its extent.
- It is considered that all communities of interest will have their current accessibility to services impacted upon in some way by the Expressway and some existing communities will be either divided or particular relationships with other places affected. Certain groups may be impacted upon in different ways, particularly the younger and older groups in the population, who may not have access or be unable to use motor vehicles. Walking or bicycle journeys may be impacted upon more directly if the route for the required journey is lengthened. This may particularly be the case for schoolchildren walking or cycling to school. The major potential for change to accessibility is analysed for each community of interest in more detail below.
- Future growth in the study area will increase the numbers of young children and youth in the new areas of the northern suburbs. However there will also be a general ageing of the population within the established suburbs. The ageing of the population will to some extent be offset by the planned renewal of suburbs in the Playford and Salisbury North areas but will still remain as a significant factor. As indicated above, children, youth and the elderly have particular needs for accessibility to certain services and to public transport. The location of health and education services in the main centres of Elizabeth, Munno Para, Salisbury and Gawler will continue and the current access routes will be reinforced. An important consideration therefore is to ensure that the west to east access is not unduly impeded by the Northern Expressway alignment.
- An overall positive benefit is expected to be an increase in the efficiency for the study area in regard to its access to other parts of the metropolitan Adelaide area, in particular the CBD, Port Adelaide and employment market of northern and north-western Adelaide. The productivity of the expanding northern industrial and commercial enterprises will be increased as their accessibility to other places is improved and the flow-on effect will be felt in employment opportunities for the communities of the study area.
- The residents of the area will benefit from improved accessibility by using the Northern Expressway for convenient and safe access to other community and recreation activities in the areas that are south and north of the study area. The northern areas will become more desirable for residential growth and renewal if they are more accessible to other parts of Adelaide and its attractive fringe areas, particularly the Barossa and the coast.
- A positive outcome of the Northern Expressway will be the reduction of specific traffic bottleneck and safety issues in regard to the Angle Vale/Heaslip roads. A very

good example of this is the Angle Vale/Heaslip roads intersection within the community of interest area of Angle Vale. The traffic volumes, in particular the significant number of freight movements through the town, are not only at dangerous levels but impact on the amenity of the community.

- Consideration must be given to the fact that the northern suburban areas will continue to grow particularly in Gawler South and Playford North and around Munno Para and Elizabeth West/Penfield where land is at present owned by the Land Management Corporation and is land-banked for future communities. The northern growth is however limited by the Urban Boundary and whilst there is a significant land supply within this area at least for a further 10 years, the Expressway has potential to accelerate growth in these areas. This will be particularly the case where the Northern Expressway route creates a space between its alignment and existing urban land.
- Another factor that is apparent as a result of the Urban Boundary is development that is occurring in communities beyond the boundary and within the outer metropolitan area, particularly in the Barossa, and the Mallala and Light Regional Council areas. The proximity of these areas to metropolitan Adelaide and the expansion of the northern suburbs employment market, coupled with the accessibility that will be created by the Expressway, create new imperatives for growth of existing communities and the creation of new communities.
- Growth will continue within the townships of Virginia and Angle Vale although the extent of the towns is limited by current policies. Importantly this growth will be accompanied by increasing demand for urban services, particularly effluent and stormwater drainage.
- The expansion of the Defence activities at Edinburgh has been announced with the establishment of the new army battalion. This could comprise an increase in numbers of 1200 to 1500 plus relocations from other South Australian bases and an electronic warfare initiative (900) increasing the total potential new base personnel by 2400. The total DSTO/RAAF/Army numbers would be 6300 (the increase of 2400 plus current number of 3900). Whilst the Defence presence will increase the actual numbers living on-base the estimated increase is only 250 army staff. Nevertheless, the movements of personnel on and off base will be significant as they commute from their residential accommodation in the northern suburbs. In addition materiel and ordnance movements will also increase.
- The Playford and Salisbury Councils have announced plans to investigate the future possibilities for a Greater Edinburgh involving industrial/commercial expansion into the areas to the north and west of the RAAF Base Edinburgh. More land and enterprise opportunity available for employers will have flow-on effects to the betterment of communities in the study area.

## **1.6.2 Impact on accessibility**

Communities north of the Gawler River have strong connections with the Town of Gawler. The principal access roads are east-west with only a few roads crossing the Gawler River, thereby limiting access to the south. All public school buses from Two Wells and Lewiston provide a service to schools in Gawler. People crossing the Gawler River to access services are likely to be doing so to access the Trinity College Reception to Year 10 campus at Angle Vale, shopping

or visiting community/government services not available in Gawler but located at the Munno Para District Centre or the Elizabeth Regional Centre, or visiting major health facilities located at the Lyell McEwin Hospital.

The communities south of the Gawler River have strong connections to Gawler, Munno Para and Elizabeth and to a lesser extent for certain government and financial transactions with Salisbury. The principal access route to Gawler is the Angle Vale Road. All public school buses from Virginia and Angle Vale provide a service to schools in Gawler along Angle Vale Road.

Many roads that cross Heaslip Road are at right angles (e.g. Curtis and Womma roads). The location of RAAF Base Edinburgh and Edinburgh Parks creates a barrier to easy access to Hollywood Plaza and John Street in Salisbury channelling traffic instead to services and facilities located at Munno Para and Elizabeth.

The key industry sectors for economic activity include motor vehicle and component manufacturing, retailing, road freight transport and Defence-related industries. A large proportion of these industries are concentrated within the existing urban areas around Elizabeth West and South and at Edinburgh Parks. Work journeys are concentrated on these places and the retail centres of Gawler, Munno Para, Elizabeth and Salisbury. Further significant growth in these industrial areas and centres is expected with planned development of industry clusters within Edinburgh Parks well underway.

The area also contains important agricultural activity, particularly in the production of fruit and vegetables. The area is one of South Australia's major horticultural districts and an important source of employment for the northern area, particularly employment of unskilled labour.

At the time of the 2001 Census, 40% of employed people within the northern metropolitan area worked within the area. Many people from other areas are also attracted to the area for employment given its central location and good road network.

Analysis has been carried out on changes to travel distance as a result of the intervening impact of the Northern Expressway. The analysis utilises a Geographical Information System measuring the change in distance between a 'centroid' located within a precinct area and the centres of:

- Angle Vale
- Elizabeth
- Gawler
- Munno Para
- Salisbury
- Salisbury Highway/Port Wakefield Road intersection
- Virginia.

(see Attachment – Accessibility Assessment)

The current major impacts, sensitivities and advantages for the communities of interest, particularly in regard to accessibility, of the Port Wakefield Road to Gawler section of the Northern Expressway are:

## **Gawler township and environs**

The Northern Expressway will connect into the Gawler Bypass on the north-western fringe of Gawler and will not impact directly on the Gawler township. Access to the Expressway for Gawler will be via the Gawler Bypass or Main North Road at Willaston and this will allow northern and southern journeys. The Expressway will improve the convenience for journeys from Gawler to other parts of the metropolitan Adelaide area and the CBD. This will generate interest from developers in regard to the expansion of new suburban areas close to the services and facilities of Gawler.

Travel time analysis indicates that the use of the Expressway from Main Street, Gawler to Gepps Cross will result in a very slight increase in travel time because of the longer distance and more importantly the access to the Expressway from the Gawler main street.

## **Established suburbs of Playford Council including Munno Para, Smithfield, Smithfield Plains, Davoren Park and Elizabeth West**

The alignment of the Northern Expressway will pass to the west of the suburbs of Smithfield, Smithfield Plains, Davoren Park and Elizabeth West and the alignment will not directly impact upon these areas. Closest access for these areas to the Expressway will be via Curtis Road (allowing journeys southbound on and northbound off) or the interchange at Womma Road which allows trips north and south.

The demographic analysis has indicated that these suburbs are significant areas of socio-economic stress. It is considered that increasing the accessibility and connectivity of these places to other parts of metropolitan Adelaide will be a major advantage.

These suburbs are a part of the re-generation by the Playford North plan and the accessibility benefits of the Expressway will add to the opportunities for this to occur.

## **Edinburgh**

The main access to Edinburgh will be via Stebonheath/Womma roads to the interchange at Womma/Heaslip roads. Some concern has been expressed by representatives of the Salisbury Council (interview 19/10/06) that the current Expressway configuration does not allow convenient access for traffic accessing Edinburgh south of the area through the newly constructed Wyatt Road. Traffic in this sector will need to use a more indirect route via Heaslip and Waterloo Corner roads to gain access to the Expressway via the existing Port Wakefield Road alignment. It is a concern that major journeys generated by the commercial operations and Defence activities within Edinburgh will continue to use the existing road networks through Commercial Road and Bolivar Road.

The Salisbury and Playford Councils have plans for a major expansion of industrial/commercial activities on the western and northern perimeter of Edinburgh (Greater Edinburgh Parks) and this increased activity may require, at a future stage, a dedicated access to the Expressway in the Waterloo Corner area connecting up with Wyatt Road.

## **Expanding suburban areas of Gawler South, Andrews Farm and Munno Para West**

The alignment of the Expressway will pass to the west of these growing suburb areas.

Andrews Farm and Munno Para West will have access to the route via Curtis Road (allowing journeys south bound on and northbound off), or further south via Stebonheath or Andrews Road to Womma Road and the interchange at Womma/Heaslip Road which will allow a northern journey but is anti-directional. Other access for northbound is following Heaslip/Angle Vale roads through to the Gawler Bypass.

The Gawler South/Hillier/Evanston development will be removed from the access points with the nearest ones being at Curtis Road (via Heaslip, Andrews or Stebonheath roads) or at Gawler using the Gawler Bypass for journeys north or the Main North Road/Willaston interchange. The choice may be made by residents in this area to traverse Angle Vale and Heaslip Road to the Womma Road interchange.

The existing new suburbs in these areas and their commuter population will benefit from the proximity and time saving qualities of the Expressway.

The future expansion of these suburbs, including those areas covered by the Playford North plan, will be significantly influenced by the Expressway as it will reduce the journey time to the Adelaide CBD and other parts of the northern Adelaide employment market.

Analysis of travel distance has indicated that there is generally no change in travel distance to the centres from Munno Para West and Andrews Farm except in the case of the connection with Virginia. It is considered, however, that Virginia is not a vital link for the Munno Para West/Andrews Farm area.

## **Rural areas**

### ***Macdonald Park and Penfield Gardens rural living***

The route skirts the western side of these suburbs but cuts through the south-eastern extremity of Macdonald Park with significant land acquisition impacts in this area.

The access to the Expressway from this area will be from Curtis Road or, more likely the Womma/Heaslip roads interchange.

It is considered that the road alignment at this point does carry with it some obvious accessibility consequences for the Macdonald Park area and in particular:

- The closure of Petherton Road will add to trip distance for those wishing to access services in the centres of Munno Para and Elizabeth and north–south journeys via Andrews Road.
- The Expressway will disrupt school journeys for students in Macdonald Park travelling to St Columba (Andrews Farm) and other schools in the east, particularly pedestrian/bicycle journeys.
- The indirect journeys may push more traffic onto minor roads that run through Macdonald Park.

Analysis of travel distance change caused by the Expressway has indicated that there will be a medium to high effect for Macdonald Park.

The effect is principally associated with access to Elizabeth Centre (14% increase in travel time), Lyell McEwin Hospital (15% increase in travel time) and Munno Para (7% increase in



travel time). This is equivalent to an increase of 1 to 1.5 minutes more and may not be significant for some people but will create concerns in this community.

The increase in travel distance between Macdonald Park and the Smithfield Plains High School (2.4 kms or 44%) is considered to be the most prominent effect. The increase is minor for vehicle access to the school and is only a 1.5 minute increase but for walking or bicycle travel a 44% increase in distance may be significant. The same percentage change will also be experienced for St Columba students travelling to and from Macdonald Park to Andrews Farm.

Travel distance via the Expressway to Port Wakefield Road and to locations, such as Port Adelaide, will be slightly improved for Macdonald Park residents.

### ***Penfield***

Penfield stretches across a critical part of the Expressway alignment from Andrews Road in a band around the RAAF Base Edinburgh through Penfield and Taylors roads to Port Wakefield Road. It comprises a scattered rural population involved in horticulture and more extensive cropping and animal keeping on farms of various sizes. The route has a significant effect on this community of interest as it cuts diagonally through the area severing land parcels and some farming operations and closing particular roads. In particular the effects are:

- the closure of east–west roads being Petherton and Penfield roads
- the closure of north–south roads being Short and Argent roads
- as a consequence, more traffic could be pushed on to Pellew and Robert roads.

Womma, Heaslip and Taylor roads which are already busy major roads, are likely to become more so with travel for traffic generated by the Penfield area and beyond.

The Penfield area will access the Expressway via the Womma/Heaslip roads interchange or via Taylors Road to Port Wakefield Road which will only allow southbound movements.

Accessibility for retail, education and community services trips will be disrupted by the closure of roads particularly for residents located on the eastern side of the new Expressway alignment.

Analysis of travel/time distance change caused by the Expressway indicates that there will be some effect between Penfield and the centres, particularly a minor increase in travel time between the western portion of the community and Elizabeth, Salisbury and Munno Para. Access in the eastern portion of the community and to the centres will generally be maintained. Notably there will be a decline in travel time between this community and Gawler when the Expressway is used but an increase in time between this community and Virginia.

More detailed analysis of the connections from this community, particularly the Taylors Road area, to specific community facilities indicates that the travel distance to four key community centres has increased, particularly to the Elizabeth and the Munno Para Shopping Centres (estimated trip time will increase by 38% and 22% respectively).

### ***The Gawler Belt/Ward Belt/Gawler River rural areas***

This is an extensive area to the north of the Gawler River and west of Gawler and contains a range of extensive and intensive farming activities including animal keeping and rural living. The Northern Expressway alignment cuts through the area and will sever Whitelaw and Wingate

roads which will bring about an extension of journey for some properties requiring these roads for access.

The Two Wells Road which provides important access to the populated areas of Two Wells and Lewiston as well as properties in the Gawler River/Ward Belt areas will pass over the Expressway. This will allow the same access to Gawler for retail, education and other community/social services that is available at present.

There will be major effects on the Adelaide Soaring Club where some land will be acquired and access to the facility will be effected upon significantly. The facility will be able to remain operational but there will need to be adjustments made to cater for the positioning of the Expressway.

The Gawler Harness Racing Club at Weaver Road, Gawler will be directly impacted upon by the Expressway and will need to be acquired and compensation made to the current operators. Whilst this will be a loss from the current site, it is possible that this facility can be re-established elsewhere. The consultation process indicated that the closure of the Racing Club will not only effect on the individuals who race horses, who have located in this area because of the club, but it will also remove a local community focus and centre.

This area will be able to access the Expressway for northbound and southbound journeys through the Gawler Bypass and the Main North Road/Willaston road interchange.

Analysis of changes in the travel distance for areas around the Gawler Gliding and Harness Racing Clubs indicates that there will be increases in travel distance for people in this area particularly for destinations like Angle Vale, Salisbury and Elizabeth.

Analysis of changes in the travel distance for the Gawler River area indicates no major effect on the travel to the centres from this area.

## **Virginia – township and hinterland**

Whilst the town of Virginia has some retail, community/recreation and health services it is still reliant on its contact with the major centres and secondary education facilities to its east at Gawler, Elizabeth and Munno Para.

The major roads for access to the east are Angle Vale, Womma and Penfield roads. Angle Vale Road will retain its accessibility to Gawler by spanning the Expressway. Penfield Road, which runs directly into Virginia, will be closed by the alignment of the Expressway and this may cause some concerns for accessibility but the main access route for travel to Munno Para and Elizabeth will be through Womma Road. The access for Womma Road to the east will be complicated by its passage through the interchange at Heaslip Road and this may cause some concern and confusion but will also tidy up safety issues at the current Heaslip/Womma roads intersection.

Virginia operates as a service centre for a highly productive horticultural hinterland which consists of dispersed farmhouse development and small and large scale packing sheds offering employment to local people and those from outside the study area. It is not considered that the Expressway will be a hindrance to the workforce accessing the Virginia area and it will assist in providing a more effective and faster means of bringing a workforce directly to the area.

Analysis of travel distance change caused by the Expressway indicates that there will be an increase in distance to Elizabeth and Munno Para. The trip to Gawler via the Expressway will be longer but the trip time significantly reduced. This result may reinforce the catchment of Gawler over these rural areas (Penfield/Virginia) in the western part of the study area.

## **Angle Vale – township and hinterland**

The Northern Expressway is on the eastern extremity of this community of interest. Angle Vale is a growing community with a high proportion of its population commuting to work outside the study area. It is expected that this commuter population will benefit from the Expressway particularly for journeys to the employment opportunities in the northern suburbs and the Adelaide CBD. It is expected that the Expressway will be accessible via Heaslip and Curtis roads at the Curtis Road interchange or via Heaslip Road at the Womma/Heaslip roads interchange.

Angle Vale has some lower order services and facilities at its local centre but is still reliant on its contact with the major centres and secondary education facilities to its east at Gawler, Elizabeth, Munno Para and Andrews Farm (St Columba College). The Angle Vale Road access to Gawler will not be effected upon by the Expressway and access to Munno Para, Elizabeth and Andrews Farm will still be open via Heaslip and Curtis roads or via Frisby, Fradd, and Curtis roads. A local road closure caused by the Expressway at Fradd Road may effect access to and from properties on Andrews Road but it is considered this impact should only have a minimal effect on a few properties east of the alignment if they have students using Fradd Road to access the Angle Vale Primary School.

There will be some Northern Expressway property acquisition effects along the backs of properties fronting on to Frisby Road and three houses will be directly affected. The severance of land parcels by the Expressway is minimal in this area.

A major advantage of the Expressway for the township of Angle Vale is to remove the heavy vehicle and commuter traffic from the main street of the town and in particular the busy and dangerous Heaslip/Angle Vale roads intersection. Particular problems are apparent on Heaslip and Angle Vale roads because of the mix of local and through traffic and in particular the dangers to students attending the Angle Vale Primary School. Accessibility within the township will therefore be improved by the Expressway.

Analysis of trip distance and time has indicated that access to and from Angle Vale to the centres will remain constant or slightly improve as a result of the Expressway. When accessing Gepps Cross from Angle Vale via the proposed Expressway it is estimated that the distance will be greater but the trip time will be less.

## **1.7 Management**

### **1.7.1 Measures to minimise effects during planning and design**

The consultation on the project will identify concerns for the project's impact which will be specific to communities of interest but more likely will raise matters that will cause worry for

individuals who may need to compromise with an outcome that satisfies the political sensitivities of stakeholders.

It will be necessary to identify the concern, assess its gravity and either discount its impact or produce a design solution. Particular concerns that have been identified and which will need careful treatment or consideration are:

- clear indications, negotiations and compensation in any matters concerning the acquisition of property
- communication as early as possible with people who will be affected by the acquisition of properties with thorough and useful information provided to assist their understanding of the process and to assist them in making decisions for relocation
- accessibility across the Expressway at Macdonald Park particularly for pedestrian/bicycle movements
- access and acquisition impacts on the Gawler Soaring Club land
- accessibility for Virginia and Penfield residents to services in the eastern part of the study area
- accessibility for individual owners who may have commercial operations disrupted by the road alignment, and design measures (access points etc.) that will minimise the impact
- indirect effect of the Expressway of noise, exhaust fumes and appearance on nearby properties. Landscape design, sound mitigation in premises and properly sited mounding/walls will be necessary in certain circumstances.

### **1.7.2 Construction effects and measures to minimise impacts**

Much of the Gawler to Port Wakefield Road section of the Northern Expressway does not follow existing road alignments and can therefore be constructed 'off-line' and staged to minimise impacts. In addition the road traverses open rural land and is for the most part removed from direct contact with well-populated areas. Therefore it is possible to minimise dust and noise effects and traffic disruption. Dust will be an issue in regard to impact on sensitive crops.

The highest risk of adverse effects on the local communities will be:

- in the construction of the interchanges, particularly at Womma/Heaslip roads and Gawler. At these points accessibility during construction will need to be carefully managed
- in traversing certain areas (particularly Penfield, Macdonald Park, east of Angle Vale and the Gawler River/Ward Belt), parcels of land will be severed, roads closed and in some cases crop production will be disrupted. Measures will be required to ensure road closures occur when the alternative routes are in place and production can be moved to other sites to lessen the financial impact on the producer.

The following are suggested as measures to minimise the impact of construction:

- Provide early and clear information to the community about future changes to traffic conditions during construction.

- Provide early and clear information about how the community will be affected after the construction is completed.
- Manage construction phasing and timing to minimise potential noise impacts on residents.
- Manage construction to minimise dust impacts on residents and crops.

### 1.7.3 Post-construction impacts and measures to minimise the impacts

As well as the matters considered in the design and construction phases of the project, the following are considered important in the minimisation of operational impacts:

- Provide early and clear information about how the community will be affected after the construction is completed.
- Emphasise the ongoing advantages of the upgrades particularly in regard to convenience and safety.
- Establish ongoing monitoring of the upgraded road to identify any operational problems.
- Retain the community consultation team for a short period of time following the completion of the roadworks to ensure an informed and skilled group which can relate to the community and assess any operational problems.
- Negotiate with the local communities any measures that could be applied to correct any significant operational issues.

## 1.8 Conclusion

The Gawler to Port Wakefield Road section of the Northern Expressway traverses a significant part of urban/rural fringe of metropolitan Adelaide and in doing so touches or traverses a wide diversity of communities of interest.

The spatial morphology of the area broadly indicates a spine of established urban development to the east of the study area; further west there is a mixture of urban fringe, rural living activities and areas that are undergoing or about to undergo residential land division. Further west again and closer to the Gawler River, there are areas of highly productive horticultural activity with two major township areas of Virginia and Angle Vale.

Whilst there are suburb areas of socio-economic advantage such as Edinburgh, Gawler Belt, Gawler River and Ward Belt, there are also areas such as Smithfield Plains, Davoren Park, Munno Para West and Penfield which rank high in terms of disadvantage and are well below the South Australian average. The overall study area cannot be regarded as an area of advantage and is ranked lower than the State average when measured using the ABS Index of Relative Advantage/Disadvantage (915.7 compared with 973).

Particular social/demographic indicators are significant:

- There is a strong contrast between established suburban and rural areas with an ageing population base and significant new areas of residential development with families buying houses and producing children.
- There are marked differences in ethnic composition across the area, particularly between the urban and rural areas.
- Edinburgh stands out as a particular area generating significant employment and with a small and distinct residential component based on the Defence services.
- Car usage dominates the mode of transport in the more affluent areas but this is reversed in the low socio-economic suburbs. Fewer people travelled to work by bus or train than the State average.
- The employment base of the study area is concentrated in the more affluent suburbs and the rural areas, with high levels of unemployment in Smithfield Plains, Davoren Park and areas close to Gawler.
- The occupational mix for the study area indicates agriculture and manufacturing/transport-related activities being dominant along with clerical, sales and trades. Professional occupations have a low representation.

The study area has a significant and comprehensive social infrastructure with education, health, community, emergency and recreation facilities; however much of this infrastructure is found on the eastern edge of the area in the centres of Gawler, Munno Para, Elizabeth and Salisbury. It therefore becomes critical for the Northern Expressway to allow east–west journeys at critical points along its alignment.

Effects of the Northern Expressway Project on communities and individuals are characterised by:

- land and house acquisition with a total of 79 properties effected upon and accompanying concerns by the owners of those properties
- severance of land parcels and effect on the productive capacity of that land
- effects by the Expressway of noise, fumes and appearance on properties close to the alignment and the sensitivity of residents to these impacts
- accessibility effects across the Expressway alignment, particularly the issue of access to the services provided in the eastern extremity of the study area from the Gawler, Munno Para, Elizabeth and Salisbury centres
- accessibility effects will be of concern in parts of the Macdonald Park/Penfield communities
- A major infrastructure contribution to cater for the high level of continuing residential and industrial land development, urban regeneration and population growth in the study area
- the improvement in accessibility for communities and the more convenient and time saving access to the northern suburbs employment market and the CBD and in particular the provision of a greater level of access for the lower socio-economic suburbs
- the greater accessibility of the study area which will lead to an improvement in the area's attractiveness for future new land development and urban regeneration. This will build on the initiative of the Playford North urban development project, other

future development adjacent to Gawler and the Defence services-related expansion at Edinburgh.

The Port Wakefield Road to Gawler section of the Northern Expressway will require specific management measures at the planning and design, construction and post-construction phases.

At the planning and design stage, it should be possible to alleviate some significant concerns about the effect on individual properties, property acquisition and access both across the route and to certain properties.

At the construction stage, the following need to be considered:

- Whilst the Expressway route does not directly effect upon highly populated communities, it does traverse rural properties and will impact on rural properties by disrupting production, severing some access roads and there is a possible effect on crops if dust is created.
- The construction of the interchanges will create short-term disruptions to traffic and accessibility, particularly when associated with interchanges.
- Managing these disruptions and threats will require clear communication of actions regarding construction, management procedures to address the risks of road closure, crop damage and other externalities.

At the post-construction stage, there will be a need to:

- provide clear information on the operations of the Expressway
- establish ongoing monitoring to identify any operational problems
- retain the consultation team for a short period of time to handle any ongoing issues from the community.





## **2 Port Wakefield Road Upgrade**

### **2.1 Demographic and social profile**

This section discusses the social profile for the study area that surrounds the Port Wakefield Road section of the Northern Expressway route and the effect that the alignment of that route will have on the communities that live within that area.

The study area that is associated with the Port Wakefield Road section of the Northern Expressway route is largely to the west of the Edinburgh/DSTO area and is bounded on its western extremity by the Gulf St Vincent and associated sensitive coastal mangrove areas. It extends from St Kilda/Waterloo Corner roads in the north to the Port River Expressway/Salisbury Highway in the south. The area to the west of Port Wakefield Road has the extensive land use of the Penrice/Cheetham salt crystallisation pans. This land use has no residential population and therefore no social profile within the context of this study.

Section 2.2 is a profile of the socio-economic and demographic characteristics, using 2001 ABS Census data by suburb areas.

Section 2.3 summarises the respective indexes used from the Socio-Economic Indexes for Areas (SEIFA) which provide a summary of the status of the suburb areas and allow their consideration in accord with certain characteristics.

Section 2.4 provides an account of the social infrastructure in the study area, its type and location with particular reference to activity and community centres, and health, education, community, emergency, recreation and public transport services.

Section 2.5 builds on the analysis of socio-economic and demographic characteristics to define the broad communities of interest within the study area.

Section 2.6 provides an overview of the effects of the Port Wakefield Road section of the Northern Expressway and in particular the impact that it will have on accessibility.

Section 2.7 addresses management issues for dealing with the effects on the communities living in the study area at the time of construction and when the Expressway becomes operational.

### **2.2 Socio-economic and demographic profile**

#### **2.2.1 Introduction**

To show differences in characteristics between local communities, the demographic analysis has been carried out at a suburb area level.

The suburb areas have been compiled from Australian Bureau of Statistics (ABS) Collector Districts (CDs) and data analysed is from the 2001 Census. Collector districts are small areas of

approximately 250 to 300 houses. Note that the suburb areas chosen are compiled from the CDs that are the best fit along the proposed route and these 'suburb areas' do not necessarily indicate the full geographical extension of a 'real' suburb. This is particularly true for areas such as St Kilda, Parafield Gardens, Green Fields and Paralowie.

There are six suburb areas making up the analysis for the study area (Table 2.1 and Figure 1.1).

**Table 2.1 Suburb areas and population size, Port Wakefield Road section**

<b>Figure 1.1 Map ref.</b>	<b>Suburb area*</b>	<b>Population of area</b>
13	Bolivar, Globe Derby	666
14	Mawson Lakes	931
15	Parafield Gardens, Green Fields	1,391
16	Paralowie	3,624
17	St Kilda	239
18	Waterloo Corner	163

\* Note suburb areas do not necessarily cover the full geographical extent of the suburb and are a compilation of collector districts.

Source: ABS Census 2001.

## 2.2.2 The suburb areas – description

Bolivar/Globe Derby is an area to the west of Port Wakefield Road which contains a variety of uses including horticultural activities and has a dispersed population in the north with extensive uses such as the Bolivar Sewage Treatment Works and Cheetham Salt harvesting areas. Close to Port Wakefield Road in the central part of the suburb area is a number of commercial activities including a large hotel, caravan park and petrol-filling station. The Globe Derby area is a housing development developed in the 1970s associated with the nearby trotting track which comprises larger housing allotments for horse-keeping activities.

Mawson Lakes is a new suburb area comprising detached housing, retailing, secondary and tertiary level education facilities, and a 'technology park'. Much of the expansion of Mawson Lakes has occurred since the 2001 Census and the true extent of population is not covered in the data presented in this section.

Parafield Gardens/Green Fields directly abuts Port Wakefield Road to the east and comprises mainly detached suburban housing with local retailing and community facilities. These areas were developed from the 1960s and 1970s and infill is still occurring.

Paralowie directly abuts Port Wakefield Road to the East and comprises mainly detached suburban housing, local retailing and community facilities that have largely been constructed within the last 20 years. Infill is still occurring.

St Kilda is a coastal area comprising a coastal town and recreation area with surrounding horticulture. It attracts tourists with a variety of attractions.

Waterloo Corner is an area comprising horticultural broad acre farming and some industrial/storage/commercial activities.

Detailed tabulations and discussion of demography is available in the associated Northern Expressway Socio-economic and Demographic Profile Technical Paper. Below is an overview summary of the key characteristics of the population in the study area.

### **2.2.3 Population**

The study area has a range of age groups and has several suburbs with a significant proportion of children aged 0 to 4. They are found in Parafield Gardens, Paralowie/Green Fields and Mawson Lakes which are expanding, attracting new houses and families. High proportions of older children and youths in the school and training groups (aged 5 to 19) are in Parafield Gardens/Green Fields.

Young adults aged 20 to 29, establishing themselves in work, study and housing are well represented in Mawson Lakes, and the 'house and home' age group (30 to 39) live in Mawson Lakes, Parafield Gardens/Green Fields and Paralowie.

There are pockets of high percentages of people in the age group 40 to 59 in Bolivar/Globe Derby, St Kilda and Waterloo Corner, with aged persons living in Bolivar/Evanston and older settlements in quiet locations – St Kilda, Bolivar/Globe Derby and Waterloo Corner.

Waterloo Corner has a considerable ethnic and language mix, with low percentages of people born in Australia, but high proportions of people born in Greece and Italy. As well, the proportion of Greek and Italian speakers is significantly higher in the area.

Similarly St Kilda has low percentages of people born in Australia and high proportions of people born in Italy and also Vietnam. Parafield Gardens/Green Fields has the largest population born in Vietnam. Vietnamese is a significant language spoken in these two suburbs.

Overall, Parafield Gardens/Green Fields, Paralowie and Waterloo Corner have the largest variety of non-English speaking populations. Buddhism is an important religion in the study area, particularly in Virginia, Parafield Gardens/Green Fields, Paralowie, Penfield and St Kilda. The highest proportion of Catholics live in St Kilda and Waterloo Corner (reflecting the high number of people in these areas with an Italian background).

### **2.2.4 Education**

The whole study area has a lower educational attainment than for the rest of South Australia, with low attainment levels chiefly represented in Waterloo Corner, Bolivar/Globe Derby and St Kilda.

Mawson Lakes has the area's highest proportions of Year 12 and tertiary attainment for postgraduate, bachelor degree, advanced diploma and certificate qualifications.

### **2.2.5 Housing**

The highest proportion of home ownership is in the suburbs of Waterloo Corner, Bolivar/Globe Derby and St Kilda, reflecting the areas of horticultural activity and property ownership associated with those activities.

The suburb areas with the highest proportion of households purchasing a home are the newer suburbs of Paralowie and Mawson Lakes.

There is a high proportion of housing categorised as other dwelling/not stated in Bolivar/Globe Derby which is an area with permanent residents living in caravan parks. This area also has a high percentage of lone person households due to the older population living in the area.

## **2.2.6 Households**

Single person and two-person households are evident in areas with older populations. The suburbs with the highest proportions were St Kilda and Bolivar/Globe Derby.

Three and four-person households were evident in suburbs with a middle-aged population and higher percentages of children or young adults. The suburbs with the highest proportions were Waterloo Corner, Paralowie and Parafield Gardens/Green Fields.

Family households are most evident in areas with particular ethnic groups or where there are younger families such as Waterloo Corner and Mawson Lakes. There is a higher proportion of people living in group housing in St Kilda again because of extended families in ethnic groups such as Vietnamese and Italian.

## **2.2.7 Transport**

Transport is, perhaps, the most important aspect of this report, as the proposed Northern Expressway will emphasise a safe and efficient transport route for road vehicles in this area and will impact on other road and transport networks.

Cars dominate the transport modes for this area and for the State. Going to work as a car driver was the main mode of travel; however Bolivar/Globe Derby, St Kilda and Parafield Gardens/Green Fields have a proportion of the suburb with no cars. These areas can be beset with social issues and isolation for the residents.

The suburb areas with larger percentages of two-car ownership are a mixture of relatively affluent commuter and/or family areas such as Mawson Lakes, Waterloo Corner and Paralowie.

The proportion of households that own two or more vehicles is much higher in the study area compared to the rest of South Australia. These households are in the more isolated and dispersed primary industry-based communities of the study area and may use a variety of vehicles for equine and farm work in Bolivar/Globe Derby and St Kilda.

Travel to work by car is most evident in the commuter suburbs of Parafield Gardens/Green Fields, Paralowie, St Kilda and Mawson Lakes. The proposed Expressway may enable these commuters to travel to work more quickly.

Travel to work by bus or train was most evident in Bolivar/Globe Derby and Mawson Lakes because of direct access to Port Wakefield Road and in the case of Mawson Lakes, proximity to the rail line and railway station.

A large proportion of people in Waterloo Corner and St Kilda worked from home, reflecting the agricultural nature of these communities.

## 2.2.8 Employment and income

Household income can reflect employment and educational status. Mawson Lakes is an affluent suburb, with about 50% of households in the highest and second-highest income levels. Conversely, Waterloo Corner and St Kilda are represented strongly in the less affluent end of the income scale.

Mawson Lakes stands out yet again in this area as the suburb with the highest levels of full-time workers and the lowest unemployment rate, whereas the highest unemployment rates were for St Kilda and Waterloo Corner.

Manufacturing plays an important role in the area with the highest proportion of people employed in this industry from Paralowie and Parafield Gardens/Green Fields.

As expected, the highest percentages of people employed in the agricultural industry live in Waterloo Corner and St Kilda.

The proportion of workers in the higher status occupations is lower than the State average. Mawson Lakes has the highest proportion of professionals as well as advanced and intermediate clerical, sales and service workers which is expected, given the population's higher percentage of tertiary educated persons and its low unemployment rate.

Parafield Gardens/Green Fields contains the highest proportion of elementary clerical workers and tradespersons. Due to the agricultural industry, managers/administrators is a major occupation type in Waterloo Corner.

Production and transport work is another large occupational group in this area. The greatest concentrations can be found in Paralowie and Bolivar/Globe Derby. Similarly, labourers are well represented in St Kilda and Bolivar/Globe Derby.

## 2.3 Socio-Economic Indexes for Areas (SEIFA)

Developed by the ABS and using data derived from the 2001 Census of Population and Housing, SEIFA provide a range of measures to rank areas based on their relative social and economic well-being. The two measures used for the Environmental Report are as follows:

- The Index of Relative Socio-Economic Advantage/Disadvantage. This new index was developed by the ABS at the 2001 Census. It is a continuum of advantage to disadvantage. A higher score on the Index of Relative Socio-Economic Advantage/Disadvantage indicates that an area has attributes such as a relatively high proportion of people with high incomes or a skilled workforce. It also means an area has a low proportion of people with low incomes and relatively few unskilled people in the workforce. Conversely, a low score on the index indicates that an area has a higher proportion of individuals with low incomes, more employees in unskilled occupations, etc. and a low proportion of people with high incomes or in skilled occupations.
- The Index of Relative Socio-Economic Disadvantage is derived from attributes such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage rather than measure specific aspects of disadvantage (e.g., indigenous and separated/divorced). High

scores on the Index of Relative Socio-Economic Disadvantage occur when the area has few families of low income and few people with little training and in unskilled occupations. Low scores on the index occur when the area has many low-income families and people with little training and in unskilled occupations.

Note: It is important to understand that a high score on the Index of Relative Socio-Economic Disadvantage reflects lack of disadvantage rather than high advantage, a subtly different concept.

(See ABS Census *Socio-Economic Indexes for Areas 2001. A comprehensive profile of the Australian people.*)

To maintain consistency with the other indexes, the higher an area's index value for the Index of Relative Socio-Economic Disadvantage, the less disadvantaged that area is compared with other areas. For example, an area that has a Relative Socio-Economic Disadvantage Index value of 1200 is less disadvantaged than an area with an index value of 900.

In the Port Wakefield Road section study area, the indexes show some contrast.

The study area average score for the Index of Relative Advantage/Disadvantage is 925.3 whereas the State average score for the Index of Relative Advantage/Disadvantage is 973. There is no South Australia average for the Index of Relative Disadvantage.

Mawson Lakes' Index of Relative Advantage/Disadvantage score is 1123.5, the highest in the entire study area and high for the northern suburbs as a whole, and its Index of Relative Disadvantage score is 1096.2.

Bolivar/Globe Derby's Index of Relative Advantage/Disadvantage score is 857.7 and its index of Relative Disadvantage score is 904.8.

**Table 2.2 SEIFA indexes' for derived suburb level areas, Port Wakefield Road section**

Derived suburb level areas <sup>(1)</sup>	Index of Advantage/ Disadvantage <sup>(2)</sup>	Rank Advantage/ Disadvantage <sup>(3)</sup>	Index of Disadvantage <sup>(2)</sup>
Study area Port Wakefield Road section (Northern Expressway)	924.4		
Bolivar, Globe Derby Park	857.7	16	904.8
Mawson Lakes	1123.5	1	1096.2
Parafield Gardens, Green Fields	905.3	9	903.1
Paralowie	920.8	8	950.1
St Kilda	884.9	13	942.7
Waterloo Corner	859.7	15	897.0
Study area Total Average	918.9		949.3
South Australian Average	973.0		N/A

(1) The suburb level areas are derived to indicate communities and may not include whole of suburbs. The data has been compiled from CDs that are close to or abutting the proposed Northern Expressway alignment. In the case of Port Wakefield Road because the alignment is in existence, CDs were chosen that directly abutted the road. In this case the suburb area is only a representative part of the broader suburb distinctions of Parafield Gardens, Green Fields, Mawson Lakes and Paralowie. The suburb areas for the new alignment from Port Wakefield Road to Gawler tend to be more extensive because of larger CDs and the need to capture broader characteristics associated with a totally new road alignment.

(2) These indexes have been compiled from individual CDs making up the suburb area and the average taken.

(3) Ranking refers to the entire Northern Expressway route from Salisbury Highway to Gawler. Penfield and St Kilda share a ranking of 13.

Source: ABS 2001 Census.

## 2.4 Social infrastructure

### 2.4.1 Activity centres

The nature of the urban form in the study area has determined that much of the community focus and the provision of facilities is located with retailing activities within activity centres.

At the highest order, in regard to the provision of goods and services, the Adelaide CBD is within 30 minutes of the Port Wakefield Road section of Northern Expressway via the direct route along Main North Road.

Significant retail, commercial and community services are located in the regional centres of Elizabeth and Salisbury Town Centre.

The lower order district, neighbourhood and local activity centres in the study area are all located on the eastern side of the Port Wakefield Road within the established residential areas. Shopping facilities within the study area vary in size and are generally situated at local centres, which also provide services such as convenience stores, food outlets, post offices, cafes and consulting rooms. Local centres are predominantly accessed by motor vehicle, as indicated by the large number of car parks provided, or by foot, if the centre is within walking distance.

The lower order centres in the study area include:

- Settlers Farm: Bolivar Road, Paralowie
- Martin Plaza: Martins Road, Parafield Gardens
- Centro Hollywood Plaza: Hollywood Boulevard, Salisbury Downs
- Mawson Lakes: Mawson Lakes Boulevard, Mawson Lakes.

### 2.4.2 Health

The South Australian Department of Health has developed three primary health care networks to support systems of integrated care and to engage a range of primary health care partners including general practitioners, hospitals, aged care providers and community health services.

From 1 July 2004 three metropolitan regional health boards became fully operational, replacing 12 hospital and health service boards. The three are:

- Central Northern Adelaide Health Service (CNAHS) which established two primary health care networks (western and north/north-east).
- Southern Adelaide Health Service (SAHS) which established the Southern Primary Health Care Network.
- Children's, Youth and Women's Health Service (CYWHS).

Secure broadband connectivity has been completed for 110 general practitioner clinics in the north, north-eastern, western and southern suburbs.

The initial focus of network activity is on improving the coordination of care for people with chronic disease by providing more services and support in the community. Another key focus is

reducing the morbidity associated with uncontrolled chronic disease and controlling the risk factors that are precursors to the development of chronic disease.

The primary health care approach gives a greater focus to the social determinants of health and well-being, addressing health inequalities, health promotion and disease prevention. Primary health care strategies include:

- avoiding people entering the hospital system through early detection and provision of support and treatment outside the hospital setting
- assisting people to leave hospital more quickly with an appropriate level of community support
- preventing people going to hospital through early intervention, health promotion and improved access to services.

The study area is within the CNAHS region and includes a range of health care provision within the area or nearby. In particular this includes:

- Salisbury West Community Health Centre: Hollywood Boulevard, Salisbury Downs
- Europa Medical Centre: Salisbury Highway, Salisbury Downs
- All Health Medical Centre: Waterloo Corner Road, Paralowie
- Parafield Gardens Family Medical Practice: Salisbury Highway, Parafield Gardens
- Salisbury Medical Clinic: John Street, Salisbury
- Trinity Medical Centre: Bagsters Road, Salisbury North
- Northern Women's Community Health Centre: Elizabeth Way, Elizabeth
- Whites Road Medical Centre: Whites Road, Salisbury North.

Dental services are available from the Salisbury Town Centre and the Metropolitan Clinic at Hollywood Boulevard, Salisbury Downs.

The nearest public hospital is the Lyell McEwin Hospital (Haydown Road, Elizabeth Vale), while the Royal Adelaide Hospital (Adelaide), the Women's and Children's Hospital (North Adelaide) and the Queen Elizabeth Hospital at Woodville South are also accessible from the study area.

The Harwin Private Hospital in Frost Road, Salisbury is the nearest private hospital and the other major private hospital is Central Districts Private in Jarvis Road, Elizabeth Vale.

### **2.4.3 Education**

All education facilities within the study area are located on the eastern side of the Port Wakefield Road. Public Reception to 7 schools are located within this area following a principle of neighbourhood location, catering for population areas of approximately 5000 persons and largely based on the school planning that was predominant in South Australia when the study area was expanding over the last 50 years.

The study area has a high representation of private schools with Trinity College and St Columba College offering a significant number of places over a number of campuses.



Secondary schools (Year 8 to 12) have catchments that cover much broader areas and the private colleges in particular draw students from the entire study area and beyond.

The reception and primary schooling occurs at the following school sites:

- Burton: Kensington Way, Burton
- Settlers Farm: Barassi Street, Paralowie
- Paralowie (Reception to Year 7 campus): Whites Road, Paralowie
- Bethany Christian School: Countess Street, Paralowie
- Parafield Gardens (Reception to Year 7): Salisbury Highway, Parafield Gardens
- The Pines: Smith Drive, Parafield Gardens
- Holy Family: Shepherdson Road, Parafield Gardens
- Karrendi Primary: Bradman Road, Parafield Gardens.

Public and private Year 8 to 12 secondary schooling is represented by:

- Paralowie (Year 8 to 12): Whites Road, Paralowie
- Temple Christian College: Countess Street, Paralowie
- Parafield Gardens (Year 8 to 12): Salisbury Highway, Parafield Gardens
- Endeavour College: Mawson Lakes Boulevard, Mawson Lakes
- Thomas More College: Amsterdam Crescent, Salisbury Downs.

The study area has tertiary level education establishments including:

- Regency Institute of TAFE (Salisbury Campus): Wiltshire Street, Salisbury
- University of South Australia, Mawson Lakes Campus: Mawson Lakes Boulevard, Mawson Lakes.

## **2.4.4 Libraries, community centres and meeting places**

The Salisbury Council has provided library services in the study area at John Street, Salisbury; at the Salisbury West Library at Hollywood Boulevard, Salisbury Downs; and at the Mawson Lakes Library in Main Street, Mawson Lakes.

There is an extensive network of neighbourhood houses and community centres within the study area and in particular:

- Burton Park Community House: Waterloo Corner Road, Burton
- Morella Community House: Kings Road, Parafield Gardens.

Child and Youth Health Services are provided at the Primary Health Care Services in Salisbury, and the nearest Child and Family Health Centre is at Settlers Farm in Paralowie, with another located at Salisbury. A Seniors Activity Service and Health Ageing and Access Task Group for the Ageing, and Youth Development program are provided by the City of Salisbury from facilities in the Salisbury Town Centre.

## 2.4.5 Recreation

The study area has a range of passive and active recreation opportunities for both the local community and for the region.

There are significant regional facilities on the western side of Port Wakefield Road and in particular:

- Globe Derby Trotting Track
- St Kilda Adventure Playground
- the St Kilda boat launching ramp/marina
- St Kilda Mangrove Trail
- Northern Adelaide Regional Horse Centre and the Riding for the Disabled Northern Area Centre at Ryans Road, Globe Derby Park
- Salisbury Town Centre which has a number of recreation activities including a cinema complex.

Horse-riding trails are provided along Little Para River on the western side of Port Wakefield Road.

The eastern side of the road contains the major residential development in the study area and these areas are well provided for with passive and active recreation space. These parks range in size and use, and include playgrounds and open space reserves. The study area also contains the Metropolitan Open Space System (MOSS) recreation zone, in the form of Little Para Linear Park along Little Para River, which also includes a walking and cycling track. Access occurs under the Port Wakefield Road bridges.

The study area contains a number of formal recreation bodies occupying ovals and halls. In particular:

- Mawson Lakes Sports Centre: Mawson Lakes Boulevard, Mawson Lakes
- The Palms Mawson Lakes Golf Club: Mawson Lakes Boulevard, Mawson Lakes
- The Gardens Recreation Centre: Kings Road, Parafield Gardens
- North Pines Redbacks Sports and Social Club
- Parafield Gardens Soccer and Sports Club
- Northern Adelaide Regional Sports Centre.

There are a number of social facilities, activities and clubs within the study area, which cater for a variety of cultural and recreational social needs. Recreational groups include St Kilda Boat Club, Parafield Gardens Soccer and Sports Club and St Kilda Sea Scouts Group. The cultural groups include the Cambodian Association, the Greek Macedonian Social Club, and the Serbian Community of SA. The area has several service groups including Paralowie Lions Club, Service Cadets of South Australia and the Combined Probus Club of Salisbury. A number of local clubs and service groups make use of local community places rather than maintaining private clubhouses. As indicated above, the study area, includes the Bagster Community House, Burton Community House, Morella Community House and the St Kilda Community Hall.

## **2.4.6 Emergency services**

### **Fire**

The study area is covered by existing SAMFS fire stations and appliances based at Salisbury (Frost Road), and Elizabeth (Elizabeth Way). In the case of significant emergencies units, can attend from outside this area or can also be supported by the CFS, particularly Two Wells (Old Port Wakefield Road), Virginia (Leach Street) and Salisbury (Wiltshire Street).

The fire services would attend emergencies directly associated with the Northern Expressway responding to road traffic accidents or spillages of toxic materials.

### **Police**

The study area is contained within the South Australian Police NOS. This is responsible for the provision of policing services at the local level.

The NOS in general covers that part of the metropolitan area north of the River Torrens, and the country areas north of Adelaide, providing an operational policing service to a greater proportion of the State.

The NOS is divided into LSAs, the Elizabeth LSA has the coverage of the suburb areas surrounding the Northern Expressway route and would be involved in any road traffic or spillage emergencies associated with the route itself.

The Elizabeth LSA maintains a community policing service which is customer focused and provides a policing response to the Salisbury, Playford, Gawler and Mallala Council areas covering some 1,767 km<sup>2</sup> with 217,051 residents (estimated resident population as at 30/6/2004).

Throughout the LSA, policing services are located at Elizabeth, Salisbury, Two Wells and Mallala Police Stations providing the policing functions of mobile patrols, criminal investigation, traffic, intelligence, crime scene, criminal justice, community programs and victim support services which are there to support and service the needs of the community providing assistance when required.

The Northern Operations Executive is based at the Holden Hill Police Complex and provides additional support to the LSAs in the areas of policing, operations coordination, operations planning, finance, administrative planning, multicultural services and intelligence coordination.

### **Ambulance**

The study area is served by the SAAS, staffed by team of full-time career and volunteer staff, which operates throughout South Australia.

There are two ambulance stations that cover the study area: Salisbury and Playford (Elizabeth).

Paramedics are qualified to deal, not only with everyday call-outs, but also to respond to large-scale emergencies.

SAAS is responsible for its ambulance fleet of 200 vehicles, ambulance equipment, and the education of all its personnel.

SAAS can attend traffic accidents or other emergencies directly associated with the Northern Expressway.

### **2.4.7 Public transport**

Within the study area, public bus routes along Port Wakefield Road are minimal. A service to Globe Derby Park operates on Saturday nights, by way of a detour from the 224 route which links the city to Elizabeth Interchange via Salisbury Highway. The 900 route from Salisbury Interchange to Virginia travels north along Port Wakefield Road from the intersection with Waterloo Corner Road. Intra-state buses travel along Port Wakefield Road and have a regular stop at the Caltex Service Station within the study area.

There is a local public bus route within the residential areas on the eastern side of Port Wakefield Road, and the Adelaide to Gawler rail line is located to the east of the study area. All bus routes within the study area originate at either Mawson Lakes Interchange or Salisbury Interchange, other than the previously mentioned 224 route which travels through the study area from the city to Elizabeth Interchange.

A range of school bus routes exist within the area to service both local schools and schools external to the study area.

## **2.5 Communities of interest within the study area**

The study area associated with the Port Wakefield Road section of the Northern Expressway is largely to the west of the Edinburgh/DSTO area and is bounded on its western extremity by the Gulf St Vincent and associated sensitive coastal mangrove areas. It extends from St Kilda/ Waterloo Corner Road in the north to the Port River Expressway/Salisbury Highway in the south. The area to the west of Port Wakefield Road has the extensive land use of the Penrice/ Cheetham salt crystallisation pans and SA Water Bolivar Wastewater Treatment Plant (WWTP). These land uses have no residential population and therefore no social profile within the context of this study.

The significant communities of interest within the study area are (Figure 1.2):

### **Waterloo Corner – industry and rural areas**

This area is to the eastern side of Port Wakefield Road and west of the Adelaide–Darwin rail line and is bounded by Taylors Road in the north and the suburbs of Burton and Direk in the south. This area consists of scattered farmhouse population with expanding industrial potential in its southern extremity. Agriculture consists of broad acre cropping, olive groves and some horticulture.

### **The eastern side of Port Wakefield Road – established and new residential areas**

Significant urban development in the area north of the Little Para River did not occur until the 1980s and continues through to the present time. The suburb of Paralowie comprises low

density detached housing with retailing at a local, neighbourhood level (Settlers Farm Shopping Centre) and a range of private and public school facilities extending from reception to Year 12.

In the north-eastern part of this area and to the east of Port Wakefield Road are the new expanding urban fringe suburbs of Burton–Direk and the 400-lot estate of 'Springbank Waters'. Much of the growth in this area is post-2001 Census data and is now at a point where the land division since then has almost consumed all available residentially zoned land.

South of the Little Para River this area comprises the suburbs of Parafield Gardens and Green Fields and is bounded on the east by Kings Road and on the south by the Salisbury Highway. The area abuts the Port Wakefield Road in the west. The area comprises a mixture of residential and industrial land with much of the commercial/industrial area fronting the Port Wakefield Road. The area still contains vacant broad acre land with future residential and industrial development potential.

Significant development of this area occurred in the 1950s and the South Australian Housing Trust began the construction of Parafield Gardens in the 1970s. The area has a number of private and public schools and local neighbourhood centres, containing community and retail facilities, including the Parafield Gardens Community Centre, the Gardens Recreation Centre and Martin Plaza Shopping Centre.

## **St Kilda – township and surrounding rural areas**

To the west of Port Wakefield Road there is limited urban development which dates from the mid-1800s when St Kilda became known as a seaside town. St Kilda is a small settlement but attracts visitors to a boat launching ramp and recreational activities including an adventure park, picnic area and mangroves boardwalk. Much of the land in the northern extremities was used for extensive farming in the 1800s but in more recent times has become intensively used for horticultural activities (field crops, greenhouse vegetables and flower cultivation).

## **Bolivar – extensive utility area and commercial activities**

The area of Bolivar includes the SA Water STW, and some commercial and accommodation facilities (the White Horse Inn, Caltex petrol station and the Highway One Caravan and Tourist Park). The caravan park influences the population to the west of Port Wakefield Road and it is noted that this park, as well as holiday and short-stay accommodation, contains some long-stay residents.

## **Globe Derby Park – trotting track and associated residential area**

In the 1970s a trotting track and associated equestrian area were established at Globe Derby Park and this is now the main urban area, comprising 329 residents (Census 2001) on the western side of Port Wakefield Road. There are no major retail, community or schooling facilities in this area and it is somewhat isolated by the boundary caused by Port Wakefield Road.

## **Mawson Lakes – residential area, university and technology park**

This area of community of interest comprises the new suburb of Mawson Lakes with a mixture of residential, retailing, education and research uses.

Much of the southern and eastern part of the area comprises the residential suburb of Mawson Lakes that has provided significant dwelling and population growth over the past ten years, much of this occurring since the 2001 Census. Mawson Lakes comprises a town centre with community and retail facilities, secondary schooling and an annexe of the University of South Australia. The overall growth of the area will be up to 3700 dwellings by 2010.

## **2.6 Effects of the project**

### **2.6.1 Overview**

The roadworks associated with the Port Wakefield Road section of the Northern Expressway are not expected to have dramatic social impact on the study area communities because of the minimum nature of the work within the current road alignment, and little acquisition of privately owned land and buildings. The greatest potential for change comes from the impact on accessibility which is discussed in more detail below and which mainly concerns the need to maintain access from the western side of the Port Wakefield Road to the services of the east and the removal of direct 'convenient' access from some individuals because of the need to improve safety and cater for higher expected traffic volumes.

It is expected that there will be limited effect on communities of interest as these communities have grown up with the existing road forming a barrier.

An overall positive outcome is expected to be the increase in the efficiency of accessing the road at the significant junctions and more convenient and safe access to the employment and community/recreation activities of the areas that are south and north of the study area.

### **2.6.2 Impact on accessibility**

The Port Wakefield Road Upgrade is expected to have some localised impact on the residential and business community in the immediate area of the road and on variation in accessibility both to the road itself and in crossing the road to access activities and services on the other side. Because of the location of Port Wakefield Road much of the retailing, community and educational land uses as with the majority of urban development are to the east of its alignment. Therefore any changes to accessibility caused by the design of the road are likely to impact on the communities to the west of Port Wakefield Road mainly in the St Kilda, Bolivar and Globe Derby areas.

The current major sensitivities for the communities of interest to accessibility that will be impacted upon by any upgrade of Port Wakefield Road are:

#### **Waterloo Corner – industry and rural areas**

Main access to this area from Port Wakefield Road is via the signalised intersection to Waterloo Corner Road. Current access to Waterloo Corner Road via Heaslip Road can suffer from traffic congestion and safety issues, with vehicular access required to and from this area to support horticultural activities.

The existing signalised intersection at Waterloo Corner/Port Wakefield Road will be upgraded. As this area does not rely on a direct access to Port Wakefield Road but instead uses Waterloo Corner and Heaslip Road to feed into Port Wakefield Road, any improvement in the access to Port Wakefield Road via the Waterloo Corner intersection will be of benefit. Any future development of this area into more intensive activities (urban development or industry) may require more refined access to the Northern Expressway and Port Wakefield Road.

## **The eastern side of Port Wakefield Road – established and new residential areas**

The access to both Port Wakefield Road and other primary transport routes for the Burton area is provided via Waterloo Corner Road. The main access to the Paralowie residential area from Port Wakefield Road is via the Bolivar Road signalised intersection. The area includes local centres which will mainly be accessed from within this community of interest. The area includes public junior primary and primary schools, and private secondary schools which will mainly be accessed from within this community of interest. Parafield Gardens has access to Port Wakefield Road via Martins Road, Ryans Road and some limited access through Victoria Drive/Shepherdson Road. The key access to Parafield Gardens in the east is via Salisbury Highway and Kings Road.

The existing signalised intersection at Bolivar Road/Port Wakefield Road will be upgraded. There will be the creation of a new signalised junction at Ryans Road and modification of the uncontrolled junction with Martins Road.

The current right-turn access from Port Wakefield Road into Victoria Drive will be removed and only left turn in/out will be provided. The main access to the area will be via right-turn access from Martins Road in the south or Bolivar Road in the north. This may provide some impact on people in the northern section of Parafield Gardens south from the Little Para River.

The existing median openings opposite Whites Road and between Bolivar Road and Deuter Road will be modified to restrict U-turn movements to southbound and northbound facilities respectively and are considered to have minor impacts on this area.

Overall the effect will be to restrict only one current access point at Victoria Drive and will make access to the area safer and more efficient through the major connections at Bolivar Road, Ryans Road and Martins Road.

## **St Kilda – township and surrounding rural areas**

Vehicular access is required to and from this area to support horticultural activities. Some rural properties currently directly access Port Wakefield Road. There are no local shops, services, schools and facilities: residents and workers are required to travel away from the area to access such services. There is no regular public transport service in this area. This township is reliant on the St Kilda Road/Port Wakefield Road intersection to provide the major point of access. St Kilda has a number of external visitors attending tourism-related and recreational facilities.

Changes on Port Wakefield Road will include restrictions through the median openings by only allowing northbound or southbound U-turns. In the case of the Summer/Jobson intersection only left turn in/out will be allowed. This will involve some traffic travelling north to the first median opening before executing a south U-turn. This is a safer traffic movement option.

The imperative for this area is to allow continued access via the St Kilda/Port Wakefield roads intersection and there are no plans in the Port Wakefield Road upgrade to alter this intersection.

### **Bolivar – extensive utility area and commercial activities**

The Bolivar WWTP access is via Hodgson Road off Port Wakefield Road and this access is generally only by staff, service and visitors (including school, university and interest groups). White Horse Inn is located adjacent to Port Wakefield Road and Hodgson Road. Its location supports the assumption that the majority of patrons will arrive predominantly by private motor vehicle and will include some local people but will also attract through-traffic visitors.

Highway 1 Caravan and Tourist Park provides tourist accommodation and it is understood some long-stay residential accommodation. It has direct access from Port Wakefield Road. The Caltex service station provides some through-traffic convenience services. It is also used as a stopping point to collect passengers travelling on intra-state bus services. It currently has direct access from Port Wakefield Road.

There will be an upgrade of the existing signalised intersection at Port Wakefield Road/ Bolivar Road. Road widening will be required to Port Wakefield Road on its western side but this will not effect on access to the commercial sites or Bolivar WWTP. The deceleration land southbound on Port Wakefield Road into the Caltex Station/Caravan Park will be extended.

The overall effect will be better access to the area via the Bolivar Road intersection and no loss of access to commercial operations in this area.

### **Globe Derby – trotting track and associated residential area**

This area contains a harness racing track that attracts significant traffic peaks involving patrons and entrants attending regular race meetings. The only access to both the harness racing track and residences is from Port Wakefield Road at a few locations (Derby Drive, Daniel Avenue and Ryans Road West). Access is possible by the signalised intersection of Port Wakefield Road and Globe Derby Drive, as well as from two local roads. Some properties within this area currently directly access Port Wakefield Road and currently use the unmade service road alignment for horse training.

Public transport is on Port Wakefield Road but not into the area. Safe and adequate access to this area for horse floats and other vehicles associated with the harness racing industry is important. As no local shops or schools are provided within Globe Derby or anywhere on the western side of Port Wakefield Road, it is important that accessibility is maintained for local residents.

The upgrade will effect on the movement of some trotting horses to Globe Derby Park for training. The existing unsealed service road that connects Daniel Avenue through to Whites Road on the western side of Port Wakefield Road will be formalised to remove direct access to Port Wakefield Road for a limited number of properties that currently do this. The Ryans Road West junction will be formalised, right-turn access off Port Wakefield Road will be restricted and access to the area from the north can be obtained via Globe Derby Drive. The outcome of these changes will be loss of direct access to Port Wakefield Road by a small number of properties, but safer overall road access to the area.



## **Mawson Lakes – residential area, university and technology park**

Residents within the residential areas of Mawson Lakes that are developing west of Salisbury Highway have access to local and regional services to the east via Salisbury Highway and to the shopping activities and facilities at Mawson Lakes. No direct access is currently provided to Port Wakefield Road for this area. The main Mawson Lakes development has local shops and services and is not reliant on Port Wakefield Road to access services or facilities.

It is not expected that the proposed changes to Port Wakefield Road will have any immediate or other effects on Mawson Lakes. Other decisions involving the Mawson Road Connector are not related to these current changes.

## **Overall assessment of community accessibility**

An assessment was carried out on a sample of 19 current and potential travel routes to compare the current accessibility situation in regard to Port Wakefield Road and the future situation following the works associated with a Port Wakefield Road upgrade treatment. The results indicated that the Port Wakefield Road upgrade alignment may require vehicles to travel an extra 21.6% further than they currently do within and throughout the region.

This result is considered to be caused by:

- the closure of certain current median openings
- the works associated with the service road fronting the Globe Derby suburb
- some restrictions on right-turn movements.

It is considered that the community, whilst being subjected to some inconvenience through longer journeys, will overall not be severely impacted on in its access to services (retail, community and education).

There will be a benefit from improvement in safety measures but over time as traffic builds up, this advantage may be lost. The Port Wakefield Road upgrade option does not significantly increase the traffic volume capacity of Port Wakefield Road and therefore continued increases in traffic will most likely exacerbate traffic effects (noise, safety and inconvenience) on the local communities.

## **2.7 Management**

### **2.7.1 Design and construction effects and measures to minimise effects**

The community will be effected upon by some minor land acquisition in relation to the Port Wakefield Road Upgrade and this may cause concerns from individual owners depending on the extent and significance of the acquisition. It is not likely that any housing or buildings will be acquired for the upgrade.

Roadworks will be specific to particular parts of the route at intersections and in the closure of median strip openings. For those residents on the western side of Port Wakefield Road, short-

term delays/restrictions when travelling to services and facilities on the eastern side of Port Wakefield Road may become an issue.

Globe Derby and the St Kilda area in particular, being reliant on all services accessed from the eastern side of Port Wakefield Road, will be sensitive to travel delays/restrictions when travelling to those services and facilities and therefore relatively short and frequent local trips may become more difficult.

Significant delays/bottlenecks may occur if construction coincides with events held at Globe Derby Park as it is understood that peak traffic volumes are typically experienced at these times.

There will be short-term effects on the caravan park, Caltex service station and White Horse Inn and this will influence business activities and cause inconvenience for patrons. It is not expected that this will cause any notable loss of business.

Horticulture in the Waterloo Corner and St Kilda areas may suffer some short-term reduction in air quality, for example, from dust which may effect horticultural production.

Properties currently accessing Port Wakefield Road in the St Kilda and Globe Derby areas will have disruptions to access. In the Globe Derby case, their long-term access direct to the road will be removed and the road reserve will no longer be available for training purposes.

The area to the east of Port Wakefield Road will generally be effected by restrictions at major intersections (Bolivar Road, Waterloo Corner Road, Ryans Road, etc.) at the time of construction. This will inconvenience those traffic movements using Port Wakefield Road particularly at peak travel times.

There will be a potential for confusion for staff and customers when accessing the commercial properties fronting Port Wakefield Road under changed conditions.

The following are suggested as measures to minimise construction effects:

- Provide clear indications, negotiations and compensation in any matters concerning the acquisition of property.
- Communicate as early as possible with people who will be affected by the acquisition of properties and provide thorough and useful information to assist their understanding of the process, and also to assist them in making decisions for relocation.
- Provide early and clear information to the community about future changes to traffic conditions during construction.
- Provide early and clear information about how the community will be affected after the construction is completed.
- Manage construction phasing and timing to minimise noise.
- Manage construction to minimise dust.
- Ensure road design provides access for St Kilda community, Globe Derby Park and other properties on the western side of Port Wakefield Road to facilities and services on the eastern side of Port Wakefield Road.

## **2.7.2 Post-construction impacts and measures to minimise the effects**

There will be some loss of accessibility in the longer term particularly for residents to the west of the road who have a high need for services in the east. It is important to minimise the adverse effect of the road in isolating the western communities and, in particular, school students and frequent users of retail and community facilities.

The overall assessment of any loss of accessibility has indicated an overall 21.6% increase in travel distance caused by the road changes. This has obvious variance in regard to the route travelled and the travel needs of the individuals. This is not considered a major effect and can be offset by the consideration that while convenience has been limited, safety has been improved.

Road intersections will be improved and will assist in travel time and safety particularly for local residents seeking to access the road at the key intersections with Bolivar Road, Waterloo Corner Road and Ryans Road. These intersections are critical for commuter traffic accessing employment opportunities south of the study area.

Access to the Bolivar WWTP, the Caltex Service Station, Whitehorse Inn and caravan park will not undergo significant changes and in the long term will not significantly impact on business or the convenience of access by patrons.

The road changes are designed to improve safety in accessing Port Wakefield Road with reduced opportunity to turn right across the flow of traffic. There are some particular access points that are now available, such as direct access for some properties fronting Globe Derby Park which will be removed and access via Victoria Road for the northern section of Parafield Gardens will be limited. This will be inconvenient for some residents but overall safety will be improved on what will become a busier section of road.

As well as the matters considered in the design and construction phase of the project, the following are considered important in minimising operational impacts:

- Provide early and clear information about how the community will be affected after the construction is completed.
- Emphasise the ongoing advantages of the upgrade particularly in regard to convenience and safety.
- Establish ongoing monitoring of the upgraded road to identify any operational problems.
- Retain the community consultation team for a short period of time (6 to 12 months) following the completion of the roadworks to ensure an informed and skilled group can relate to the community and assess any operational problems.
- Negotiate with the local communities any measures that could be applied to correct any significant operational issues.

## 2.8 Conclusion

The Port Wakefield Road section of the Northern Expressway follows the existing alignment of Port Wakefield Road. Whilst the changes to the road and its various points of access and major intersections will effect the communities that at present are located close to that road overall the effects are considered to be minor.

The spatial morphology of the area broadly indicates that Port Wakefield Road at present is a strong dividing line between suburban populated areas to the east and areas of mixed commercial, horticultural and some residential uses in the west. Most of the services for the western side of the road occur to the east of the road. Ensuring that access to these services is not jeopardised is an important part of the management of the Port Wakefield Road upgrade.

Whilst there are suburb areas of socio-economic advantage such as Mawson Lakes, there are also areas such as Waterloo Corner, Bolivar and Globe Derby which rank high in terms of disadvantage and which are below the South Australian average. The overall study area cannot be regarded as an area of advantage and is ranked lower than the State average when measured using the ABS Index of Relative Advantage/Disadvantage (924.4 compared with 973).

Particular social/demographic indicators which are significant are as follows:

- There is a strong contrast between established suburban and rural areas with an ageing population base and significant new areas of residential development with families buying houses and producing children.
- There are marked differences in ethnic composition across the area with suburbs such as Waterloo Corner and Parafield Gardens/Green Fields having high proportions of non-Australian born population.
- The new housing areas of Mawson Lakes and Paralowie stand out as the home purchasing suburbs and particular housing attributes apply to the western side of Port Wakefield Road at Bolivar because of the caravan park, Globe Derby Park and the dispersed rural areas around St Kilda.
- Car usage dominates as the mode of transport in the more affluent areas but this is reversed in the low socio-economic suburbs. Fewer people travelled to work by bus or train than the State average and this travel is limited to areas with easy access to the Adelaide–Gawler rail line or the more frequent bus routes in the established suburbs.
- The employment base of the study area is concentrated in the more affluent suburbs, particularly Mawson Lakes, with high levels of unemployment in St Kilda and Waterloo Corner.
- Manufacturing plays an important role in the study area with the highest proportion employed in this industry coming from the suburb areas of Paralowie and Parafield Gardens/Green Fields. The proportion of people in the higher status occupations is lower than the State average. The occupational mix for the study area indicates that agriculture and manufacturing/transport-related activities are dominant along with clerical, sales and trades. Professional occupations have a low representation except in Mawson Lakes.

The study area has a comprehensive social infrastructure with education, health, community, emergency and recreation facilities; however almost all this infrastructure is found on the eastern side of the Port Wakefield Road and is located in the suburb areas of Paralowie, Parafield Gardens, Mawson Lakes and in the Salisbury centre. It therefore becomes critical to ensure that the upgrade to the Port Wakefield Road section of the Northern Expressway continues to allow access to these services with minimal levels of disruption.

The effects of the Northern Expressway project on communities and individuals are characterised by:

- a minimum effect on land and house acquisition with the main changes being some minor land acquisition to improve sections of the road alignment
- accessibility effects mainly caused by the creation of a new service road at Globe Derby Park, restrictions involving median closures, and left-turn only access on and off Port Wakefield Road
- minimum effects on commercial areas along Port Wakefield Road, particularly the Bolivar area, where current operations of the hotel, caravan park and petrol filling station are sensitive to access changes
- improvements to the intersections at Waterloo Corner Road, Bolivar Road, Martins Road and Ryans Road will improve the overall capacity and safety of Port Wakefield Road
- improvement in accessibility for communities and more convenient and time-saving access to the northern suburbs employment market and the CBD.

The overall assessment of a sample of 19 current and potential travel routes to compare the current accessibility situation in regard to Port Wakefield Road with the situation that will follow proposed works indicated that vehicles may be required overall to travel 21.6% further. Whilst this registers some disadvantage, it is considered the community will not be severely impacted upon in its access to services and the improvements to safe access to Port Wakefield Road will offset this level of disadvantage.

The improvement to safety will, over time, be offset as traffic continues to build on this part of the Northern Expressway. The Port Wakefield Road upgrade option does not significantly increase the traffic volume capacity of Port Wakefield Road and as such, continued increases in traffic will most likely exacerbate traffic impacts (noise, fumes, safety and inconvenience) on the local communities.

The Port Wakefield Road to Gawler section of the Northern Expressway will require specific management measures at the construction and post-construction phases. In particular:

- At the design/construction stage
  - it will be important to ensure any property acquisitions are properly carried through
  - provide clear communication in regard to traffic disruption caused by roadworks
  - manage construction phases and noise and dust interference
  - ensure short-term disruptions caused by roadworks do not significantly jeopardise the east-west access across Port Wakefield Road.

- At the post-construction stage
  - provide clear communication regarding impacts on the communities of interest near the road after the road is completed
  - emphasise the ongoing advantages for the local communities
  - establish on-going monitoring and retain the community consultation team for a short period of time following completion to ensure appropriate communication in dealing with any operational problems.

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# Attachment A

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## Socio-Economic Analysis

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# List of abbreviations

ABS	Australian Bureau of Statistics
CD	collector district (Australian Bureau of Statistics)
DSTO	Defence Science and Technology Organisation
EIA	environmental impact assessment
GMH	General Motors Holden
SEIFA	Socio-Economic Indexes for Areas

# 1 Introduction

Socio-economic characteristics effected by the Northern Expressway alignment have been analysed in an area which encompasses the geographic region from the coast of Gulf St Vincent in the west to the township of Gawler in the east. The Gawler River forms a natural boundary in the north-west of the area; however, as the Expressway crosses the river in the vicinity of Hillier, an extensive area has been included in Gawler Belt and Ward Belt.

This study area and the suburb areas are detailed in the body of the report.

To show differences in characteristics between local communities, the analysis has been carried out at a suburb level.

The suburb areas have been compiled from Australian Bureau of Statistics (ABS) collector districts (CDs) and data analysed is from the 2001 Census. Collector districts are small areas of approximately 250 to 300 houses. Note that the suburbs chosen are compiled from the CDs that are the best fit along the proposed route and these 'suburb areas' do not necessarily indicate the full geographical extension of a 'real' suburb. This is particularly true for Gawler, and areas such as St Kilda, Parafield Gardens, Green Fields and Paralowie.

There are eighteen suburb areas making up the analysis (see Figure 1.1 and Table 1.1).

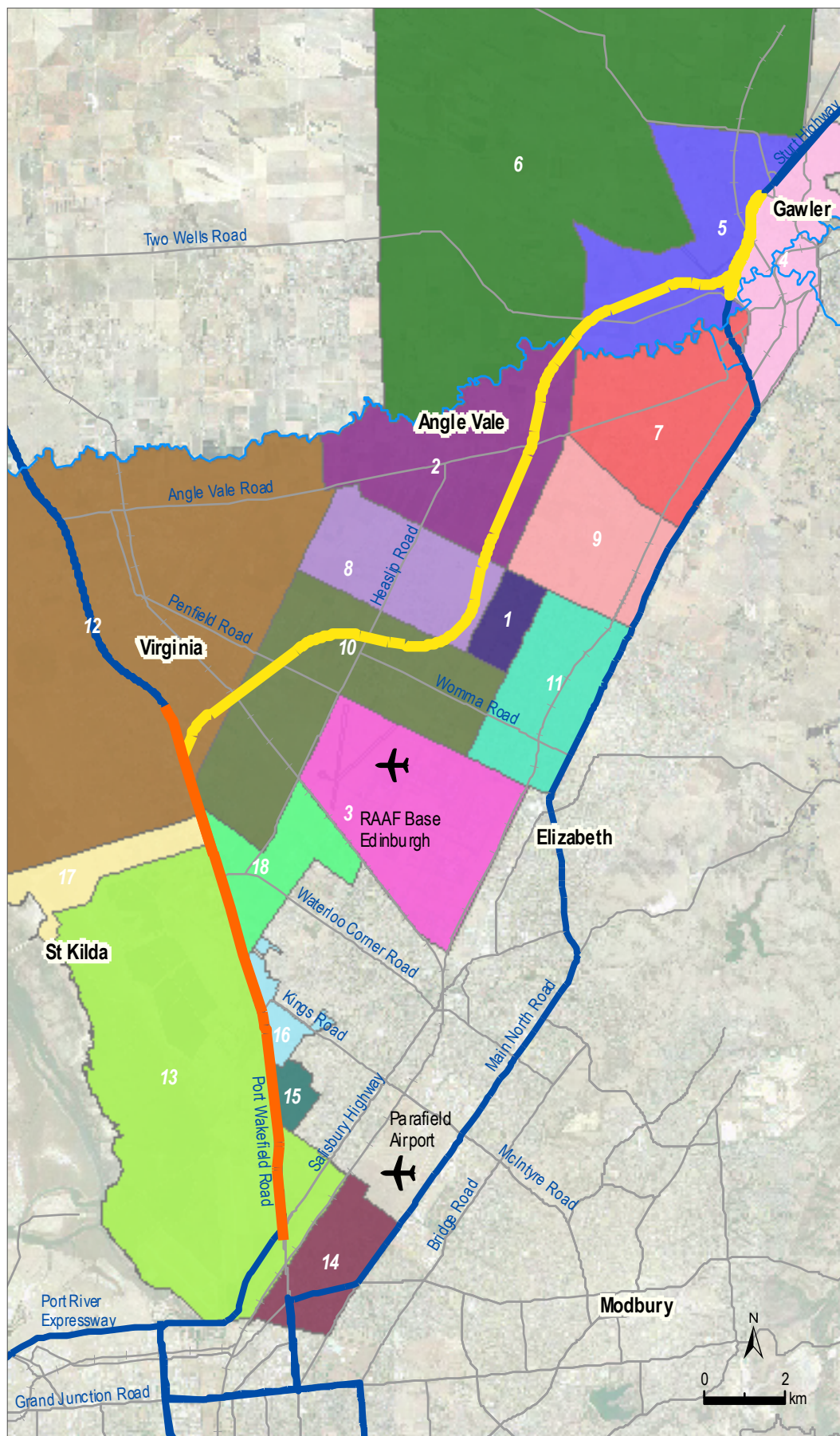
**Table 1.1 Suburb areas and population size**

Suburb area <sup>(1)</sup>	Population of area
<b>Northern Expressway Port Wakefield Road to Gawler section</b>	
Andrews Farm	2,599
Angle Vale	1,765
Edinburgh (DSTO)	443
Evanston, Hillier	1,912
Gawler Belt	1,018
Gawler River, Ward Belt	458
Gawler West, Willaston, Hewett	8,399
Macdonald Park, Penfield Gardens	686
Munno Para West	2,650
Penfield	590
Smithfield Plains, Davoren Park	14,129
Virginia	2,343
<b>Northern Expressway Port Wakefield Road section</b>	
Bolivar, Globe Derby	666
Mawson Lakes	931
Parafield Gardens, Green Fields	1,391
Paralowie	3,624
St Kilda	239
Waterloo Corner	163

*(1) Suburb areas do not necessarily cover the full geographical extent of the suburb and are a compilation of collector districts.  
Source ABS Census 2001.*







Refer Chapter 1 for suburb area identification

Figure 1.1: **ABS suburb areas - study area**  
**Gawler to Salisbury Highway**



## 2 History

The 19<sup>th</sup> Century saw the establishment and growth of places such as Salisbury, Virginia and Gawler on the northern Adelaide plains to service the growing agricultural activities and, in the case of Gawler, a significant industrial base for machinery production. World War Two provided a major expansion in the area based on the production of munitions and training of armed services personnel.

The post-war years saw a rapid population growth of metropolitan Adelaide and the establishment of the new town of Elizabeth. The establishment and growth of manufacturing associated with motor vehicles, metal fabrication and defence meant that the northern suburbs underwent significant suburban expansion, which still continues. The majority of the suburbs in the area are a product of the growth during the last 50 years.

Another major factor influencing the characteristics of the area is the change from extensive grain-based farming to horticulture, which has taken place largely during the past 30 years. The movement of growers, (originally migrants from Southern Europe), from the inner suburbs of Adelaide to the Virginia–Angle Vale area established a significant South Australian horticultural industry. In the last 20 years, new migrants particularly from Vietnam have expanded the industry with consequent investment of significant capital in irrigation and in the processing and value-adding of products.



## 3 The suburb areas – description

For the purposes of this report, the whole study area has been divided into two subregions, Northern Expressway Port Wakefield Road to Gawler section and Northern Expressway Port Wakefield Road section. While the entire study area has many similar characteristics, there are some distinct differences.

### 3.1 Northern Expressway (Port Wakefield Road to Gawler section)

The Northern Expressway Port Wakefield Road to Gawler section area encompasses the following suburbs:

- Andrews Farm is an area of detached housing, begun in the 1980s, stages of which are still being developed.
- Angle Vale is one of the early towns established on the northern Adelaide plains which has been added to by more recent housing development. The town facilities, including retailing and the local Reception–Year 7 school, serve both the town and its hinterland.
- Edinburgh comprises the Defence Services Technology Organisation (DSTO) facilities, the RAAF Base Edinburgh and manufacturing activities associated with defence and motor vehicle components. ‘On base’ defence personnel make up the population in the area.
- Evanston–Hillier is an area on the northern fringe of Adelaide near Gawler comprising suburban detached housing, rural living activities, productive horticultural and viticultural areas, and a caravan park.
- Gawler Belt is a predominantly small holding rural living area with some extensive farming, and a gliding field and trotting track which are both regionally significant.
- Gawler River/Ward Belt is an area to the north of the Gawler River with predominantly extensive farming comprising livestock, cropping and a dispersed farmhouse population.
- Gawler West, Willaston and Hewett includes some of the older and newer suburbs (housing, community, retail and commercial uses) associated with the town of Gawler.
- Macdonald Park and Penfield Gardens largely comprises rural living activities at low population densities and horticultural activities with a dispersed farmhouse population.
- Munno Para West is a mixture of rural living, horticulture and orchard activities and detached houses in suburban areas.
- Penfield is an area with some rural living activities, some Metropolitan Open Space land but mainly comprises horticulture, orchard and viticultural activities with a dispersed farmhouse population.
- Smithfield Plains and Davoren Park are detached and semi-detached housing suburbs with local retail facilities, Reception–Year 7 and Year 8–Year 12 schools. The areas were developed in the 1960s by the South Australian Housing Trust and are earmarked for major urban renewal under the Playford North project.

- Virginia comprises a local rural town on the northern Adelaide plains, with local commercial, retail, education and community facilities, and the horticultural hinterland.

## **3.2 Northern Expressway (Port Wakefield Road section)**

Bolivar/Globe Derby is an area to the west of Port Wakefield Road and contains a variety of uses including horticultural activities, and has a dispersed population in the north with extensive uses such as the Bolivar Wastewater Treatment Plant (WWTP) and Cheetham Salt harvesting areas. Close to Port Wakefield Road in the central part of the suburb area are a number of commercial activities including a large hotel, caravan park and petrol filling station. The Globe Derby area is a housing development developed in the 1970s associated with the nearby trotting track and which comprises larger housing allotments for horse-keeping activities.

Mawson Lakes is a new suburb area comprising detached housing, retailing, secondary and tertiary level education facilities, and a 'technology park'. Much of the expansion of Mawson Lakes has occurred since the 2001 Census and the true extent of population is not covered in the data presented in this section.

Parafield Gardens/Green Fields directly abuts Port Wakefield Road to the east and comprises mainly detached suburban housing with local retailing and community facilities. These areas were developed from the 1960s and 1970s and infill is still occurring.

Paralowie directly abuts Port Wakefield Road to the east and comprises mainly detached suburban housing, local retailing and community facilities that have largely been constructed within the last 20 years. Infill is still occurring.

St Kilda is a coastal area comprising a coastal town and recreation area with surrounding horticulture. It attracts tourists with a variety of attractions.

Waterloo Corner is an area comprising horticultural broad acre farming and some industrial/storage/commercial activities.

## **4 Overview**

Although there are many similarities in the entire study area, particular differences between the Northern Expressway Port Wakefield Road to Gawler section and Port Wakefield Road section areas lend themselves to further analysis and treatment. A brief overview of some of the differences is found below.

More detail can be found in the body of this report.

### **4.1 Highlights Northern Expressway (Port Wakefield Road to Gawler section)**

#### **4.1.1 Population**

The age profile in the area is dominated by the middle-aged and older population. There is not a high percentage of young children or young adults, except in the growing suburb of Andrews Farm where young adults are establishing themselves in work, study and housing.

Edinburgh is a particular case where it has a significant proportion in the 20 to 29 age group. This will increase as the Defence force expands over the next few years.

The more established suburbs around Gawler, such as the Gawler Belt, Gawler West/ Willaston/Hewett and Evanston/Hillier as well as Macdonald Park/Penfield Gardens, Penfield and Virginia, have a significant proportion of residents in the 40 plus age groups. These areas grew significantly in the 1960s and 1970s and now the population is older and established.

As well, there is a significant proportion of aged persons in the established suburbs of Evanston/Hillier, Gawler West/ Willaston/Hewett, Penfield and Virginia.

The ethnic composition of the Northern Expressway Port Wakefield Road to Gawler section area is an important consideration to ensure that all communication and consultation need also to be delivered in languages other than English.

Virginia has a high proportion of people born in Vietnam, Italy and Greece, with significant communities from each. Many of the older members of these communities have been involved in agricultural activities for decades, have limited knowledge of English and may need translator or interpreting services. For example, the proportion of Vietnamese speakers is significant in Virginia and Greek is a significant language in Macdonald Park/Penfield Gardens. Virginia is also home to the largest Khmer-speaking population in South Australia.

Other suburbs with a strong ethnic representation are Macdonald Park/Penfield Gardens, Parafield Gardens/Green Fields, Paralowie, Virginia and Penfield.

Conversely, the areas with the largest Australian-born group are Edinburgh and the Gawler River/Ward Belt areas where there are established farming communities and where English is the dominant language.

Religious practices are tied to ethnicity. There is a large proportion of Buddhists and Catholics in the agricultural areas, reflecting the patterns of migration from Italy and South East Asia.

Evanston/Hillier, Munno Para West, Penfield and Smithfield Plains/Davoren Park contain the highest proportions of the population born in the United Kingdom, and in many of these suburbs, Anglicans are well-represented.

### **4.1.2 Households**

The Northern Expressway Port Wakefield Road to Gawler section area has a great variety of housing tenure and household types. Home ownership is concentrated in the established suburbs of Virginia, Macdonald Park/Penfield Gardens and Penfield.

The suburb areas with the highest proportion of households purchasing a home are the newer suburbs of Andrews Farm and the outskirts of Gawler such as Gawler Belt and Evanston/Hillier.

As expected, there is little home ownership, but a very high proportion of rentals in Edinburgh. Rental accommodation is highly concentrated in the suburb areas of Smithfield Plains/Davoren Park, Evanston/Hillier and Munno Para West. These areas are traditional 'Housing Trust' suburbs, with a long history of public rental tenants. In contrast, a number of areas register very little rental accommodation, notably Macdonald Park/Parafield Gardens and Gawler Belt.

Family households predominate in both South Australia and in the study area, and are predominant in growing suburban areas. They are well represented in Angle Vale, Gawler River/Ward Belt, Gawler Belt, Macdonald Park/Penfield Gardens and Andrews Farm.

There are several suburbs with high proportions of lone person households. The suburbs of Gawler West/Willaston/Hewett and Smithfield Plains/Davoren Park are suburbs where the ageing of the population may account for this occurrence.

A significant proportion of group housing is found in Edinburgh.

### **4.1.3 Transport**

Transport is, perhaps, the most important aspect of this report, as the proposed Northern Expressway will ensure safe and sufficient transport routes for all modes of transport in this area and will impact on every other road and transport network in the State.

Cars dominate the transport modes for this area and for the State. Therefore, suburb areas that have the highest proportion of households with no car are limited in mobility. These areas tend to exhibit low socio-economic status and are Smithfield Plains/Davoren Park—with 43% of houses without cars, Gawler West/Willaston/Hewett and Munno Para West. People in these areas are reliant on other modes of transport or face isolation.

Households with one vehicle were dominant in Evanston/Hillier, Edinburgh and Penfield. Many Edinburgh residents walk to work as they live and work on the Defence base.

The suburb areas with larger percentages of two car ownership are a mixture of relatively affluent commuter and/or family areas such as Andrews Farm, Angle Vale, Gawler Belt and Gawler River/Ward Belt.



The proportion of households that own two or more vehicles is much higher in the study area compared to South Australia. These households are in the more isolated and dispersed primary industry-based communities of the study area and may use a variety of vehicles for farm work – the suburb areas are Virginia, Angle Vale, Gawler Belt, Gawler River/Ward Belt, Macdonald Park and Penfield Gardens.

Travel to work by car is most evident in the 'commuter suburbs' of Andrews Farm, Gawler Belt, Angle Vale and Gawler River/Ward Belt. The proposed expressway may enable these commuters to travel to work more quickly.

Fewer people in the study area than in South Australia travelled to work by bus or train. The only suburbs that had a higher proportion travelling by that mode were Gawler West /Willaston, Smithfield Plains/Davoren Park, Evanston/Hillier and Munno Para West. These are areas well served by the Gawler rail line.

The trend for people to work from home was not particularly evident in the study area; however, a significant proportion of people who live and work at home are in agricultural suburbs such as Virginia and Penfield.

#### **4.1.4 Income**

The study area for Northern Expressway Port Wakefield Road to Gawler section has a wide range of income levels with extremes at both ends of the income spectrum. More affluent suburbs are around the northernmost part of the study area – Gawler Belt, Gawler River/Ward Belt and Angle Vale, where higher household incomes could come from farming or professional employment.

The less affluent suburbs include some of the most disadvantaged areas in South Australia. These include Macdonald Park, Smithfield/Davoren Park, Evanston/Hillier, Penfield and Gawler West/Willaston/Hewett where there may be a considerable proportion of people on pensions and benefits.

The area has a low proportion of people with school or tertiary qualifications.

The highest proportion of school completion or Year 12 attainment is in the suburb area of Edinburgh. However, Year 8 was the highest level of education achieved for 14% of the population in the study area compared to 11% in South Australia.

This generally low level of education varies across the study area, but the suburb areas with the greatest proportion of this low attainment level are Penfield and Virginia.

Suburbs with larger proportions of tertiary attainment were Edinburgh, Gawler Belt, Angle Vale and Gawler River/Ward Belt, which also tend to be the more affluent suburbs.

#### **4.1.5 Employment**

Employment directly impacts on income and possibly car ownership and can be a product of educational attainment. The suburb areas with the highest levels of full-time workers are Edinburgh (influenced by Defence work), Macdonald Park/Penfield Gardens, Virginia and the Gawler Belt. Macdonald Park has many full-time workers, but they tend to be in low paid work.

Part-time work is an increasing trend and the suburbs with a high level of part-time workers are Gawler River/Ward Belt, Angle Vale, Penfield, Gawler Belt and Andrews Farm. Often these workers are females and/or older workers.

Unemployment rates are also dispersed widely in the study area. Smithfield Plains/Davoren Park had an extremely high unemployment rate of 26%, more than three times the South Australia average. Other suburbs with high unemployment were Evanston/Hillier and Gawler West/Willaston/Hewett.

The lowest unemployment rates were for Edinburgh and Angle Vale.

#### **4.1.6 Industry**

Manufacturing and agriculture are the dominant industries. Manufacturing is a large employer in the study area. Employment is concentrated in Andrews Farm, Smithfield Plains/Davoren Park and Munno Para West. Agriculture plays a large role in the area and the suburbs with the highest proportions in the industry are, as expected, Virginia, Gawler River/Ward Belt and Penfield.

As expected, Edinburgh has the highest concentration of government, administration and Defence employment with 89%.

#### **4.1.7 Occupations**

The occupational mix in the area is quite narrow. As farmers and farm managers are classified as managers and administrators, there is naturally a high level in the rural suburbs – Virginia, Penfield and Gawler River/Ward Belt.

Clerical, sales and service occupations are well represented with more workers in advanced and intermediate levels living in Andrews Farm and Macdonald Park/Penfield Gardens, and the elementary level of clerical occupations concentrated in Munno Para West and Smithfield Plains/Davoren Park.

Tradespersons is a major occupation type in the study area. The suburb areas with the highest concentration of this occupation are Edinburgh (due to the Defence industry) and Angle Vale. The study area has a low proportion of professionals. They live mainly in Gawler Belt, Gawler West/Willaston/Hewett, Penfield and Gawler River/Ward Belt.

Production and transport is another large occupational group in this area. The greatest concentrations can be found in Smithfield Plains/Davoren Park, Munno Para West and Andrews Farm. There is a large proportion of labourers in the area which is related to the large amount of manufacturing and process work. The largest proportions of these workers are in Smithfield Plains/Davoren Park.

#### **4.1.8 Socio-Economic Indexes for Areas (SEIFA)**

Developed by the ABS and using data derived from the 2001 Census of Population and Housing, SEIFA provides a range of measures to rank areas based on their relative social and economic well-being. The two measures used for the environmental impact assessment (EIA) are as follows:

- The Index of Relative Socio-Economic Advantage/Disadvantage. This new index was developed by the ABS at the 2001 Census. It is a continuum of advantage to disadvantage. A higher score on the Index of Relative Socio-Economic Advantage/Disadvantage indicates that an area has attributes such as a relatively high proportion of people with high incomes or a skilled workforce. It also means an area has a low proportion of people with low incomes and relatively few unskilled people in the workforce. Conversely, a low score on the index indicates that an area has a higher proportion of individuals with low incomes,

more employees in unskilled occupations, etc. and a low proportion of people with high incomes or in skilled occupations.

- The Index of Relative Socio-Economic Disadvantage is derived from attributes such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage rather than those which measure specific aspects of disadvantage (e.g. indigenous and separated/divorced). High scores on the Index of Relative Socio-Economic Disadvantage occur when the area has few families of low income and few people with little training and in unskilled occupations. Low scores on the index occur when the area has many low-income families and people with little training and in unskilled occupations.

Note: It is important to understand that a high score on the Index of Relative Socio-Economic Disadvantage reflects lack of disadvantage rather than high advantage, a subtly different concept.

(See ABS Census *Socio-Economic Indexes for Areas 2001. A comprehensive profile of the Australian people*)

To maintain consistency with the other indexes, the higher an area's index value for the Index of Relative Socio-Economic Disadvantage, the less disadvantaged that area is compared with other areas. For example, an area that has a Relative Socio-Economic Disadvantage Index value of 1200 is less disadvantaged than an area with an index value of 900.

In the Northern Expressway Port Wakefield Road to Gawler section area, the indexes show an extreme contrast.

The Northern Expressway Port Wakefield Road to Gawler section average for the Index of Relative Advantage/Disadvantage is 915.7, whereas the State average for the Index of Relative Advantage/Disadvantage is 973. There is no South Australian average for the Index of Disadvantage.

Edinburgh's Index of Relative Advantage/Disadvantage is 1013.8 and its Index of Disadvantage is 1006.4.

Smithfield Plains/Davoren Park's Index of Relative Advantage/Disadvantage is 777.4 and its index of Disadvantage is 733.0, the lowest in the entire Northern Expressway Port Wakefield Road to Gawler section and Port Wakefield Road section study area.

## **4.2 Highlights Northern Expressway (Port Wakefield Road section)**

### **4.2.1 Population**

The Northern Expressway Port Wakefield Road section has significant proportions of a range of age groups. The Northern Expressway Port Wakefield Road section area has several suburbs with a significant proportion of children aged 0–4. They are found in Parafield Gardens, Paralowie/Green Fields and Mawson Lakes which are places that are expanding, attracting new houses and families. High proportions of older children and youths in the school and training groups (aged 5–19) are in Parafield Gardens/Green Fields.

Young adults aged 20–29, establishing themselves in work, study and housing, are well represented in Mawson Lakes and the ‘house and home’ age group (30–39) live in Mawson Lakes, Parafield Gardens/Green Fields and Paralowie.

There are pockets of high percentages of people in the age group 40 to 59 in Bolivar/Globe Derby, St Kilda and Waterloo Corner, with aged persons living in Bolivar/Evanston and in older settlements in quiet locations – St Kilda, Bolivar/Globe Derby and Waterloo Corner.

Waterloo Corner has a considerable ethnic and language mix, with a low percentage of people born in Australia, but high proportions of people born in Greece and Italy. As well, the proportion of Greek and Italian speakers is significantly high in the area.

Similarly St Kilda has a low percentage of people born in Australia and high proportions of people born in Italy and also Vietnam. Parafield Gardens/Green Fields has the largest population born in Vietnam. Vietnamese is a significant language spoken in these two suburbs.

Overall, Parafield Gardens/Green Fields, Paralowie and Waterloo Corner have the largest variety of non-English speaking populations.

Buddhism is an important religion in the southern Northern Expressway area, particularly in Virginia, Parafield Gardens/Green Fields, Paralowie, Penfield and St Kilda.

The highest proportion of Catholics live in St Kilda and Waterloo Corner (reflecting the high number of people in these areas with an Italian background).

## **4.2.2 Education**

The whole study area has lower educational attainment than for South Australia, with low attainment levels chiefly represented in Waterloo Corner, Bolivar/Globe Derby and St Kilda.

Mawson Lakes has the area's highest proportions of Year 12 attainment and tertiary attainment for postgraduate, bachelor degree, advanced diploma and certificate qualifications.

## **4.2.3 Housing**

The highest proportion of home ownership is in the suburbs of Waterloo Corner, Bolivar/Globe Derby and St Kilda reflecting the areas of horticultural activity and property ownership associated with those activities.

The suburb areas with the highest proportion of households purchasing a home are the newer suburbs of Paralowie and Mawson Lakes.

There is a high proportion of housing categorised as other dwelling/not stated in Bolivar/Globe Derby which is an area with permanent residents living in caravan parks. This area also has a high percentage of lone person households due to the older population living in the area.

## **4.2.4 Households**

Single person and two person households are evident in areas with older populations. The suburbs with the highest proportions were St Kilda and Bolivar/Globe Derby.

Three and four person households were evident in suburbs with a middle-aged population and higher percentages of children or young adults. The suburbs with the highest proportions were Waterloo Corner, Paralowie and Parafield Gardens/Green Fields.

Family households are most evident in areas with particular ethnic groups or where there are younger families such as Waterloo Corner and Mawson Lakes. There is a higher proportion of people living in group housing in St Kilda again because of extended families in ethnic groups such as Vietnamese and Italian.

#### **4.2.5 Transport**

Transport is an important aspect of this report, as the proposed Northern Expressway will ensure safe and sufficient transport routes for all modes of transport in this area and will effect on every other road and transport network in the State.

Cars dominate the transport modes for this area and for the State. Going to work as a car driver was the main mode of travel. However, Bolivar/Globe Derby, St Kilda and Parafield Gardens/Green Fields have a proportion within the suburb who do not have cars. These areas can be beset with social issues and isolation for the residents.

The suburb areas with larger percentages of two car ownership are a mixture of relatively affluent commuter and/or family areas such as Mawson Lakes, Waterloo Corner and Paralowie.

The proportion of households that own two or more vehicles is much higher in the study area compared to South Australia. These households are in the more isolated and dispersed primary industry-based communities of the study area and may use a variety of vehicles for equine and farm work in Bolivar/Globe Derby and St Kilda.

Travel to work by car is most evident in the 'commuter suburbs' of Parafield Gardens/Green Fields, Paralowie, St Kilda and Mawson Lakes. The proposed expressway may enable these commuters to travel to work more quickly.

Travel to work by bus or train was most evident in Bolivar/Globe Derby and Mawson Lakes.

A large proportion of people in Waterloo Corner and St Kilda worked from home, reflecting the agricultural nature of these communities.

#### **4.2.6 Income**

Household income can reflect employment and educational status. Mawson Lakes is an affluent suburb, with about 50% of households in the highest and second highest income levels. Conversely, Waterloo Corner and St Kilda are represented strongly in the less affluent end of the income scale.

#### **4.2.7 Employment**

Mawson Lakes stands out yet again in this area as the suburb with the highest levels of full-time workers and the lowest unemployment rate, whereas the highest unemployment rates were for St Kilda and Waterloo Corner.

## 4.2.8 Industry

Manufacturing plays an important role in the area with the highest proportion of people employed in this industry from Paralowie and Parafield Gardens/Green Fields.

As expected, the highest percentage of people employed in the agricultural industry live in Waterloo Corner and St Kilda.

## 4.2.9 Occupations

As in the Northern Expressway Port Wakefield Road to Gawler section area, the proportion of workers in the higher status occupations is lower than the State average. Mawson Lakes has the highest proportion of professionals as well as advanced and intermediate clerical, sales and service workers which is expected, given the population's higher percentage of tertiary educated persons and its low unemployment rate.

Parafield Gardens/Green Fields contains the highest population of those working as elementary clerical workers and tradespersons.

Due to the agricultural industry, managers/administrators is a major occupation type in Waterloo Corner.

Production and transport work is another large occupational group in this area. The greatest concentrations can be found in Paralowie and Bolivar/Globe Derby. Similarly, labourers are well represented in St Kilda and Bolivar/Globe Derby.

## 4.2.10 Socio-Economic Indexes for Areas

As set out in Section 4.1.8, using data developed by the ABS which was derived from the 2001 Census of Population and Housing, SEIFA provides a range of measures to rank areas based on their relative social and economic well-being. The two measures used for the EIA are as follows:

- The Index of Relative Socio-Economic Advantage/Disadvantage.
- The Index of Relative Socio-Economic Disadvantage.

In the Northern Expressway Port Wakefield Road section area, the indexes show some contrast.

The Northern Expressway Port Wakefield Road section average for the Index of Relative Advantage/Disadvantage is 925.3 whereas the State average for the Index of Relative Advantage/Disadvantage is 973. There is no South Australian average for the Index of Disadvantage.

Mawson Lakes' Index of Relative Advantage/Disadvantage is 1123.5, the highest in the entire Northern Expressway Port Wakefield Road to Gawler section and Port Wakefield Road section suburb areas, and its Index of Disadvantage is 1096.2.

Bolivar/Globe Derby's Index of Relative Advantage/Disadvantage is 857.7 and its index of Disadvantage is 904.8.

## **5 Demographic/Socio-economic profiles in the study area**

### **5.1 Age**

The age structure in the area (as set out in Table 5.1) is younger than the age structure of South Australia. This is largely a result of the continuing growth of new suburbs and the high incidence of family formation.

The study area has a higher proportion of people compared to South Australia in the:

- 5–19 age group
- 35–49 age group
- 59–74 age group.

The study area has a lower proportion of people compared to South Australia in the following:

- 20–34 age group
- 75+ age group
- The areas with a significantly younger population in the 0–4 age groups are the suburbs that are still expanding with new houses and which attract new families. In particular, these areas are Andrews Farm, Parafield Gardens, Paralowie/Green Fields and Mawson Lakes. It is noted that the majority of Mawson Lakes has been developed since the 2001 Census and that this area now will probably show even greater concentrations of young children. These suburbs will require services and support such as child care and health services particularly focused on young children.
- The older children and youth within the school and training groups (aged 5–19) dominate the overall area and have significant proportions in just about all areas except Bolivar/Globe Derby. The areas with the most significant numbers are in Paralowie, Angle Vale, Andrews Farm, Edinburgh, Parafield Gardens/Green Fields, Gawler River/Ward Belt, Munno Para West and Smithfield/Davoren Park. These areas have been growing over the last 30 to 40 years and are still growing because of new development or urban renewal.
- While the Edinburgh/DSTO area does not contain a large resident population (443) it has a significant concentration of population in the 20–29 age bracket (43%). This is as a result of the armed services associated with the Defence area and RAAF Base Edinburgh. The population of this area will undergo some expansion with the establishment of a new army battalion. This could comprise a total increase in numbers of between 1200 to 1500, plus relocations from other South Australia bases and an electronic warfare initiative (900) bringing the total potential new base personnel up to 2400. The total DSTO/RAAF/Army numbers would be 6300 personnel. While this is a significant increase, it is not likely to be reflected in actual resident population as most personnel will live off base. It is therefore likely that there will be only small increases in the order of 250 extra army staff on base.
- The young adult group (aged 20–29) who are establishing themselves in work, study and housing are well represented in the Mawson Lakes, Paralowie and Andrews Farm areas.

- The age groups representing the 'house and home' establishment years (30–39) are, as expected, roughly similar to those indicating high numbers of children. In this case, the areas are Andrews Farm, Angle Vale, Mawson Lakes, Munno Para West, Parafield Gardens/Green Fields and Paralowie.
- The suburb areas that are now demonstrating a significant number of middle age and persons of pre-retirement age (40–59) are either the suburb areas that underwent significant growth spurts in the 1960s and 1970s or importantly are the rural and rural living fringe such as Bolivar/Globe Derby, Gawler Belt, Macdonald Park/Penfield Gardens, Penfield, St Kilda, Virginia and Waterloo Corner. These areas may hold some important challenges for 'ageing in place' or the sale of properties to the next generation of rural owners. More significantly, those wishing to speculate on changes to land use may present a challenge to the project.
- The ageing population is another significant sector to be impacted upon by the Northern Expressway. Significant parts of the study area have undergone major growth spurts and have been major attractors for retirement with affordable accommodation in caravan parks (Bolivar/Evanston) and older settlements in quiet locations (St Kilda) as well as an ageing rural population. This is reflected in the ageing structure of population in the suburb areas of Bolivar/Globe Derby, Evanston/Hillier, Gawler West/Willaston/Hewett, Penfield, St Kilda, Virginia and Waterloo Corner. The significant needs of members of these ageing communities and, in some cases, their relative isolation from services, will create a major challenge in the future.

**Table 5.1 Age percentage distribution (%)**

Suburb area	0–4	5–19	20–29	30–39	40–49	50–59	60–69	>70	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	12	28	16	21	12	5	4	2	100
Angle Vale	8	29	10	21	15	10	5	2	100
Edinburgh (DSTO)	3	28	43	19	4	2	1	0	100
Evanston, Hillier	4	20	9	12	14	12	15	14	100
Gawler Belt	6	25	9	17	19	11	8	5	100
Gawler River, Ward Belt	8	27	13	17	19	8	6	2	100
Gawler West, Willaston, Hewett	6	21	12	15	15	11	8	12	100
Macdonald Park, Penfield Gardens	7	24	10	13	19	14	7	6	100
Munno Para West	8	27	11	18	15	10	6	5	100
Penfield	3	20	6	10	19	14	17	11	100
Smithfield Plains, Davoren Park	9	27	14	14	11	9	8	8	100
Virginia	6	22	12	14	16	13	11	6	100
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	5	11	9	13	20	19	16	7	100
Mawson Lakes	9	21	17	21	16	11	3	2	100
Parafield Gardens, Green Fields	11	28	14	20	15	7	3	2	100
Paralowie	11	28	17	24	12	4	2	2	100
St Kilda	6	19	11	9	21	13	12	9	100
Waterloo Corner	6	20	8	8	16	18	16	8	100

Source: ABS Census 2001.



## 5.2 Birthplace

A wide variety of overseas-born groups in an area can indicate several things, including the flows of migration into Australia, the housing market and tenure, the participation of certain groups in rural activities as well as historic settlement patterns.

The majority of overseas-born groups living in the study's suburb areas come from Italy, Greece, Vietnam and the United Kingdom (Table 5.2). These key source countries are the same for the total South Australia figures, but there are some differences:

- there is a higher proportion of people born outside Australia living in the suburb areas compared to South Australia
- there are large concentrations of persons born in Greece, Italy and Vietnam compared to the whole of South Australia, which reflects the horticultural activities in the area.

There are also significant variations within the study area, most notably:

- The area with the highest Australian-born group is Edinburgh (89%), and the Gawler River/Ward Belt areas where there are established farming communities. The areas with the lowest proportions of Australian-born people are the suburbs of St Kilda (55%), Virginia, Waterloo Corner and Penfield where predominantly new migrant groups work in horticultural activities.
- Waterloo Corner (13%) and Virginia (6%) have the highest proportion of residents born in Greece. This is significantly higher than the South Australian Greek-born figure (1%).
- St Kilda (13%), Waterloo Corner (7%), Virginia (6%) and Macdonald Park/Penfield Gardens (6%) have the highest proportion of residents born in Italy. This is significantly higher than the South Australian Italian-born figure (2%).
- Evanston/Hillier (18%), Munno Para West (17%), Penfield (15%) and Smithfield Plains/Davoren Park (15%) have the highest proportion of the population born in the United Kingdom. This is significantly higher than the South Australian United Kingdom-born figure (8%).
- Virginia (12%), Parafield Gardens/Green Fields (11%) and St Kilda (8%) have the highest proportion of the population born in Vietnam. This is significantly higher than the South Australia Vietnam-born figure (1%).

The large representation of Greek, Italian and United Kingdom-born residents has been established in the area since the 1950s and 1960s whereas the Vietnamese are more recent arrivals from the 1970s and 1980s.



**Table 5.2 Country of birth by percentage of population**

Suburb area	Aust	Ger	Greek	Ire	Italy	Neth	NZ	Phil	Pol	UK	Viet	Yug	Else- where	Not stated	O/S	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>																
Andrews Farm	77	0	0	0	1	1	1	0	0	13	0	0	2	4	0	2,642
Angle Vale	77	1	0	0	3	0	1	0	0	13	1	0	1	3	0	1,777
Edinburgh (DSTO)	89	0	0	0	0	0	3	0	1	3	0	0	3	1	0	429
Evanston, Hillier	67	1	1	0	4	0	1	0	0	18	1	0	2	4	0	1,902
Gawler Belt	79	1	0	0	2	1	0	0	0	12	0	0	2	3	0	1,004
Gawler River, Ward Belt	83	1	0	0	3	1	1	0	0	9	0	0	1	1	1	467
Gawler West, Willaston, Hewett	78	1	0	0	0	1	1	0	0	12	0	0	2	4	0	7,686
Macdonald Park, Penfield Gardens	67	0	3	0	6	2	1	0	0	10	3	0	2	6	0	684
Munno Para West	70	1	1	1	1	0	1	0	0	17	1	0	2	5	0	2,670
Penfield	57	1	1	1	4	1	1	0	0	15	3	1	9	5	0	590
Smithfield Plains, Davoren Park	71	1	0	0	0	1	1	0	0	15	1	0	3	6	0	13,943
Virginia	57	0	6	0	6	0	0	0	0	7	12	1	4	6	0	2,327
<b>Northern Expressway Port Wakefield Road section</b>																
Bolivar, Globe Derby	76	1	0	0	4	0	1	0	0	7	0	0	3	5	1	682
Mawson Lakes	62	1	0	1	1	0	2	1	1	11	4	0	13	2	1	939
Parafield Gardens, Green Fields	66	1	0	0	1	0	1	0	1	7	11	0	8	4	0	1,391
Paralowie	74	0	0	0	1	0	1	1	1	7	3	1	6	4	0	3,691
St Kilda	55	1	1	1	13	0	0	0	2	10	8	0	4	4	0	239
Waterloo Corner	57	2	13	0	7	2	0	0	0	7	5	0	4	3	0	151
<b>Total South Australia</b>	<b>75</b>	<b>1</b>	<b>1</b>	<b>N/A</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>N/A</b>	<b>0</b>	<b>8</b>	<b>1</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

Source: ABS Census 2001.



## Languages spoken

The percentage of people who speak a language other than English is higher in all the suburb areas of the study area (25%) compared to South Australia overall (12%) (Table 5.3).

Although the proportion of people who speak a language other than English at home is higher than South Australia overall, there are some significant variations across the suburb areas. This is particularly true in areas in the Northern Expressway Port Wakefield Road section region – Virginia (47%), St Kilda (56%) and Waterloo Corner (54%), where only about half the population speak English at home. These are predominantly the rural horticultural areas. This will have a significant bearing on any communication and consultation.

Conversely, English is the dominant language in Edinburgh (95%), Andrews Farm, Gawler Belt and Gawler River/Ward Belt and Gawler West/Willaston/Hewett.

**Table 5.3 Main five languages spoken at home (%)**

Suburb area	English	Italian	Greek	Viet	Khmer	Other	Not stated	O/S visitor	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	94	1	1	0	0	2	2	0	2,620
Angle Vale	90	5	1	1	0	2	1	0	1,772
Edinburgh (DSTO)	95	1	0	0	0	3	1	0	438
Evanston, Hillier	87	5	2	1	0	2	3	0	1,885
Gawler Belt	93	2	1	0	0	2	2	0	1,012
Gawler River, Ward Belt	92	3	0	0	0	1	3	1	466
Gawler West, Willaston, Hewett	94	1	0	0	0	0	5	0	7,656
Macdonald Park, Penfield Gardens	78	8	4	3	0	1	5	1	684
Munno Para West	89	2	1	1	0	3	4	0	2,653
Penfield	69	7	4	6	7	4	3	0	587
Smithfield Plains, Davoren Park	90	1	0	1	0	4	4	0	13,915
Virginia	47	10	10	19	1	8	4	1	2,365
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	85	5	1	1	1	1	5	1	687
Mawson Lakes	75	1	2	5	0	15	1	1	931
Parafield Gardens, Green Fields	67	1	0	16	3	9	4	0	1,383
Paralowie	79	2	1	4	2	8	3	0	3,675
St Kilda	56	20	1	11	0	7	5	0	233
Waterloo Corner	54	13	15	5	2	6	4	0	155

Source: ABS Census 2001.

In South Australia, the main four languages spoken other than English are Greek, Italian, Vietnamese and German. Vietnamese is the most common non-English language in this study area. In South Australia, the main non-English language spoken is Italian.

There are also differences between the suburb areas in languages other than English:

- Italian is the most significant language in St Kilda and Waterloo Corner
- The proportion of Vietnamese speakers is significant in Virginia, Parafield Gardens/Green Fields, and St Kilda
- Greek is a significant language in Macdonald Park/Penfield Gardens and Waterloo Corner
- Penfield is the most significant suburb for people who speak Khmer
- Macdonald Park/Penfield Gardens, Parafield Gardens/Green Fields, Paralowie, Virginia, Waterloo Corner and Penfield have the largest variety of non-English speaking populations.

## 5.4 Religion

Religion can reflect:

- age of the population – the older the population, the more likely people will be affiliated to a religion
- ethnicity of the population of a region.

Table 5.4 sets out comparisons in percentages of persons of the top five ranked religions in the suburb area.

There is a substantially higher proportion of people who are Buddhist in the study area (7%) compared to South Australia overall (1%) which reflects the Vietnamese and Khmer background in the area. This level varied within the study area. The highest Buddhist percentages were in the Southern Northern Expressway area – Virginia (16%), Parafield Gardens/Green Fields (9%) and Paralowie, Penfield, St Kilda (6%).

There is also a higher proportion of Catholics in the region (26% compared to 21% in South Australia). This varies within the study area. The suburb areas with the highest proportion of Catholics were St Kilda and Waterloo Corner (reflecting the high number of people in these areas with an Italian background), and Angle Vale.

The proportion of Anglicans is the same for the study area and South Australia overall (15%), but there is variance across all suburb areas. The major concentrations of Anglicans are in Gawler River/Ward Belt (20%), Bolivar/Globe Derby (19%), Angle Vale (19%), Edinburgh, Penfield, Smithfield Plains/Davoren Park and Munno Para West (all 18%). This would reflect both the age of the settlements and possibly high proportions of migrants from the United Kingdom.

**Table 5.4 Percentage of persons in suburb area in top five ranked religions**

Suburb area	Cath	Angl	Uniting	Luth	Budd	No relig	Other	Inad/not stated	O/S visitor	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>										
Andrews Farm	16	21	6	3	0	29	7	18	0	2,635
Angle Vale	30	19	8	5	1	19	7	12	0	1,773
Edinburgh (DSTO)	25	18	5	2	1	30	10	10	0	448
Evanston, Hillier	20	20	10	5	1	20	12	13	0	1,888
Gawler Belt	22	17	11	7	0	25	8	11	0	1,012
Gawler River, Ward Belt	19	20	14	7	0	21	10	9	1	459
Gawler West, Willaston, Hewett	15	17	12	8	0	24	10	13	0	7,642
Macdonald Park, Penfield Gardens	27	12	7	1	3	19	18	14	0	689
Munno Para West	17	18	5	2	1	29	12	16	0	2,658
Penfield	27	18	9	4	6	13	16	8	0	592
Smithfield Plains, Davoren Park	14	18	6	3	1	31	10	16	0	13,957
Virginia	26	9	6	1	16	10	21	8	0	2,363
<b>Northern Expressway Port Wakefield Road section</b>										
Bolivar, Globe Derby	26	19	14	2	1	16	7	13	1	692
Mawson Lakes	25	12	6	3	3	20	18	11	1	939
Parafield Gardens, Green Fields	27	12	5	3	9	22	9	13	0	1,371
Paralowie	21	11	6	2	6	28	12	12	0	3,672
St Kilda	38	5	6	4	6	16	10	15	0	234
Waterloo Corner	35	9	7	2	2	16	22	7	0	148
<b>Total South Australia</b>	<b>21</b>	<b>15</b>	<b>11</b>	<b>5</b>	<b>1</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

Source: ABS Census 2001.

## 5.5 Housing tenure

The proportion of each type of housing tenure can indicate the following (Table 5.5):

- A concentration of private renters can indicate an area's attraction to young singles and couples.
- Public rental accommodation can indicate significant housing support for lower socio-economic groups.
- A high proportion of homes being purchased indicates the 'mortgage belt' areas.
- Home ownership can indicate the presence of families and older 'empty nester' couples.

- A higher percentage of fully owned homes can indicate the length of settlement in an area and the long tenure of its occupants, e.g. mortgages have been fully paid off.

The overall study area is dominated by homes being purchased followed by fully owned homes. There is very little rental tenure, but some significant concentrations being rented through the public housing authorities.

Comparison of the total study area with South Australia highlights these key differences:

- The study area has a high level of fully owned homes compared to South Australia
- The study area has a lower percentage of rented homes compared to South Australia
- Only 2% of tenure in the study area is housing rented from public housing authorities. This compares to 8% in South Australia.

**Table 5.5 Dwelling structure by tenure type and landlord (%)**

Suburb area	1*	2*	3*	4*	5*	6*	7*	8*	9*
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	13	68	0	13	2	0	0	0	4
Angle Vale	34	55	0	8	0	0	1	0	2
Edinburgh (DSTO)	0	0	0	100	0	0	0	0	0
Evanston, Hillier	36	35	7	14	0	0	0	1	7
Gawler Belt	38	52	0	5	0	0	0	0	5
Gawler River, Ward Belt	35	43	0	13	2	0	0	0	7
Gawler West, Willaston, Hewett	25	29	3	10	4	15	3	6	5
Macdonald Park, Penfield Gardens	49	38	0	7	0	0	0	0	6
Munno Para West	21	43	5	10	1	16	0	1	3
Penfield	48	24	0	10	2	0	0	2	14
Smithfield Plains, Davoren Park	16	21	9	8	7	30	0	3	6
Virginia	55	23	0	12	0	0	0	0	10
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	47	25	0	10	0	0	0	0	18
Mawson Lakes	17	57	0	15	2	4	0	0	5
Parafield Gardens, Green Fields	26	49	5	14	1	0	0	0	5
Paralowie	16	72	0	9	0	0	0	0	3
St Kilda	42	28	0	12	0	3	0	3	12
Waterloo Corner	57	16	0	20	0	0	0	0	7
<b>Total South Australia</b>	<b>40</b>	<b>30</b>	<b>8</b>	<b>17</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

\* 1 Separate house owned

2 Separate house being purchased

3 Separate house rental public sector (South Australian Housing Trust)

4 Separate house rental other/private

5 Semi detached owned/being purchased

6 Semi detached rented

7 Flat unit owned

8 Flat unit rented

9 Other dwelling and not stated

Source: ABS Census 2001.



Notable characteristics for individual suburb areas are:

- The highest proportion of home ownership is in the suburbs of Waterloo Corner, Virginia, Macdonald Park/Penfield Gardens, Penfield, Bolivar/Globe Derby and St Kilda reflecting the areas of horticultural activity and property ownership associated with those activities. It also indicates the importance of home ownership to some cultural groups.
- The lowest proportion of home ownership is in Edinburgh, because RAAF Base Edinburgh accommodation is rental. Other areas that indicate low ownership reflect the other areas of tenure such as purchasing a home or rental, in some particular cases from the public sector.
- The suburb areas with the highest proportion of households purchasing a home are the newer suburbs of Andrews Farm, Paralowie, Mawson Lakes, Gawler Belt and Evanston/Hillier.
- Rental accommodation is highly concentrated in the suburb areas of Smithfield Plains/Davoren Park, Evanston/Hillier and Munno Para West. The form of rental is in detached and semi-detached accommodation from both public and private systems.
- The highest concentration of rental accommodation is in Smithfield Plains/Davoren Park with 46% being rented, 9% of this being detached houses from public housing authorities and a significant 30% being semi-detached housing stock much of which is at least 30 to 40 years old.
- Contrary to this, there are a number of areas that register very little rental accommodation, notably Macdonald Park/Parafield Gardens and Gawler Belt.
- The data indicates high proportions in the other dwelling/not stated category for Bolivar/Globe Derby and Penfield suburb areas and this can be accounted for by the presence of caravan parks (with permanent residents) in these areas.

## 5.6 Household type

The family household is the predominant household type in South Australia as 69% of all households are family, but there is a much higher proportion of family households (80%) in the study area, with (Table 5.6).

Lone person households are less common in the study area (18%) compared to South Australia with 27%. The only exceptions are in Bolivar/Globe Derby (30%) and Gawler West/Willaston/Hewett (31%) and Smithfield Plains/Davoren Park suburbs (28%) where the ageing of the population may account for lone person households.

The suburb areas with the highest proportions of family households are Angle Vale, Gawler River/Ward Belt, Waterloo Corner, Gawler Belt, Mawson Lakes, Macdonald Park/Penfield Gardens and Andrews Farm.

Group housing has some significance in Edinburgh (8%) because of the Defence-style accommodation and St Kilda (7%) perhaps because of extended families in Vietnamese and Italian ethnic groups.

**Table 5.6 Suburb areas by household type (%)**

Suburb area	Family	Lone person	Group	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>				
Andrews Farm	84	13	3	850
Angle Vale	91	8	1	528
Edinburgh (DSTO)	78	14	8	37
Evanston, Hillier	76	23	1	738
Gawler Belt	87	12	1	345
Gawler River, Ward Belt	89	11	0	148
Gawler West, Willaston, Hewett	66	31	2	3,200
Macdonald Park, Penfield Gardens	86	11	3	214
Munno Para West	78	21	1	907
Penfield	76	22	2	226
Smithfield Plains, Davoren Park	69	28	3	5,341
Virginia	76	22	1	804
<b>Northern Expressway Port Wakefield Road section</b>				
Bolivar, Globe Derby	67	30	3	269
Mawson Lakes	86	13	1	314
Parafield Gardens, Green Fields	83	15	2	432
Paralowie	85	12	2	1,144
St Kilda	74	20	7	87
Waterloo Corner	88	12	0	52
<b>Total South Australia</b>	<b>69</b>	<b>27</b>	<b>3</b>	<b>15,636</b>

Source: ABS Census 2001.

## 5.7 Household size

Although two person households are the most common size in both South Australia (35%) and the study area (34%), households in the study area tend to be larger than in South Australia. One-third (33%) of households in the study area have four or more people usually resident. This compares to only 13% in South Australia (Table 5.7).

Notable characteristics for individual suburb areas are as follows:

- The suburb areas with the highest proportion of single person households are Gawler West/Willaston/Hewett, Bolivar/Globe Derby and Smithfield Plains/Davoren Park. This is most probably due to an ageing population in the more settled areas. The caravan parks with retirement population would also be a reason for single person households in Bolivar.
- The suburb areas with the highest proportion of two person households are St Kilda, Evanston/ Hillier, Penfield, Bolivar/Globe Derby and Edinburgh. This could be partly due to a mix of ageing and 'empty nester' couples as well as younger couples with no

children. In fact, Edinburgh has on-base Defence accommodation especially for younger couples.

- The suburb areas with the highest proportion of three person households or higher were in Waterloo Corner, Paralowie, Edinburgh and Parafield Gardens/Green Fields.
- The suburb areas with the highest proportion of four persons or more are more likely to be those families with children and the highest proportions are represented in the growing suburban areas of Andrews Farm, Parafield Gardens/Green Fields, Angle Vale, Paralowie and the fringe suburbs of Gawler.

**Table 5.7 Suburb areas by household size (%)**

Suburb area	1 person	2 person	3 person	4 person	5 person	> 5 person	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>							
Andrews Farm	13	29	18	25	10	5	850
Angle Vale	8	27	17	26	18	4	528
Edinburgh (DSTO)	14	38	22	19	8	0	37
Evanston, Hillier	23	40	13	14	8	2	738
Gawler Belt	12	36	16	23	9	4	345
Gawler River, Ward Belt	11	30	16	24	15	3	148
Gawler West, Willaston, Hewett	31	34	14	14	5	2	3,200
Macdonald Park, Penfield Gardens	11	34	20	20	10	6	214
Munno Para West	21	27	19	19	9	5	907
Penfield	22	40	12	16	7	4	226
Smithfield Plains, Davoren Park	28	32	17	12	6	4	5,341
Virginia	22	32	14	15	9	8	804
<b>Northern Expressway Port Wakefield Road section</b>							
Bolivar, Globe Derby	30	38	13	13	4	3	269
Mawson Lakes	13	37	20	20	9	2	314
Parafield Gardens, Green Fields	15	20	21	28	11	5	432
Paralowie	12	24	22	24	12	6	1,144
St Kilda	20	41	20	9	7	3	87
Waterloo Corner	12	31	28	15	8	6	52
<b>Total South Australia</b>	<b>27</b>	<b>35</b>	<b>15</b>	<b>15</b>	<b>6</b>	<b>2</b>	<b>N/A</b>

Source: ABS Census 2001.

## 5.8 Car ownership

Significant variation is noted across the suburb areas in regard to car ownership and the number of cars per household. Households in the overall study area tend to have more cars per household compared to the rest of South Australia (Table 5.8).

The suburb areas that have the highest proportion of households with no car and therefore which are limited in mobility are again those areas that exhibit low socio-economic status. These areas

are Smithfield Plains/Davoren Park (43%), Gawler West/Willaston/Hewett (28%) and Munno Para West. People in these areas are reliant on other modes of transport or face isolation.

The areas with the highest proportion of households with one vehicle were Evanston/Hillier, Edinburgh and Penfield. These were the only areas where the proportion of households with one car only was greater than the South Australia proportion of 38%. Car ownership for access to services and work within a fringe suburban area is seen to be important. One important concern with the access to one vehicle is the isolation of the other occupants of the house if the car is absent for most of the day at work, unless there is adequate public transport.

**Table 5.8 Suburb areas by car ownership (%)**

Suburb area	None	1	2	>2	Not stated	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>						
Andrews Farm	8	37	46	9	1	235
Angle Vale	2	21	51	26	0	155
Edinburgh (DSTO)	0	50	50	0	0	14
Evanston, Hillier	14	52	23	11	0	287
Gawler Belt	0	18	53	29	0	108
Gawler River, Ward Belt	0	20	50	30	0	46
Gawler West, Willaston, Hewett	28	37	27	8	0	1,286
Macdonald Park, Penfield Gardens	6	17	44	33	0	54
Munno Para West	25	32	32	11	0	322
Penfield	10	42	38	10	0	60
Smithfield Plains, Davoren Park	43	37	15	5	0	2,048
Virginia	10	35	26	28	1	227
<b>Northern Expressway Port Wakefield Road section</b>						
Bolivar, Globe Derby	15	34	29	22	0	78
Mawson Lakes	3	33	54	10	0	103
Parafield Gardens, Green Fields	12	35	40	13	0	112
Paralowie	5	32	52	11	0	326
Waterloo Corner	0	30	70	0	0	10
St Kilda	14	36	36	14	0	22
<b>Total South Australia</b>	<b>5</b>	<b>38</b>	<b>34</b>	<b>13</b>	<b>5</b>	<b>584,042</b>

Source: ABS Census 2001.

This perceived importance is reflected by the proportion of households with two or more than two vehicles in some of the suburb areas.

The proportion of households which own two vehicles for both South Australia and the study area is 34%, but there are significant variances in the study area. Suburb areas with high two car ownership are a mixture of relatively affluent commuter and family areas such as Andrews Farm, Angle Vale, Gawler Belt, Gawler River/Ward Belt, Mawson Lakes and Paralowie. (Note: Edinburgh and Waterloo Corner have a high proportion of two car households but both have small numbers of households and are particular cases).

The proportion of households that own two or more vehicles is much higher in the study area (23%) compared to South Australia overall (13%). The high proportion of households are in the more isolated and dispersed primary industry-based communities of the study area – Virginia, Angle Vale, Gawler Belt, Gawler River/Ward Belt, Macdonald Park and Penfield Gardens.

The high level of car ownership in the study area indicates that there is a high dependency on private forms of transportation – very possible given the limited availability of public transport in the area and the distance to services and facilities as well as the nature of the work in the area. Shift work in the large manufacturing industries is common and some of the work locations are geographically dispersed and not well served by fixed public transport routes.

It can also reflect the size of households and the life-cycle stage of the families living in the area, for example, a high proportion of older children (over 16 years) living in the parental home want a car for independence.

## 5.9 Household income

Household income (Table 5.9) is an important measure of socio-economic well-being. Income in the study area is distributed similarly to South Australia as a whole, although there is a slightly higher concentration of households with incomes in the middle and extremely low income categories in the study area.

The suburbs that are at the extremes of the income pattern are:

- More affluent:
  - Mawson Lakes
  - Gawler Belt
  - Angle Vale
  - Gawler River/Ward Belt.
- Less affluent
  - Macdonald Park
  - Smithfield/Davoren Park
  - Evanston/Hillier
  - Penfield
  - Waterloo Corner
  - Gawler West/Willaston/Hewett
  - St Kilda.

The reasons for these differences may relate to factors such as:

- the age structure of the population as older residents may be on pensions

- the number of employed people in the household. For instance, Angle Vale has a very high proportion of its population in the workforce – this may indicate a high proportion of dual income households
- family/household type where older children may be employed
- the type of industries in which people are employed.

there are also marked differences between suburb areas based on skills and employability of the residents.

**Table 5.9 Suburb areas by household income (\$)**

Suburb area	Negative/ nil	0– 499	500– 999	1000– 1499	1500– 1999	>1999	Partial/ not stated	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>								
Andrews Farm	0	20	42	22	6	1	9	848
Angle Vale	1	16	32	25	13	6	7	527
Edinburgh (DSTO)	0	19	40	13	15	0	12	47
Evanston, Hillier	1	45	28	12	4	2	8	741
Gawler Belt	1	22	29	18	14	5	11	351
Gawler River, Ward Belt	2	22	33	17	13	3	10	156
Gawler West, Willaston, Hewett	0	41	27	14	6	3	9	3,202
Macdonald Park, Penfield Gardens	3	25	30	20	6	4	12	221
Munno Para West	0	38	31	14	6	2	9	913
Penfield	1	43	30	9	8	3	6	227
Smithfield Plains, Davoren Park	0	53	28	7	1	1	10	5,357
Virginia	1	37	26	13	6	4	13	798
<b>Northern Expressway Port Wakefield Road section</b>								
Bolivar, Globe Derby	0	40	33	9	7	3	8	255
Mawson Lakes	1	4	21	31	21	13	9	320
Parafield Gardens, Green Fields	0	27	37	19	5	2	10	434
Paralowie	0	17	39	25	8	2	9	1,133
St Kilda	0	41	33	13	0	3	10	86
Waterloo Corner	0	42	28	16	6	0	8	50
<b>Total South Australia</b>	<b>1</b>	<b>33</b>	<b>28</b>	<b>16</b>	<b>8</b>	<b>5</b>	<b>9</b>	<b>567,074</b>

Source: ABS Census 2001.

## 5.10 Education and skills

### 5.10.1 Attendance at primary and secondary education

The proportion of the population attending primary school is similar in the study area (12%) and South Australia overall (10%). The proportion of the population attending secondary schools is similar in the study area (7%) and South Australia (6%).

A lower proportion of people living in the study area (3%) are attending TAFE, university or other tertiary institutions compared to South Australia overall (6%).

Although the proportion of the population that attends secondary or primary school in the study area is similar to South Australia overall, there is a difference in the distribution of those students among the different types of facilities – government, Catholic and non-government. As expected, the attendance at government primary schools is high in both the study area and South Australia, but attendance at Catholic and non-government schools is much higher in the study area, reflecting the success of some of the local schools such as Trinity and Xavier and the high proportion of Catholics.

### **5.10.2 Highest level of school education achieved**

The level of school education achieved (Table 5.10) is important as level of literacy skills influences a person's ability to access services and information and provides the basis for employability, career path, and income as well as general life choices. It is observed that the level of education achieved in the study area is much lower than the education level achieved in South Australia.

Only 23% of the population in the overall study area completed Year 12 compared to 34% in South Australia.

The highest proportion of school completion or Year 12 attainment is in the suburb areas of Edinburgh (63%) and Mawson Lakes (51%). In the case of Edinburgh the DSTO and Defence facilities would account for the high level of attainment but the total numbers are small. Mawson Lakes is a new, affluent suburb likely to contain a more professional population. This is borne out by Table 5.11 indicating tertiary level qualifications which shows that Mawson Lakes and Edinburgh have high levels of tertiary qualifications.

There is a significant gap between the levels of school attainment for these two suburb areas compared to the neighbouring suburbs of Paralowie and Parafield Gardens/Green Fields, both of which have less than 30% of the population who attained Year 12.

Year 8 was the highest level of education achieved for 14% of the population in the study area compared to 11% in South Australia.

This low level of education varies across the study area. In particular the suburb areas with the greatest proportion of this low attainment level are Waterloo Corner (27%), Penfield (19%), Bolivar/Globe Derby (19%), St Kilda (18%) and Virginia (18%). It is noted that these areas have a variety of factors that can contribute to this result including ethnicity, an aged population and the area's industries.

**Table 5.10 Suburb areas by highest level of primary and secondary schooling completed**

Suburb area	Less than Year 9	Year 9 or equiv	Year 10 or equiv	Year 11 or equiv	Year 12 or equiv	Still at school	Did not go to school	Not stated	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	4	9	26	28	25	3	1	4	1,759
Angle Vale	7	8	24	25	26	5	1	4	1,256
Edinburgh (DSTO)	1	1	16	18	63	0	0	1	417
Evanston, Hillier	14	11	22	21	21	4	1	6	1,541
Gawler Belt	9	7	25	23	27	5	1	4	760
Gawler River, Ward Belt	9	7	21	26	31	6	0	1	330
Gawler West, Willaston, Hewett	13	9	22	20	25	3	0	7	6,057
Macdonald Park, Penfield Gardens	14	8	21	20	25	5	2	5	532
Munno Para West	9	10	28	22	19	5	1	6	1,920
Penfield	19	9	20	15	22	4	4	7	505
Smithfield Plains, Davoren Park	12	12	25	18	18	4	1	10	10,255
Virginia	18	8	18	15	23	4	6	8	1,875
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	19	9	25	17	19	3	1	7	604
Mawson Lakes	4	4	14	19	51	3	1	4	726
Parafield Gardens, Green Fields	7	8	18	24	28	5	4	6	949
Paralowie	6	6	22	26	29	4	3	4	2,479
St Kilda	18	12	19	15	16	3	5	12	194
Waterloo Corner	27	10	18	11	19	0	5	10	125
<b>Total South Australia</b>	<b>11</b>	<b>7</b>	<b>19</b>	<b>19</b>	<b>34</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>1,171,734</b>

Source: ABS Census 2001.

### 5.10.3 Highest level of tertiary qualifications

The percentage of people living in the study area who have tertiary level qualifications (Table 5.11) is significantly lower than South Australia as a whole. A total of 70% of people in the study area do not have any tertiary qualifications compared to 58% in South Australia.

The proportion of people who hold a certificate is similar in both the study area (15%) and South Australia (16%). The main difference is in the group who hold a bachelor degree or higher. Only 3% of those in the study area hold a bachelor degree or higher compared to 11% in South Australia overall.

The suburb areas with the highest levels of:

- tertiary attainment – postgraduate and bachelor degree qualifications are Mawson Lakes, Gawler River/Ward Belt, Gawler Belt and Waterloo Corner.
- tertiary attainment – advanced diploma and certificate qualifications are Mawson Lakes, Edinburgh, Gawler Belt and Angle Vale.



**Table 5.11 Suburb areas by tertiary qualifications (persons 15 or over)**

Suburb area	Postgrad degree	Diploma/cert	Bach degree	Advanced diploma	Cert	Not stated	Not applicable	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>								
Andrews Farm	0	0	2	3	18	7	70	1,759
Angle Vale	0	1	3	4	20	6	66	1,255
Edinburgh (DSTO)	0	1	5	8	31	4	51	409
Evanston, Hillier	0	0	3	3	15	9	70	1,543
Gawler Belt	1	1	6	5	20	9	58	759
Gawler River, Ward Belt	2	0	6	6	16	5	65	335
Gawler West, Willaston, Hewett	0	1	5	4	16	10	64	6048
Macdonald Park, Penfield Gardens	0	0	3	3	14	10	70	526
Munno Para West	0	0	2	3	15	8	72	1,920
Penfield	1	0	2	3	13	10	71	507
Smithfield Plains, Davoren Park	0	0	1	2	11	11	75	10,243
Virginia	0	0	2	3	13	9	73	1,874
<b>Northern Expressway Port Wakefield Road section</b>								
Bolivar, Globe Derby	0	0	1	2	16	10	71	606
Mawson Lakes	3	0	13	11	16	7	50	724
Parafield Gardens, Green Fields	0	0	3	4	14	9	70	946
Paralowie	0	0	3	3	18	8	68	2,469
St Kilda	0	0	2	3	14	9	72	192
Waterloo Corner	0	0	6	0	12	13	69	123
<b>Total South Australia</b>								

Source: ABS Census 2001.

## 5.11 Employment

Employment growth, the skilling of the workforce and the school to work transition are major issues in the study area. Employment participation in the study area is similar to the State as a whole, but there are significant and concerning differences across the suburb areas in unemployment. The northern metropolitan area of Adelaide and in particular the study area has a significant proportion of South Australia's manufacturing and retail industry and this is reflected in the industries and the occupations of the workforce.

### 5.11.1 Employment status

There is a similar proportion in the labour force (Table 5.12) between the total study area (56%) and South Australia overall (59%). There is also a similar proportion of part-time workers between the study area and South Australia.

The suburb areas with the highest levels of full-time workers are:

- Edinburgh (influenced by Defence services)
- Mawson Lakes
- Macdonald Park/Penfield Gardens
- Virginia
- Gawler Belt.

The suburb areas with the highest level of part-time workers are:

- Gawler River/Ward Belt
- Angle Vale
- Penfield
- Gawler Belt
- Andrews Farm.

**Table 5.12 Suburb areas by employment status**

Suburb area	Total employment full-time	Total employment part-time	Total employment not stated	Total unemployed	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>					
Andrews Farm	57	33	2	8	1,189
Angle Vale	57	35	3	5	905
Edinburgh (DSTO)	85	10	1	4	381
Evanston, Hillier	53	31	4	11	689
Gawler Belt	60	33	1	6	497
Gawler River, Ward Belt	56	35	1	7	234
Gawler West, Willaston, Hewett	57	32	2	10	3,198
Macdonald Park, Penfield Gardens	63	30	1	6	307
Munno Para West	51	32	4	12	1,070
Penfield	53	34	4	9	270
Smithfield Plains, Davoren Park	41	29	3	26	4,365
Virginia	61	25	5	9	1,032
<b>Northern Expressway Port Wakefield Road section</b>					
Bolivar, Globe Derby	57	28	4	12	336
Mawson Lakes	67	25	3	5	555
Parafield Gardens, Green Fields	53	31	7	9	607
Paralowie	59	30	4	8	1,772
St Kilda	48	24	9	19	100
Waterloo Corner	49	24	4	23	72
<b>Total South Australia</b>	<b>58</b>	<b>32</b>	<b>2</b>	<b>8</b>	<b>1,171,734</b>

Source: ABS Census 2001.

High levels of part-time employment in some of the areas could be the result of double income families with one member working part-time or it might be due to fewer opportunities in an area's industry.

While unemployment in the study area (10%) was higher than for South Australia overall (8%), there were variations between the suburb areas.

The highest unemployment rates were for:

- Smithfield Plains/Davoren Park (26%), three times the overall South Australian rate
- St Kilda
- Waterloo Corner.

The suburbs with the lowest unemployment rate were:

- Edinburgh
- Angle Vale
- Mawson Lakes.

### 5.11.2 Industry of employment

The main employing industry (Table 5.13) in both the study area and South Australia is the wholesale and retail industry, which employs 20% of the population. The concentration of workers in this sector is fairly evenly spread across all of the suburb areas. However, Edinburgh's main industry is Defence services and Gawler River/Ward Belt and Waterloo Corner have a high proportion employed in agriculture.

The retail complexes at Elizabeth and Munno Para function as major regional centres for the northern region and provide a significant proportion of retail employment. There are also significant transport and storage premises with wholesaling activities in northern Adelaide.

The study area also has 17% of its population working in manufacturing. This reflects the northern and north-western Adelaide regions' role as the major areas of manufacturing activity as 70% of South Australia's manufacturing input comes from the northern Adelaide region. The operation of General Motors Holden (GMH) at Elizabeth and many other major manufacturing industries within the council areas of Playford, Salisbury and Port Adelaide/Enfield reinforce the importance of this sector. Manufacturing employment is concentrated in the suburb areas of Andrews Farm, Paralowie, Parafield Gardens/Green Fields, Smithfield Plains/Davoren Park and Munno Para West.

The agricultural and mining industry employs 9% of the working population for the study area. This is higher than South Australia where only 6% of people are employed in this industry. Agriculture, particularly horticulture, floriculture and associated packing activities, is a significant and expanding industry. The suburb areas with the highest proportions in the industry are the rural areas of Virginia, Waterloo Corner, Gawler River/Ward Belt, St Kilda and Penfield.

Employment in education, health and community services is not a significant industry for workers in the region as it employs only 6%, significantly lower than the South Australia figure of 18%.

As expected, Edinburgh has the highest concentration of government, administration and Defence employment (89%).

**Table 5.13 Suburb areas by top seven industry employment activities (employed person excl. overseas visitors) (%)**

Suburb area	1*	2*	3*	4*	5*	6*	7*	Other not stated	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	2	29	4	22	7	5	8	22	1,085
Angle Vale	9	18	6	27	6	3	6	24	864
Edinburgh (DSTO)	0	3	2	4	1	89	0	1	344
Evanston, Hillier	7	16	7	25	6	4	10	24	672
Gawler Belt	5	16	11	23	8	4	10	24	481
Gawler River, Ward Belt	25	18	6	5	7	1	4	23	213
Gawler West, Willaston, Hewett	4	19	6	21	8	5	10	27	2,909
Macdonald Park, Penfield Gardens	9	17	10	27	4	4	6	23	299
Munno Para West	5	23	6	23	6	4	9	24	942
Penfield	17	16	5	26	6	0	6	25	215
Smithfield Plains, Davoren Park	3	28	5	22	8	3	7	23	3,197
Virginia	28	10	3	27	4	1	4	23	921
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	4	17	4	24	5	2	4	42	337
Mawson Lakes	1	14	7	19	11	10	11	28	512
Parafield Gardens, Green Fields	2	27	6	26	7	3	10	18	516
Paralowie	1	28	6	22	6	2	9	26	1,654
St Kilda	19	19	10	24	0	0	5	24	63
Waterloo Corner	30	4	4	13	0	4	4	39	69
<b>Total South Australia</b>	<b>6</b>	<b>15</b>	<b>6</b>	<b>20</b>	<b>N/A</b>	<b>4</b>	<b>18</b>	<b>N/A</b>	<b>N/A</b>

\* 1 Agriculture and forestry

2 Manufacturing

3 Construction

4 Wholesale and retail

5 Property and business services

6 Government administration and Defence

7 Education, health and community services

Source: ABS Census 2001.

### 5.11.3 Occupation

The main occupations (Table 5.14) in the study area are clerical, sales and service categories (24%) and tradespersons (16%). In comparison, South Australia's main occupational groups are professionals and associate professionals as well as the clerical, sales and service categories (both with 29%).

The clerical, sales and service occupations are well represented in the study area. The advanced and intermediate level of this occupation are concentrated in the more affluent suburb areas of Mawson Lakes, Andrews Farm and Macdonald Park/Penfield Gardens and the elementary level of clerical occupation is concentrated in Parafield Gardens/Green Fields, Munno Para West and Smithfield Plains/Davoren Park.

Tradespersons is a major occupation type in the study area. The suburb areas with the highest concentration of this occupation are Edinburgh (68% because of Defence services personnel), Parafield Gardens/Green Fields and Angle Vale.

**Table 5.14 Suburb areas by occupation by employment (employed persons excl. overseas)**

Suburb area	1*	2*	3*	4*	5*	6*	7*	8*	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>									
Andrews Farm	4	12	14	21	17	10	20	1	1,112
Angle Vale	11	19	17	18	13	10	10	2	872
Edinburgh (DSTO)	1	19	68	6	1	2	4	0	338
Evanston, Hillier	5	18	16	18	15	10	15	3	596
Gawler Belt	9	26	15	19	9	9	11	2	481
Gawler River, Ward Belt	22	20	11	16	12	6	10	1	209
Gawler West, Willaston, Hewett	6	23	14	18	11	10	15	2	2,976
Macdonald Park, Penfield Gardens	18	13	12	21	15	7	10	4	311
Munno Para West	6	14	16	17	17	12	16	2	915
Penfield	22	20	11	13	15	9	10	1	235
Smithfield Plains, Davoren Park	2	10	13	15	20	12	26	2	3,235
Virginia	35	12	10	14	10	7	11	2	963
<b>Northern Expressway Port Wakefield Road section</b>									
Bolivar, Globe Derby	4	18	12	14	17	9	20	5	276
Mawson Lakes	12	37	9	25	5	7	3	3	538
Parafield Gardens, Green Fields	5	16	18	14	11	13	18	5	558
Paralowie	6	13	15	19	18	10	16	3	1,649
St Kilda	19	11	11	15	16	0	19	10	63
Waterloo Corner	39	12	11	12	11	6	11	0	54
<b>Total South Australia</b>	<b>9</b>	<b>29</b>	<b>12</b>	<b>N/A</b>	<b>8</b>	<b>N/A</b>	<b>11</b>	<b>2</b>	<b>635,325</b>

\* 1 Managers and administrators

2 Professionals and associate professionals

3 Tradespersons

4 Clerical sales and service (advanced and intermediate)

5 Production and transport

6 Clerical and sales (elementary)

7 Labourers

8 Inadequately described and not stated.

Note: the South Australia data combines all clerical, listed as 29%.

Source: ABS Census 2001.

The total study area has a high level of managers and administrators (13%) compared with South Australia as a whole. The reason is the high level of people who own and manage farms, who are classified as managers and administrators. There are high proportions of this group in Waterloo Corner, Virginia, Penfield and Gawler River/Ward Belt.

The study area has a very low proportion of professionals (8%). They are mainly found in Mawson Lakes, Gawler Belt, Gawler West/Willaston/Hewett, Penfield and Gawler River/Ward Belt.

The study area has a higher proportion of those employed working in the production and transport area than South Australia as a whole with 13% of employed people compared to 8% for South Australia. The suburb areas with the greatest concentrations are Smithfield Plains/Davoren Park, Paralowie, Munno Para West, Bolivar/Globe Derby and Andrews Farm.

The proportion of labourers in the study area is higher than South Australia and relates to major industry activity such as manufacturing, process work, horse training and agistment, and agriculture/horticulture which have low skills and socio-economic status. Suburb areas such as Smithfield Plains/Davoren Park and St Kilda, Bolivar/Globe Derby are well represented in this classification.

## **5.12 Method of travel to work**

Like the rest of South Australia, travel in a car as the driver was the main form of travel to work. The car driver category dominates the study area with proportions over 60% for all areas (with the exception of Edinburgh). The highest usage areas were the 'commuter suburbs' of Parafield Gardens/Green Fields, Andrews Farm, Gawler Belt, Angle Vale and Gawler River/Ward Belt.

A significantly larger proportion of people living in the study area worked from home compared to South Australia overall (9% in the study area and 5% in South Australia). The number of people who live and work on farms in the study area may explain this difference, particularly in areas like Virginia (15%), Penfield (10%) and Waterloo Corner (9%).

Other differences compared to South Australia as a whole include:

- More people walked to work in the study area (7% compared to 3.4% in South Australia). This may be related to the employment in local agriculture and the impact of Edinburgh. Edinburgh has a high incidence of walking to work (42%) because of on-base accommodation of Defence services personnel.
- More people travelled to work by truck in the study area (4% compared to 1% in South Australia), which is related to local employment type and agricultural activities.
- Fewer people travelled to work by bus or train in the study area than in South Australia (2% compared to 4%). The only suburbs within the study area that had a higher proportion travelling by that mode were Gawler West/Willaston, Smithfield Plains/Davoren Park, Evanston/Hillier, Mawson Lakes and Munno Para West.
- The differences may be related to their proximity to the Gawler train line, and to some extent, motor vehicle ownership. The other suburbs in the study area have limited public transport opportunities, particularly for travel that is not focused on rail stations or the Adelaide CBD.

The majority (78%) of people in South Australia and the study area used only one method of transport to travel to work (Tables 5.15 and 5.16).

**Table 5.15 Suburb areas by method of travel to work (single transport mode) of all those who worked away from home**

Suburb area	Bus/ train	Car/ driver	Car/ passenger	Truck	Walked	Bike/ motorbike	Other	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>								
Andrews Farm	2	86	7	2	1	2	0	842
Angle Vale	1	83	8	4	3	0	1	666
Edinburgh (DSTO)	1	31	3	0	42	6	17	319
Evanston, Hillier	6	79	7	4	3	1	0	459
Gawler Belt	2	85	5	5	1	1	1	351
Gawler River, Ward Belt	0	83	4	4	6	0	3	144
Gawler West, Willaston, Hewett	7	79	8	2	3	1	0	2,302
Macdonald Park, Penfield Gardens	1	76	8	7	5	1	2	212
Munno Para West	4	81	9	3	2	0	1	732
Penfield	0	77	6	5	10	0	2	165
Smithfield Plains, Davoren Park	7	73	13	2	3	2	0	2,527
Virginia	0	72	4	7	15	0	2	634
<b>Northern Expressway Port Wakefield Road section</b>								
Bolivar, Globe Derby	5	76	10	2	6	1	0	251
Mawson Lakes	5	83	8	1	2	1	0	434
Parafield Gardens, Green Fields	1	91	6	2	0	0	0	451
Paralowie	1	87	7	2	1	2	0	1,317
St Kilda	0	76	10	7	7	0	0	58
Waterloo Corner	0	68	0	15	9	0	8	34
<b>Total South Australia</b>	<b>4</b>	<b>62</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

Source: ABS Census 2001.

**Table 5.16 Suburb areas by total travelled to work and worked from home**

Suburb area	Travelled to work all modes	Worked from home	Did not go to work	Not stated	Total
<b>Northern Expressway Port Wakefield Road to Gawler section</b>					
Andrews Farm	80	1	18	1	1,095
Angle Vale	80	7	12	1	860
Edinburgh (DSTO)	94	2	3	1	351
Evanston, Hillier	77	5	14	4	620
Gawler Belt	77	5	16	2	477
Gawler River, Ward Belt	69	17	13	1	216
Gawler West, Willaston, Hewett	82	3	14	1	2,908
Macdonald Park, Penfield Gardens	72	15	13	0	302
Munno Para West	81	3	14	2	933
Penfield	70	18	8	4	239
Smithfield Plains, Davoren Park	83	1	14	2	3,183
Virginia	71	20	7	2	913
<b>Northern Expressway Port Wakefield Road section</b>					
Bolivar, Globe Derby	82	5	10	3	312
Mawson Lakes	86	2	11	1	518
Parafield Gardens, Green Fields	84	3	11	2	558
Paralowie	84	1	14	1	1,637
St Kilda	80	16	4	0	73
Waterloo Corner	61	31	6	0	54
<b>Total South Australia</b>	<b>81</b>	<b>5</b>	<b>12</b>	<b>2</b>	<b>N/A</b>

Source: ABS Census 2001.

## 5.13 Socio-Economic Indexes for Areas

As set out in Section 4.1.8, using data developed by the ABS derived from the 2001 Census of Population and Housing, SEIFA provides a range of measures to rank areas based on their relative social and economic well-being. The two measures used for the EIA are as follows:

- The Index of Relative Socio-Economic Advantage/Disadvantage.
- The Index of Relative Socio-Economic Disadvantage.

The SEIFA index scores for suburb areas that relate to the Northern Expressway route are shown in Table 5.17.



**Table 5.17 SEIFA Indexes of Relative Socio-Economic Advantage/Disadvantage and Relative Socio-Economic Disadvantage for derived suburb level areas**

Derived suburb level areas*	Index of Advantage/Disadvantage**	Rank Advantage/Disadvantage	Index of Disadvantage**
<b>Northern Expressway Port Wakefield Road to Gawler section</b>	915.7		
Andrews Farm	902.5	11	941.6
Angle Vale	950.8	5	1001.8
Edinburgh (DSTO)	1013.8	2	1006.4
Evanston, Hillier	889.6	12	947.3
Gawler Belt	981.1	3	1040.6
Gawler River, Ward Belt	968.7	4	1019.8
Gawler, Gawler West, Willaston, Hewett	920.9	7	933.4
Macdonald Park, Penfield Gardens	924.4	6	995.6
Munno Para West	870.0	14	878.1
Penfield	884.9	13	942.7
Smithfield Plains, Davoren Park	777.4	17	733.0
Virginia	904.3	10	953.6
<b>Northern Expressway Port Wakefield Road section</b>			
Bolivar, Globe Derby	857.7	16	904.8
Mawson Lakes	1123.5	1	1096.2
Parafield Gardens, Green Fields	905.3	9	903.1
Paralowie	920.8	8	950.1
St Kilda	884.9	13	942.7
Waterloo Corner	859.7	15	897.0
<b>Study area total average</b>	<b>918.9</b>		<b>949.3</b>
<b>South Australian average</b>	<b>973</b>		<b>N/A</b>

\* The suburb level areas are derived to indicate communities and may not include whole of suburbs. The data has been compiled from CDs that are close to or abutting the proposed Northern Expressway alignment. In the case of Port Wakefield Road because the alignment is in existence, CDs were chosen that directly abutted the road. In this case the suburb area is only a representative part of the broader suburb distinctions of Parafield Gardens, Green Fields, Mawson Lakes and Paralowie. The suburb areas for the new alignment from Port Wakefield Road to Gawler tend to be more extensive because of larger CDs and the need to capture broader characteristics associated with a totally new road alignment.

\*\* These indexes have been compiled from individual CDs making up the suburb area and the average taken.

Source ABS 2001 Census.

The table indicates that the average Relative Advantage/Disadvantage index score for all suburb areas in the study area is 918.9 compared with the South Australian average of 973. This reinforces the relatively disadvantaged nature of Adelaide's northern suburbs. In particular, observation of the overall nature of the suburb areas indicates that only Mawson Lakes, Edinburgh and the Gawler Belt exceed the South Australian average.

The results emphasise some of the very sensitive socio-economic factors governing this part of metropolitan Adelaide and the need to take care in providing both community and physical infrastructure that enhances rather than exacerbates existing disadvantage.

It is important to highlight the positive effects of the project and the benefits it will bring to the entire community.

The Index of Relative Advantage/Disadvantage scores range from Smithfield Plains/Davoren Park area (777.4) to Mawson Lakes (1123.5).

Analysis of the upper quartile (25%) of the index in the area indicates that the major areas of relative advantage are Mawson Lakes, Edinburgh, Gawler Belt, Gawler River/Ward Belt and Angle Vale.

- Mawson Lakes is a relatively new housing development built around significant community infrastructure in the form of university and technical industries, schooling, and recreational, retail and commercial facilities.
- The result for Edinburgh is not considered a significant indication as it is mainly comprised of major Defence and research activities and technical support industries for the motor vehicle industry and the resident population size in this area is small.
- Gawler Belt and the Gawler River/Ward Belt areas are on Adelaide's northern fringe and are involved in rural activities, including horticulture, animal keeping and viticulture. The Gawler Belt is more involved in low density, rural living activities.
- Angle Vale is a local township on the northern Adelaide plains, separated from the northern suburbs with its own local shopping and primary schooling, and with a significant commuter population.

Analysis of the lower quartile of the Index of Relative Advantage/Disadvantage indicates that the areas of relative disadvantage are Smithfield Plains/Davoren Park, Bolivar/Globe Derby, Waterloo Corner, Munno Para West and Penfield.

- The low index for Smithfield Plains/Davoren Park is among the lowest in Australia and this is an area of significant dysfunction and disadvantage. The Index of Disadvantage indicates a similar result with a score of 733.0.
- Bolivar/Globe Derby is a very extensive area and while its score overall is low it is noted that the advantage/disadvantage scores for the CDs that make up this area vary between 777 and 907 with the lowest area being adjacent to the Port Wakefield Road. This covers an area that includes the Bolivar Caravan Park with the highest being the area directly around Globe Derby Park trotting track.
- Waterloo Corner does not contain a large population and is mainly a rural area with some industrial and commercial activity fronting Port Wakefield and Heaslip roads.
- While the average Relative Advantage/Disadvantage score for Munno Para West is 870, the range is between 806 and 953. The extensive areas of public housing are in the low range and the rural fringe areas are higher.
- Penfield is a rural area traversed by the Northern Expressway alignment. The area has a low score which may be accounted for by the number of small farm holdings and rural living areas, and an ageing farming population.

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