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CENTRE FOR ECONOMIC STUDIES
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The Gross Economic Impact of the Proposed Angas Zinc Mine on the Strathalbyn Economy

Final Report

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PO BOX 125, RUNDLE MALL, SOUTH AUSTRALIA 5000
PHONE (+61-8) 8303 5555 FAX (+61-8) 8232 5307
FOURTH FLOOR, LIGERTWOOD BUILDING, UNIVERSITY OF ADELAIDE

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This report was prepared by the following researchers:

Jim Hancock, Deputy Director
Anthony Kosturjak, Senior Research Economist
Edwin Dewan, Research Economist
Michael O'Neil, Director

Executive Summary

Terramin Australia is currently seeking approval for the establishment of the Angas Zinc Mine near the rural town of Strathalbyn, located approximately 60 kilometres south of Adelaide. Terramin has commissioned the South Australian Centre for Economic Studies to estimate the gross economic impact of the proposed mine on the wider Strathalbyn economy.

The final feasibility study estimates that the mine will produce 319,000 tonnes of zinc concentrate and 122,300 tonnes of lead-copper over its seven-year life span. This life span may be extended if further drilling reveals additional reserves in the area.

The Strathalbyn economy is to a significant extent dependent on agricultural activities and the spending by Strathalbyn residents of incomes earned outside Strathalbyn (e.g., by people who work in Adelaide). There is little other mining activity in the region. The mine therefore has the potential to diversify the economic base of the region.

The Angas Zinc Mine is estimated to directly employ an average of 63 persons per annum and directly generate $25 million in gross regional product per annum within Strathalbyn over the eight-year life of the mine (including the construction phase) – refer Table E.1. If one also takes into account the downstream production activity generated within the Strathalbyn economy by the mine (i.e., by the chain of Strathalbyn businesses that directly or indirectly provide supplies to the mine), then the "production impacts" of Angas Zinc Mine are estimated to be 84 jobs per annum and $27 million per annum in gross regional product. If the additional activity that is generated by household spending is also taken into account, then the "total impacts" of Angas Zinc Mine are estimated to be 103 jobs per annum and $29 million per annum in gross regional product.

Table E.1
Summary of Estimated Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy, Average Annual Impact

	Direct AZM Impact	Production impact	Total impact
Employment (FTE)	63	84	103
Gross Regional Product ($m)	25.0	26.7	29.0

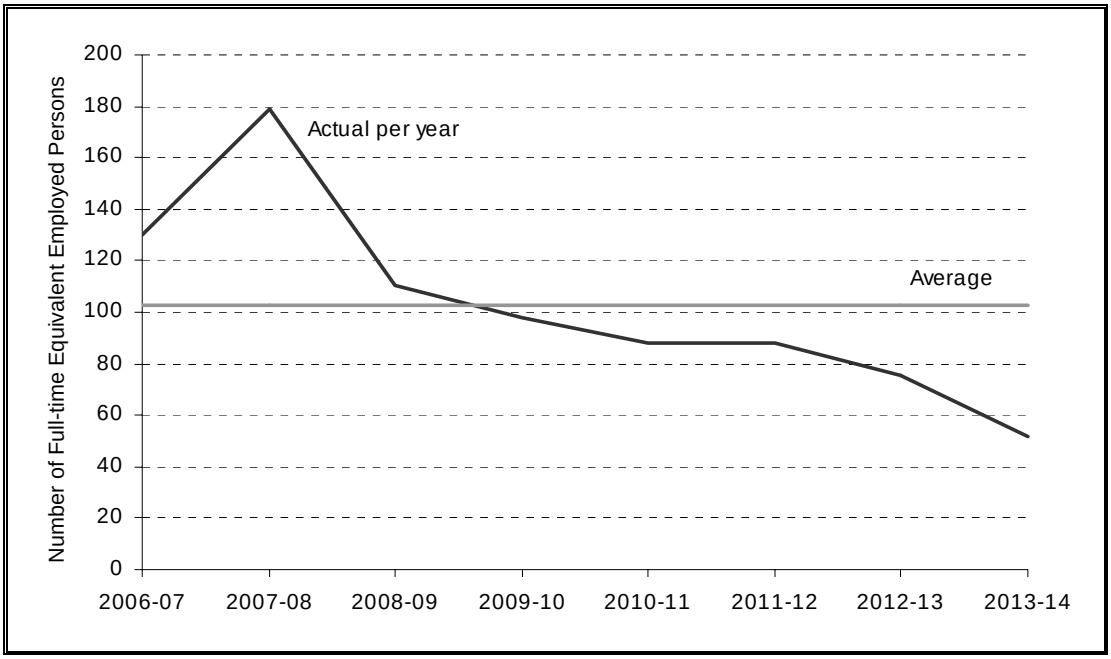
Figure E.1 shows the estimated annual impact of the mine on employment over the eight-year construction and production phase of the mine. Total annual employment generated by the mine is expected to peak in 2007-08 (at 179 jobs), when the bulk of capital expenditure (i.e., construction) takes place and the mine commences operation. The total impacts of the mine on regional employment are expected to diminish over time as the mineral resources are depleted.

It is estimated that there were approximately 3,200 people employed in Strathalbyn in 2005 (with about 2,300 of them living in Strathalbyn). With the Angas Zinc Mine estimated to be associated with a total of 103 jobs per annum in the region, the mine thus has the potential to boost labour demand in Strathalbyn by approximately 3 per cent.

It is possible that there will be resource constraints, particularly in the short-term, such as difficulties recruiting skilled labour. One possible consequence is the displacement of other activities in Strathalbyn. However, a much more likely scenario is that resources in short supply locally will be drawn in from outside the region. The rationale for this view is that

Strathalbyn is a small part of a much broader labour market. Strathalbyn employment accounts for less than 1 per cent of employment in the greater Adelaide area. There is therefore considerable scope to satisfy labour needs that cannot be met locally by drawing in workers from out of the region, either as non-residents that commute to Strathalbyn for work, or as people that decide to re-locate to Strathalbyn. Census data indicates that 29 per cent of the Strathalbyn workforce already commutes from outside the region. Thus, while it is possible that the mine will draw resources away from existing economic activity within the region, we do not anticipate that this would be on a major scale.

Figure E.1
Total Regional Employment Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy



1. Introduction

Terramin Australia is currently seeking approval for the establishment of the Angas Zinc Mine near the rural town of Strathalbyn, located approximately 60 kilometres south of Adelaide. Terramin has commissioned the South Australian Centre for Economic Studies to estimate the gross economic impact of the proposed mine on the wider Strathalbyn economy.

The Angas Zinc Mine will be located approximately 2km outside of Strathalbyn. The final feasibility study estimates that the mine will produce 319,000 tonnes of zinc concentrate and 122,300 tonnes of lead-copper over its seven-year life span. This life span may be extended if further drilling reveals additional reserves in the area.

The Strathalbyn economy is to a significant extent dependent on agricultural activities and the spending by Strathalbyn residents of incomes earned outside Strathalbyn (e.g., by people who work in Adelaide). There is little other mining activity in the region. The mine therefore has the potential to diversify the economic base of the region.

This report assesses the impact on the Strathalbyn economy of a scenario in which the Angas Zinc Mine boosts local employment and incomes via its purchase of local goods and services and hiring of locally resident labour. It is important to understand that our model is a model of the economic consequences of income flows in the Strathalbyn region. It is not an environmental model and we have no expertise to make environmental assessments. The scenario that we have modelled, which was provided to us by Terramin, embodies the assumption that there are not negative environmental consequences from the mine for the local economy. We are not qualified to offer a judgment about the validity of this assumption.

The remainder of the report is structured as follows. Section 2 describes the methodology used to undertake the economic impact analysis, including some of the limitations associated with the input-output modelling process adopted. Section 3 summarises the results of the economic impact analysis. The final section presents a brief economic profile of the region which helps to place the mine development within the context of the existing Strathalbyn economy.

2. Methodology and Approach

2.1 Methodology

The methodology employed involves estimating the total direct and indirect employment and gross regional product arising from expenditures on the operation and construction of the proposed Angas Zinc Mine (AZM).

The calculations have been carried out using data from a range of sources including the Department of Trade and Economic Development's 2002-2003 input-output table for the "Outer Adelaide" economy, the Australian Bureau of Statistics (ABS) and Terramin.[1]

An input-output table is a mathematical description of the purchase and supply linkages by which the sectors of an economy are related. It presents a breakdown of the economy into a number of sectors. Data for each sector indicates what inputs the sector uses (to produce output in the case of producing sectors; for consumption in the case of "consumer" sectors), and what sectors producers sell their output to. The input-output table approach is described in further detail by way of example in Box 2.1.[2]

Box 2.1
Input-output Table

The intuition of the input-output approach is best illustrated by example. Suppose Terramin spends $100 on supplies from a Strathalbyn based supplier. That supplier then uses the $100 to purchase inputs from "primary" and "intermediate" suppliers. "Primary" suppliers are Strathalbyn workers, providers of capital, the government sector in respect of indirect taxation and out-of-Strathalbyn providers of goods and services (i.e., import suppliers). Primary income payments therefore are labour compensation, profits, indirect taxes (net of subsidies) and imports. The supplier also purchases inputs from intermediate suppliers, which by and large are business enterprises. Payments to those business enterprises then flow to primary incomes and other intermediate suppliers. And this process carries on repeatedly, with ultimately all of the payments flowing to primary factors. The input-output table lets us trace through and aggregate the chain of impacts.

The employment to output ratios in the tables have been adjusted to allow for inflation from 2002-03 to 2006-07. This involves discounting the published multipliers by about 16 per cent. The discounting factor is based on an estimate of the rate of labour cost inflation over this period. This adjustment enables a more accurate assessment of the employment impact of the mine when it is constructed and commences operation, which is currently expected to be in early 2007.

The input-output table for Outer Adelaide was modified by incorporating the elements of AZM as separate industry sectors within the table. Additional sectors were incorporated to capture the impact of the mine's annual production and investment activity, and the direct labour activity associated with these two sectors. This was done using information provided by Terramin on the expected cost structure and direct employment of its production and investment activity. This required, among other things, estimation of the pattern of Terramin input expenditures across supplying industry sectors.

[1] Department of Trade and Economic Development (2005), *18 Sector Transactions Table for Outer Adelaide*, electronic file (Excel).

[2] For information about the structure of the national input-output tables and how they are developed, see ABS (2000), *Australian System of National Accounts: Concepts, Sources and Methods*, Cat. No. 5216.0. Available: http://abs.gov.au/

Some forms of final demand (i.e., capital expenditure, household consumption and government spending) were treated as being influenced by the industrial linkages within the input-output system rather than being dependent upon external influences. This treatment is considered to be more realistic as capital expenditure, household consumption and government spending all depend to some extent on the aggregate size and/or structure of the local economy. For example, an increase in the aggregate size of the workforce would tend to increase the aggregate local population and therefore various forms of government spending (i.e., health services, education services, law and order, infrastructure etc).

The modified Outer Adelaide input-output table was then transformed to derive input-output multipliers for the Angas Zinc Mine. The concept of the input-output multiplier is described in Box 2.2.

The multipliers were then combined with annual production, labour and capital expenditure data to estimate the direct and indirect impacts of the Angas Zinc Mine on the Strathalbyn economy, in terms of the employment and gross regional product created.

Box 2.2
Input-output multipliers

An increase in the output of one industry will typically have consequences for the outputs of other sectors via induced demands for inputs. A multiplier measures the total change across all sectors of the economy arising from a unit change in the final demand for the output of an industry. Multipliers can be constructed for a range for economic variables, such as income and employment, according to one's interest.

The total impact of an output change is composed of production and consumption impacts. The production impact is the impact of the initial expenditure traced through the chain of intermediate good usage. However, no allowance is made for the expenditure of primary incomes. The second, with a broader coverage, encompasses production and "consumption" impacts. The consumption impact arises when primary factors − e.g. households in receipt of wage income − spend the incomes that they receive. The DTED tables describe this combined production and consumption impact as a "total impact". Multipliers can be derived to measure both the production impact and total impact of a one-unit change in the final demand for an industry's product.

2.2 Limitations of the Model

There are some important limitations associated with input-output models that should be considered when interpreting the results of the input-output analysis.

Firstly, in the absence of a better alternative, the input-output model is based on data that would only approximate the actual industrial linkages in the Strathalbyn economy. In reality no input-output table is available for Strathalbyn, and instead the Outer Adelaide table has been used to proxy the Strathalbyn economic structure. Moreover, the Outer Adelaide table was compiled from estimates which are themselves subject to measurement error. In addition, the Outer Adelaide data are now four years out of date.

Secondly, it is assumed that the industrial structure of the extant regional economy remains unchanged by the assumed economic shock (i.e., Angas Zinc Mine) applied to the economy. In reality, an increase in demand for the output of an industry sector may lead that sector to

change its pattern of intermediate and primary input usage (e.g., introducing new capital equipment, technology etc). Allowance could be made for any such effects but, as there is no strong indication of their size, this has not been done.

Thirdly, the model assumes there are no supply side constraints; an increase in output for an industry sector is assumed to lead to a proportionate increase in demand for inputs and a one-for-one increase in supply from all other intermediate and primary input sectors.[3] It is possible that there will be resource constraints, particularly in the short-term, such as difficulties recruiting skilled labour. One possible consequence is the displacement of other activities in Strathalbyn. However, a much more likely scenario is that resources in short supply locally will be drawn in from outside the region. The rationale for this view is that Strathalbyn is a small part of a much broader labour market. Strathalbyn employment accounts for less than 1 per cent of employment in the greater Adelaide area. There is therefore considerable scope to satisfy labour needs that cannot be met locally by drawing in workers from out of the region, either as non-residents that commute to Strathalbyn for work, or as people that decide to re-locate to Strathalbyn. Census data indicates that 29 per cent of the Strathalbyn workforce already commutes from outside the region. "Displacement" effects of this type are also generally smaller over longer time horizons, for which reason input-output tables are generally interpreted as "long run" or "full adjustment" estimators.

[3] All changes within the input-output table are assumed to be changes in the quantity of intermediate and primary inputs used. In the actual economy changes could be composed of price and quantity changes, with changes in prices acting as a signalling mechanism. For example, an increase in demand for skilled welders in the region, all other things being equal, would cause wages for welders in the region to rise. This would attract skilled welders from outside the region, with the adjustments taking place over time, not immediately. However, if there are also resource constraints outside the region, then the increase in demand for skilled welders may not be fully realised. The employment impacts as estimated using the input-output model would therefore be felt more in terms of higher real wages than greater regional employment. The implication of this limitation is that the results of the input-output analysis will tend to overstate the employment and gross regional product impacts.

3. Results of the Economic Analysis

The estimated total economic impacts of the Angas Zinc Mine on the Strathalbyn regional economy are summarised in annual average terms in Table 3.1. All employment estimates refer to employment measured on a full-time equivalent (FTE) basis.

The Angas Zinc Mine is estimated to directly employ an average of 63 persons per annum and directly generate $25 million in gross regional product per annum within Strathalbyn over the eight-year life of the mine (includes construction phase). If one also takes into account the downstream production activity generated within the Strathalbyn economy by the mine, then the "production impacts" of Angas Zinc Mine are estimated to be 84 jobs per annum and $27 million per annum in gross regional product. If the additional activity that is generated by household spending is also taken into account, then the "total impacts" of Angas Zinc Mine are estimated to be 103 jobs per annum and $29 million per annum in gross regional product.

Table 3.1
Summary of Estimated Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy, Average Annual Impact

	Direct AZM Impact	Production impact	Total impact
Employment (FTE)	63	84	103
Gross Regional Product ($m)	25.0	26.7	29.0

The employment and gross regional product impacts of the Angas Zinc Mine vary from year to year. Tables 3.2 and 3.3 show the estimated annual impact of the mine on employment and gross regional product respectively.

Total annual employment generated by the mine is expected to peak in 2007-08 (at 179 jobs), when the bulk of capital expenditure (i.e., construction) takes place and the mine commences operation. The total impacts of the mine on regional employment are expected to diminish over time as the mineral resources are depleted. The annual total impact of the mine on employment is also illustrated graphically by Figure 3.1.

Table 3.2
Estimated Employment Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy

	Production ($m)	Employment		
		Direct Angas Zinc Mine employment	Production impact	Total impact
2006-07	30	78	107	130
2007-08	49	107	148	179
2008-09	83	63	91	110
2009-10	61	58	80	98
2010-11	56	55	72	88
2011-12	61	53	72	88
2012-13	43	49	62	76
2013-14	12	39	42	52
Total	395	502	673	821
Average per annum	49.3	63	84	103

Figure 3.1
Total Regional Employment Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy

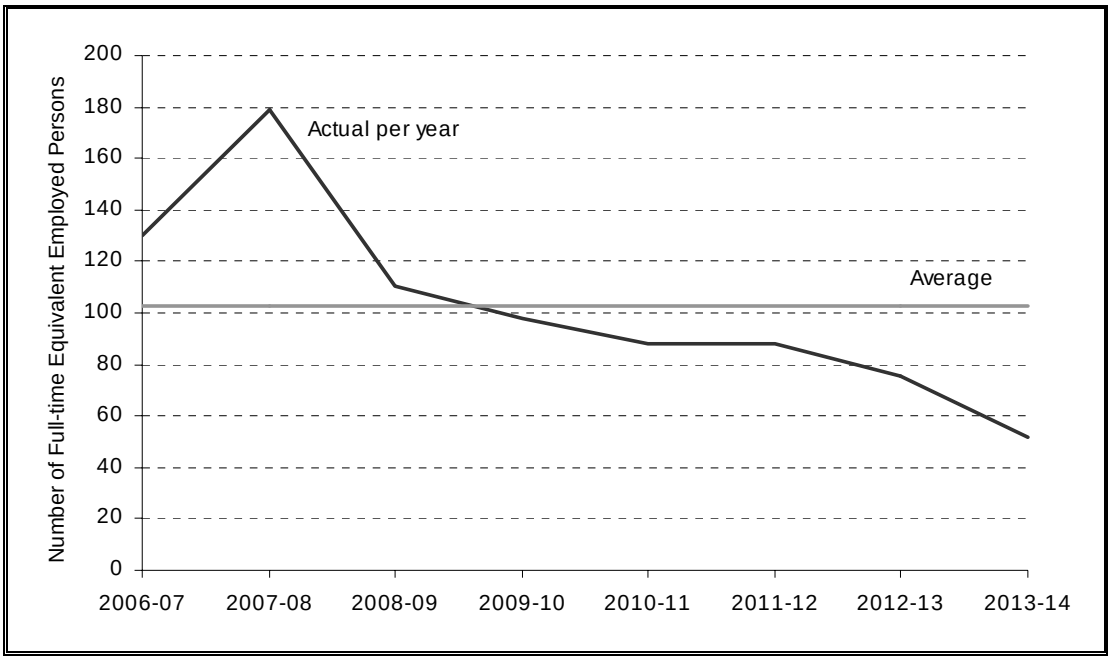


Table 3.3
Estimated Gross Regional Product Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy

	Production ($m)	Gross Regional Product ($m)		
		Direct Terramin Impact	Production impact	Total impact
2006-07	29.8	7.2	9.6	12.4
2007-08	48.5	14.6	17.9	21.7
2008-09	83.4	45.9	48.0	50.5
2009-10	61.4	33.2	34.9	37.1
2010-11	55.6	31.7	33.0	35.0
2011-12	60.8	34.4	35.9	37.8
2012-13	43.1	25.0	26.0	27.7
2013-14	12.1	8.2	8.4	9.6
Total	394.7	200.2	213.8	231.9
Average per annum	49.3	25.0	26.7	29.0

Total annual gross regional product associated with the mine is estimated to reach a peak in 2008-09 (at $51 million) when mine production is also expected to peak. The mine's annual "total impact" on gross regional product is estimated to fluctuate between $30 to $40 million from 2009-10 to 2012-13, prior to falling sharply in the final year of expected production in 2013-14.

Table 3.4 shows how the estimated annual average employment impacts of the mine are distributed by industry. Focusing on the "total impacts", mine operation is expected to directly employ 52 persons per annum on average, while mine capital expenditure activity is expected to directly employ 11 persons per annum. In terms of other industry sectors, the

largest employment impacts are estimated to be in retail trade (9.3 jobs per annum), property and business services (6.5 jobs per annum), and transport and storage (4.2 jobs per annum).

Mineral royalty payments over the life of the mine are expected to be $0.7 million per annum.

Table 3.4
Estimated Employment Impacts by Industry on the Strathalbyn Regional Economy, Annual Average

Sector	Production	Total Impact
Angas Zinc Mine Operation	51.9	51.9
Angas Zinc Mine Construction	10.9	10.9
Agriculture, forestry, fishing	1.5	2.8
Mining	0.2	0.2
Manufacturing	1.8	2.7
Utilities	0.4	0.6
Building & construction	0.3	1.9
Wholesale trade	0.7	1.3
Retail trade	4.9	9.3
Accomm, cafes, restaurants	0.3	1.5
Transport, storage	3.9	4.2
Communication services	0.1	0.3
Finance & insurance	0.1	0.4
Ownership of dwellings	0.0	0.0
Property & business services	5.7	6.5
Public admin & defence	0.5	1.1
Education	0.6	3.1
Health & community services	0.2	2.1
Cultural & recreation services	0.1	0.6
Personal services	0.1	1.2
Total	84.2	102.6

4. Regional Profile

This section presents an economic profile of the Strathalbyn region. It helps to understand how significant the mine development may be in the context of the existing regional economy, and how well the profile of the local workforce may match the labour needs of the mine development in terms of skill (i.e., occupation) requirements.

In the following section, "Strathalbyn" refers to the Statistical Local Area of "Alexandrina (DC) – Strathalbyn".[4] This area represents the north-eastern half of the Alexandrina local government area, and includes Strathalbyn, Milang, Ashbourne, Woodchester and Langhorne Creek.

4.1 General Indicators

Table 4.1 summarises key population and labour market indicators for Strathalbyn, the wider Alexandrina local government area, and South Australia.

Table 4.1
General Population and Labour Market Indicators
Strathalbyn and South Australia – 2005

	Strathalbyn	Alexandrina (DC)	SA
Population estimates (at 30 June 2005)			
Estimated Resident Population	9,245	20,408	1,542,033
Proportion of working age (15-64yrs)	65.7	63.7	66.4
Proportion aged 50 years and over	36.3	41.7	33.5
Labour market (2005 year average)			
Employed persons	4,197	8,084	739,625
Unemployed persons	109	289	39,575
Unemployment Rate	2.5	3.4	5.1

Source: ABS, Statistics, *Population trends and estimates*, and Department of Employment and Workplace Relations, *Small Area Labour Markets*, various.

The Strathalbyn region had an estimated resident population of about 9,200 persons at 30 June 2005. Two-thirds of the Strathalbyn population were of working age, which is in line with the South Australian average.

The wider Alexandrina local government area population is somewhat older on average than the Strathalbyn population (42 per cent of the Alexandrina (DC) population was aged over 50 years compared to 36 per cent for Strathalbyn in 2005). This may reflect that the coastal section of Alexandrina (DC) is an attractive retirement destination.

There was an average of about 110 unemployed persons in Strathalbyn in 2005. Nonetheless, Strathalbyn had a low unemployment rate relative to South Australia in 2005 (2.5 per cent c.f. 5.1 per cent). This suggests there may be some significant short-term labour resource constraints in the region, meaning that some of the mine's labour needs will probably need to be satisfied by people coming from outside the region and/or by taking people from other jobs within the region.

[4] The Statistical Local Area (SLA) is a geographic classification used by the Australian Bureau of Statistics for the dissemination of regional data. SLAs typically match local government areas or segments thereof. Alexandrina (DC) is composed of the 'Alexandrina (DC) – Strathalbyn' and 'Alexandrina (DC) – Coastal' SLAs.

Small Area Labour Markets data indicates that there were about 4,200 employed persons living in Strathalbyn in 2005. This estimate includes people that live in Strathalbyn and work outside the region (but no breakdown is published).

4.2 Journey-to-Work Data

Journey-to-work data from the 2001 Census of Population and Housing provides detailed information on where people live and work. By comparing people's usual place of residence on Census night with their workplace address for their main job held, an estimate of the aggregate number of people that travel in and out of a region for work purposes can be obtained. While the data is now several years out of date, it remains the best existing source of information on the geographic distribution of the work locations of people who reside in particular areas.

Table 4.2 summarises the number of persons that worked in Strathalbyn and Alexandrina (DC) by where they usually lived in 2001. At that time a total of about 2,700 persons were employed in Strathalbyn. Of these workers, 71 per cent lived in Strathalbyn while 29 per cent lived outside the region.

The number of Strathalbyn residents who are employed increased by approximately 18 per cent between 2001 and 2005.[5] This rise in employment could be the result of an increase in Strathalbyn residents employed within the region, an increase in residents employed outside the region, or a combination of the two. Although there are no official estimates, it seems likely that the number of people working in Strathalbyn will have risen. If the total number of people working in Strathalbyn also increased by 18 per cent since 2001, there would be approximately 3,200 people employed in the region in 2005 (with about 2,300 of them living in Strathalbyn).[6] With the Angas Zinc Mine estimated to be associated with a total of 103 jobs per annum in the region, the mine thus has the potential to boost labour demand in Strathalbyn by approximately 3 per cent.

Table 4.2
Employed Persons That Work in Region By Where They Live – 2001

	Strathalbyn		Alexandrina (DC)	
	Number	**Per cent**	**Number**	**Percent**
Total employed persons that work in region	2,732	100.0	4,563	100.0
Total that live and work in region	1,927	70.5	3,432	75.2
Total that live elsewhere, but work in region	789	28.9	1,112	24.4
No usual address and undefined SA	16	0.6	19	0.4

Source: ABS, unpublished data. Calculations by SACES.

A breakdown of the location of residence for those persons who worked in Strathalbyn and Alexandrina (DC) is presented in Table 4.3. Approximately 10 per cent of the Strathalbyn workforce was made up of people who lived in the Mount Lofty Ranges. The other main sources of labour for Strathalbyn in 2001 were the Murray Mallee (4.5 per cent), the coastal section of Alexandrina (DC) (4.2 per cent), Southern Adelaide (4.0 per cent), and Eastern

[5] Department of Employment and Workplace Relations, Economic and Labour Market Analysis Branch, Labour Market Strategies Group, *Small Area Labour Markets*, various issues.

[6] Assuming that the proportion of people that work in the region who live in the region in 2005 was the same as indicated by the 2001 Census.

Adelaide (3.3 per cent). One could anticipate that these regions might be a source of labour for the mine and other future major developments within the region.

Table 4.3
Persons Who Work in Strathalbyn and Alexandrina (DC) by Where They Live - 2001

	Strathalbyn		Alexandrina (DC)	
Where they live	**Number**	**Per Cent**	**Number**	**Per Cent**
Northern Adelaide SSD	14	0.5	20	0.4
Western Adelaide SSD	11	0.4	23	0.5
Eastern Adelaide SSD	91	3.3	117	2.6
Southern Adelaide SSD	109	4.0	201	4.4
Barossa SSD	0	0.0	0	0.0
Kangaroo Island SSD	0	0.0	0	0.0
Mt Lofty Ranges SSD	274	10.0	288	6.3
Fleurieu SSD	2,084	76.3	3,756	82.3
Alexandrina (DC)	1,976	72.3	3,432	75.2
Alexandrina (DC) - Coastal	114	4.2	1,456	31.9
Alexandrina (DC) - Strathalbyn	1,927	70.5	1,976	43.3
Victor Harbor (DC)	37	1.4	303	6.6
Yankalilla (DC)	6	0.2	21	0.5
Yorke SSD	0	0.0	0	0.0
Lower North SSD	0	0.0	0	0.0
Riverland SSD	4	0.1	7	0.2
Murray Mallee SSD	123	4.5	126	2.8
Upper South East SSD	3	0.1	3	0.1
Lower South East SSD	0	0.0	0	0.0
Lincoln SSD	0	0.0	0	0.0
West Coast SSD	0	0.0	0	0.0
Whyalla SSD	0	0.0	0	0.0
Pirie SSD	3	0.1	3	0.1
Flinders Ranges SSD	0	0.0	0	0.0
Far North SSD	0	0.0	0	0.0
Other SSD	16	0.6	19	0.4
Total	2,732	100.0	4,563	100.0

Source: ABS, unpublished data. Calculations by SACES.

4.3 Employment by Industry

Table 4.4 summarises the industry structure of the Strathalbyn and South Australian workforces. The Strathalbyn economy has a relatively narrow employment base with agriculture and manufacturing accounting for half of total employment in the region. In comparison, these two industries account for 21 per cent of the State's workforce – a much smaller proportion. The share of employment in all other industry sectors was much smaller for Strathalbyn than South Australia.

Table 4.4
Persons Employed in the Region by Industry of Employment
Alexandrina (DC) – Strathalbyn and South Australia – 2001

	Strathalbyn		South Australia	
	Number	**Per cent**	**Number**	**Per cent**
Agriculture, Forestry & Fishing	897	32.5	36,280	5.9
Mining	6	0.2	3,803	0.6
Manufacturing	476	17.2	92,002	14.8
Electricity, Gas & Water Supply	6	0.2	4,608	0.7
Construction	117	4.2	35,427	5.7
Wholesale Trade	130	4.7	31,249	5.0
Retail Trade	269	9.7	91,413	14.7
Accommodation, Cafes & Restaurants	85	3.1	28,120	4.5
Transport & Storage	54	2.0	23,430	3.8
Communication Services	16	0.6	10,243	1.7
Finance & Insurance	31	1.1	19,834	3.2
Property & Business Services	143	5.2	58,533	9.4
Government Administration & Defence	29	1.0	26,401	4.3
Education	160	5.8	44,562	7.2
Health & Community Services	220	8.0	71,789	11.6
Cultural & Recreational Services	51	1.8	12,996	2.1
Personal & Other Services	50	1.8	24,177	3.9
Total[a]	2,762	100.0	620,096	100.0

Note: [a] Total includes not stated and non-classifiable economic units.
Source: ABS, Statistics, Census of Population and Housing, 2001.

4.4 Employment by Occupation

As Table 4.5 illustrates, the Strathalbyn workforce has a significant proportion of workers being employed as "labourers and related workers" (27 per cent) and "managers and administrators" (20 per cent). This profile reflects the importance of agricultural activities to the Strathalbyn economy as the former category is composed mostly of "agriculture and horticulture labourers", while "farmers and farm managers" make up the bulk of "managers and administrators". "Agriculture and horticulture labourers" and "farmers and farm managers" accounted for 18 per cent and 17 per cent respectively of all persons who worked in the Strathalbyn region in 2001.

Terramin have provided some preliminary estimates of those occupations likely to be in demand for the Angas Zinc Mine. They include truck/haulage drivers, mining and construction labourers and fitters and machinists. Further insight into what types of jobs may be required is provided by Figure 4.1, which shows the occupational profile of persons employed in the South Australian mining industry compared to the workforce employed in Strathalbyn. It shows that the most significant occupations in the South Australian mining industry in 2001 were "intermediate production and transport workers" (27 per cent of all persons employed in the mining industry), "tradespersons and related workers" (21 per cent), and "professionals" (18 per cent). The proportion of the Strathalbyn workforce in these three categories was significantly lower in comparison.

his suggests that the existing workforce may not be closely matched to the mine's more skilled labour needs. However, the region may be capable of supplying the construction labourers and general workforce in the early stages of the project. Moreover, subject to the provision of opportunities for re-training and up-grading of skills, local "labourers and related workers" may be trained to become "intermediate production and transport workers". But we would expect that some significant proportion of the new regional jobs would be met by people moving into the region.

Table 4.5
Persons Employed in Region by Occupation
Alexandrina (DC) – Strathalbyn and South Australia – 2001

	Strathalbyn		South Australia	
	Number	**Per cent**	**Number**	**Per cent**
Managers & Administrators	550	20.1	59,559	9.6
Professionals	276	10.1	106,119	17.1
Associate Professionals	246	9.0	72,743	11.7
Tradespersons & Related Wrks	251	9.2	76,337	12.3
Advanced Clerical & Service Wrks	87	3.2	20,716	3.3
Intermediate Clerical, Sales & Service Wrks	252	9.2	103,635	16.7
Intermediate Production & Transport Wrks	163	5.9	51,719	8.3
Elementary Clerical, Sales & Service Wrks	149	5.4	57,509	9.3
Labourers & Related Wrks	734	26.8	65,272	10.5
Total[a]	2,742	100.0	620,097	100.0

Note: [a] Total includes inadequately described and not stated.
Source: ABS, Statistics, Census of Population and Housing, 2001.

Figure 4.1
Strathalbyn Workforce and SA Mining Industry Workforce by Occupation 2001

Source: ABS, Statistics, Census of Population and Housing, 2001.