Wine Industry Impact Review

July 2004
FACT
In 2001, 341,100 tonnes of grapes were crushed or processed in the Barossa, with just 55,920 tonnes of these grown locally. More than 156,000 tonnes of juice and 128,544 tonnes of grapes from other regions were brought into the Barossa for processing.

FORECAST
In 2011, 601,600 tonnes of grapes will be crushed or processed in the Barossa - an increase of 76% over 10 years. Locally grown grapes will account for 92,753 tonnes, while 508,847 tonnes of grapes and juice from other regions will be brought into the Barossa for processing.

Wine Industry Impact Review
BAROSSA & LIGHT REGIONAL DEVELOPMENT BOARD (BLD)

July 2004

FACT
Barossa & Light Regional Development Board (BLD) commissioned a report to form the basis of assessing the total impact of the expansion of the Barossa wine industry from 2001 to 2011.

FORECAST
This report will be used by industry and business groups, and Local and State Government, to identify issues and provide solutions to accommodate the expansion of the Barossa wine industry over the next decade.
Guide to abbreviations

ABS .................... Australian Bureau of Statistics
BIL ........................ Barossa Infrastructure Limited
BLD ........................ Barossa & Light Regional Development Board
BWTA ........................ Barossa Wine & Tourism Association
EPA ........................ Environmental Protection Authority
GI ........................ Geographical Indications
KBR ........................ Kellogg Brown and Root
LGA ........................ Local Government Area
NPEC ....................... North Para Environmental Control
PIRSA ...................... Primary Industries and Resources South Australia
SATC ...................... South Australian Tourism Commission

Websites of interest

Australian Bureau of Agriculture and Resources Economics (ABARE)
www.abare.gov.au

Australian Bureau of Statistics (ABS)
www.abs.gov.au

Australian Wine & Brandy Corporation (AWBC)
www.awbc.com.au

Barossa & Light Regional Development Board (BLD)
www.bld.org.au

Barossa Council
www.barossa.sa.gov.au

Barossa Wine & Tourism Association
www.barossa-region.org

Light Regional Council
www.light.sa.gov.au

Phylloxera & Grape Industry Board of South Australia
www.phylloxera.org.au

Planning SA
www.sa.gov.au

South Australian Tourism Commission
www.tourism.sa.gov.au

Transport SA
www.transport.sa.gov.au

Winetitles
www.winetitles.com.au
Today, the Barossa is a major processing hub for the Australian wine industry. In the past few years, several major wine companies have consolidated their processing operations in the Barossa, establishing multi-million dollar crushing, fermenting, bottling, packaging and distribution centres.

Locally grown grapes, and their processing into wine, form a relatively small proportion (16%) of total wine production in the region.

In 2001, 341,100 tonnes of grapes were crushed or processed in the Barossa, with just 55,920 tonnes of these grown locally. More than 156,000 tonnes of juice and 128,544 tonnes of grapes from other regions were brought into the Barossa for processing.

In 2011, 601,600 tonnes of grapes will be crushed or processed in the Barossa - an increase of 76% over 10 years. Locally grown grapes will account for 92,753 tonnes, while 508,847 tonnes of grapes and juice from other regions will be brought into the Barossa for processing.

This growth has enormous ramifications. Some of the challenges this growth raises are:

- Residential and urban growth, as expansion will remove land from primary production and dramatically impact on visual amenity;
- Resolution of conflicts between different types of road traffic;
- Planning modern wine processing, storage, packaging and distribution facilities to minimise the impact on the environment;
- Planning developments such as cellar doors, attractions, restaurants and hotels to cater for tourists, without detracting from the appeal of the Barossa’s natural heritage;
- Allocating land for future major industrial development away from sensitive landscapes, whilst providing opportunities for light industrial development;
- Providing additional power to cater for residential and industrial growth with minimal impact on scenic rural landscape;
- Developing a comprehensive approach to wastewater management in the region;
- Improving the provision of telecommunications and access to information communications technology infrastructure in the region; and
- An assessment of the employment, education and training requirements of the wine industry and related industries.

This document identifies issues and recommends actions to be undertaken by nominated agencies or entities. BLD has an important coordination and support role to play in resolving these issues.

The Barossa is facing the most dramatic change in its modern history. It is imperative that these changes be managed in a way that preserves its character and appeal to residents, tourists and industry. There is one chance to preserve the Barossa’s heritage and natural amenity to prevent irreversible damage...it is to act now.
Surveys were conducted with major Barossa employers by the (then) Department of Industry and Trade in 1999 and 2001, to develop a picture of infrastructure needs in the region. Amongst other things, the surveys indicated strong growth in the tonnages of grapes crushed and/or processed in the Barossa, from 341,100 tonnes of wine production in 2001 to a projected 601,600 tonnes in 2011, an increase of 76% over 10 years.

Growth of this magnitude will have an enormous impact.

Barossa & Light Regional Development Board Incorporated (BLD) commissioned a report to form the basis for assessing the total impact of expansion of the wine industry in the Barossa & Light region from 2001 to 2011.

Acknowledgments

This report was assisted through the contributions of Roy Blight, Chief Executive Officer of BLD, members of the BLD Steering Committee (James Wark - Chairman, Leon Deans and Margaret Lehmann), and people from the private and public sectors who kindly gave the study team the benefits of their knowledge and experience of the region.

The primary source of data for this document is an unpublished report commissioned by BLD from Graham Gaston, Principal Consultant at QED Pty Ltd.

Important secondary sources of data and other information include recent consultant reports (by Connor Holmes Consulting, Jensen Planning and Urban Design, Kellogg Brown and Root, and QED) and published data by the Australian Bureau of Statistics, Winemakers’ Federation of Australia, Australian Wine and Brandy Corporation, and the Phylloxera and Grape Industry Board of South Australia. A list of these sources is included at the conclusion of this report.

The assistance of the following people and organisations is also appreciated; Barry Salter (BWTA), Paul Shanks (BIL), Quentin Falkenberg (Barossa Printmasters) and staff at the Barossa Council, Light Regional Council and Winetitles.
In 2001, 341,100 tonnes of grapes were crushed or processed in the Barossa, with just 55,920 tonnes of these grown locally. More than 156,000 tonnes of juice and 128,544 tonnes of grapes from other regions were brought into the Barossa for processing.

In 2011, 601,600 tonnes of grapes will be crushed or processed in the Barossa - an increase of 76% over 10 years. Locally grown grapes will account for 92,753 tonnes, while 508,847 tonnes of grapes and juice from other regions will be brought into the Barossa for processing.

In 2002 and 2003, Barossa vineyards yielded an average of more than 60,000 tonnes, with an estimated value of about $90 million.

In addition to the processing and making of wine from locally-grown grapes, the Barossa serves as a significant wine processing, packaging and distribution base for the Australian wine industry.

Australia’s major wine companies are represented in the Barossa and in recent years there have been significant mergers and acquisitions which have added to the strength of these companies (see Table 1).

Locally grown grapes and their processing into wine, therefore only accounted for 16% of total wine production in the region.

It has been predicted that in 2011, 601,600 tonnes of grapes will be crushed or processed in the Barossa - an increase of 76% over 10 years. Locally grown grapes will account for 92,753 tonnes, while 508,847 tonnes of grapes and juice from other regions will be brought into the Barossa for processing.

In 2002 and 2003, Barossa vineyards yielded an average of more than 60,000 tonnes, with an estimated value of about $90 million.

---

Table 1. Recent ownership changes to major wine companies with Barossa interests

<table>
<thead>
<tr>
<th>Southcorp Wines - Australian-listed public company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993 Southcorp Wines established</td>
</tr>
<tr>
<td>2001 Southcorp Wines acquires Rosemount Estates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardy Wine Company - owned by US-listed public company, Constellation Brands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 BRL Hardy acquires 50% of Barossa Valley Estates Ltd</td>
</tr>
<tr>
<td>2001 Barossa Valley Estates relocates from Angle Vale to the Barossa</td>
</tr>
<tr>
<td>2003 Constellation Brands acquires BRL Hardy and names its Australian wine business Hardy Wine Company</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beringer Blass Wine Estates - owned by Australian-listed public company, Fosters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991 Mildara Wines merges with Wolf Blass Wines</td>
</tr>
<tr>
<td>1996 Fosters Brewing acquires Mildara Blass</td>
</tr>
<tr>
<td>1997 Mildara Blass acquires Cellarmaster Wines/Dorrien Estate</td>
</tr>
<tr>
<td>2000 Fosters acquires Beringer Wine Estates</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orlando Wyndham Group - owned by French-listed public company, Pernod Ricard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989 Pernod Ricard (France) acquires 80% of Orlando/Morris Wines</td>
</tr>
<tr>
<td>1993 Orlando Wyndham acquires Leo Buring Winery in Tanunda (re-named Richmond Grove)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>McGuigan Simeon Wines - Australian-listed public company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 Brian McGuigan Wines formed and listed on ASX</td>
</tr>
<tr>
<td>1994 Simeon Wines listed on ASX</td>
</tr>
<tr>
<td>1999 Simeon Wines acquires Chateau Yaldara Wines</td>
</tr>
<tr>
<td>2002 Simeon Wines and Brian McGuigan Wines merge</td>
</tr>
<tr>
<td>2003 McGuigan Simeon acquires Miranda Wines Holdings Ltd</td>
</tr>
</tbody>
</table>

SOURCE: Australian and New Zealand Wine Industry Directory, 2004
1.2 Definitions and boundaries

1.2.1 Defining the Barossa

There are several ways to define the Barossa.

**Geographical Indications**
A Geographical Indication (GI) is an official description of an Australian wine zone, region or sub-region. Its main purpose is to protect the use of the regional name under international law, limiting its use to describe wines produced from wine grapes grown within that GI. Under this system, wine which carries the regional name must consist of a minimum of 85% of wine from that region. This protects the integrity of the label and safeguards the consumer and the grapegrowers of the Barossa.

The winemakers and grapegrowers of the Barossa agreed to define a Barossa Zone in 1996, and, in the following year, two regions within that zone – Barossa Valley and Eden Valley – together with some buffer land to enable some future growth. In 1999, a sub-region of High Eden was declared (see Figure 1).

**Local Government Areas**
The Barossa GI falls within four separate Local Government Areas (LGA) – the Barossa Council, Light Regional Council, Town of Gawler and Mid Murray Council. The largest part of the Barossa GI, however, is contained within the Barossa and Light LGAs (See Figure 1).

**Development Plan**
The Barossa Valley Region as defined in the Development Plans under the Development Act 1993, has different boundaries to the Barossa GI, and the LGAs. The Development Plans’ Barossa Valley Region incorporates part only of the present Barossa Council and Light Regional Council areas. Although the Development Plans’ Barossa Valley Region is encompassed entirely within the Barossa GI, the provisions of the Development Plan relating to the Barossa Valley Region do not extend to the remainder of the Barossa GI Zone (See Figure 2).

**Other boundaries**
Additional to those boundaries defined above, the Barossa Tourism Region is defined as the Barossa GI, plus Gawler, and therefore includes part of Light Council. Other divisions include those used by Local and State governments and statutory authorities, such as Catchment Boards, eg the Barossa Valley Region’s Water Protection Area – a catchment driven protection zone – which does not extend to the whole of the Barossa Region.

Note: To avoid confusion in this report, all references to the Barossa are the Barossa GI (wine industry defined zone) unless otherwise stated.

---

**DEFINITIONS**

**Geographical Indications**
The Barossa GI Zone is defined by the wine industry’s Geographical Indications Committee. It is broken down into two regions and one sub-region. They are:
- Barossa Valley (Region)
- Eden Valley (Region)
- High Eden (Sub Region)

**Local Government Areas**
Four Local Government Areas have land within the Barossa GI. They include:
- Barossa Council
- Light Regional Council
- Mid Murray Council
- Town of Gawler

**Development Act, 1993**
The Development Plans’ Barossa Valley Region incorporates part only of the Barossa Council and Light Regional Council, but is wholly contained within the Barossa GI.

**Tourism Region**
The Barossa Tourism Region is defined as the Barossa GI, plus Gawler.
1.2.1 Definitions and boundaries

**ISSUE**
Parts of the Barossa GI Zone – of particular significance to the Barossa and Eden Valleys’ present and future grape growing and wine producing economies – are not covered by the Barossa Valley Region Development Plan. Therefore, they do not have the same levels of planning protection that apply to the central portion of the zone, and are under threat of inappropriate development.

**RECOMMENDED ACTION**
Align policy and development regulations for horticulture/viticulture, wineries and ancillary activities across the Barossa GI Zone and within the four Council Development Plans as a matter of urgency.

**FOR EXAMPLE. . .**
The Development Plans of Light Regional Council and Barossa Council both recognise the importance of the wine industry and its vineyard and winery developments. They also support ancillary developments, such as cellar door sales outlets, restaurants, warehousing, bottling and packaging facilities, when developed in conjunction with a winery.

The Development Plan of Mid Murray Council, on the other hand, does not encourage horticultural/viticultural development in the areas of the Barossa GI that fall within its boundary.

Figure 2. Comparison of Barossa and Light Regional Council boundaries, the Barossa GI and the Barossa Valley Region (Development Plan)
1.2 Definitions and boundaries

1.2.2 Definition of a winery

There is no definition of what constitutes a winery at a State level under the Development Act 1993. Accordingly, there is some confusion between winery and ancillary developments, such as cellar door sales, restaurants, administration, marketing, warehousing, bottling and packaging, in the planning process. Barossa wineries generally include ancillary developments, such as cellar door sales outlets, and in Rural Zones these developments are classified as “subject to consent”.

In 1998, the Barossa Winemakers Association commissioned consultants to prepare draft definitions and performance standards in respect of Wine Production. The recommended definition of Wine Production was adopted as a Principle of Development Control by the Barossa Council and Light Regional Council Development Plans (see sidebar).

ISSUE
There is no definition of ‘winery’ in the Development Regulations 1993, resulting in confusion between winery and ancillary developments.

RECOMMENDED ACTIONS
• Prepare suitable statutory definitions of ‘winery’ and related ancillary development in order to provide consistency in the assessment of development applications. The definition should encompass wine production, packaging, ancillary wine related activity, waste treatment and disposal, noise, odour, amenity, and tourism potential.
• Implement measures to ensure that new winery developments do not detract from the overall character of the Barossa.

ISSUE
Under Council development controls, wineries between 50 and 30,000 tonnes capacity are assessed using the same criteria. This does not reflect the differences in scale, intensity of activity, vehicle movements, or impacts associated with different sized wineries.

RECOMMENDED ACTIONS
• Take into account winery size in regard to impact, and consider the potential for expansion and cumulative effects.
• Establish limits to scale and industrial elements of wineries in sensitive landscapes.

ISSUE
There is limited ability to prevent or restrict inappropriate winery developments.

RECOMMENDED ACTION
Amend development plans to identify low impact areas where winery developments are more appropriate.
1.3 Quantifying the wine industry

1.3.1 Area under vines

In 2003 there were 10,797 hectares of vineyard in the Barossa.

The Phylloxera and Grape Industry Board of South Australia expects an increase in the required intake of winegrapes in the Barossa from 78,957 tonnes in 2004 to 100,037 tonnes in 2008, an increase of 27%. However, if present indications are correct no new plantings will be required to match projected requirements in the Barossa and Eden Valleys to 2008.

Despite this, vines continue to be planted in the Barossa, albeit at a reduced rate.

Primary Industries and Resources SA (PIRSA) has produced maps that “determine” the amount of additional land that may potentially be developed for viticulture. Preliminary maps for the Barossa Valley and Eden Valley demonstrate that high potential viticultural land is available:

- to the west of Tanunda, around Gomersal and Rosedale;
- to the west of Greenock;
- on both sides of the Sturt Highway between Stockwell and Truro, including Ebenezer and Neukirch; and
- to the north-east of Angaston, and to the north and south of Moculta.

ISSUE

PIRSA identifies the importance of protecting viable viticultural land for future use.

RECOMMENDED ACTION

Ensure that Development Plans protect high potential viticultural land, identified by PIRSA, to accommodate future growth of Barossa vineyards.

FACT

In 2003 there were 10,797 hectares of vineyard in the Barossa - 71% of these were red grape varieties, and 29% were white grape varieties.
1.3 Quantifying the wine industry

1.3.2 Winegrape production

The SA Utilisation and Pricing Survey 2003 reports that 58,274 tonnes of Barossa-grown grapes were crushed in 2003.

Yields of grapes vary according to where in the Barossa they are grown and the seasonal conditions. Since 1948, the average yield has been about 5.5 tonnes/ha, however due to the introduction of modern viticultural practices, such as supplementary water, clonal selection and pest and disease control, since 1980 yields have averaged 7.4 tonnes/ha.

Yields from new plantings are expected to be higher than long term averages because of improved viticultural practices.

1.3.3 Wine processing

The Barossa has developed into a substantial wine processing and handling centre for the Australian wine industry.

This processing capacity is highly concentrated, with almost all - including a number of very large wineries – within a 10 kilometre radius of Kroemer’s Crossing in Tanunda (refer Figure 3).

The processing of local grapes into wine represents only 16% of total wine production. In 2001, a production equivalent to 341,100 tonnes of grapes was processed with just 55,920 tonnes grown locally. More than 156,000 tonnes of juice and 128,544 tonnes of grapes were brought into the Barossa for processing (refer Figure 4).

Consolidation of processing into the Barossa is expected to continue with recent announcements including:

• The construction of a new 25,000 tonne capacity winery by Yalumba for 2005 vintage;
• The construction of a new contract bottling facility for Premium Wine Bottlers;
• The construction of a 5 million case bottling & storage facility by...
1.3 Quantifying the wine industry

1.3.3 Wine processing cont.

Beringer Blass (BBWE) to commence operation in 2005, and the subsequent announcement of closure of the Merbein packaging operation;
• The closure of BBWE’s Merbein and Yellowglen wineries in conjunction with a $50M upgrade to the Wolf Blass winery;
• The streamlining of Southcorp’s packaging and distribution operations into Nuriootpa which is earmarked as the international distribution centre. These functions will be relocated from Denman in the Hunter Valley, and Great Western in Victoria. This will bring an additional 6 million cases of packaging into the Barossa by 2008.
• The closure of Southcorp wineries at Seppeltsfield, Yenda and Waikerie, and scaling down of Great Western, to consolidate to Nuriootpa and Sunraysia. Nuriootpa is expected to expand its vintage capacity by 10,000 tonnes to 50,000 tonnes.

ISSUE
The concentration of wine processing has serious implications for the Barossa’s heritage and natural environment. The trend to consolidation is continuing, if not accelerating, with major announcements being made by large companies on a regular basis.

RECOMMENDED ACTIONS
• Survey major companies regarding their future intentions within the Barossa in order to identify their impacts and infrastructure needs.
• Modify council development plans to minimise the potential negative impacts of wine industry expansion.

ISSUE
There is a lack of collaborated information available on the Barossa wine industry and its processing capacity. This is critical, particularly in view of the large volumes of fruit and must that are being transferred from other regions to the Barossa for processing, packaging and distribution.

RECOMMENDED ACTION
Establish a centralised information database which coordinates information from individual wineries. The availability of accurate and reliable statistics is essential so that responsible and appropriate planning can occur.

FACT
In 2001, 341,100 tonnes of grapes were crushed or processed in the Barossa, with just 55,920 tonnes of these grown locally. More than 156,000 tonnes of juice and 128,544 tonnes of grapes from other regions were brought into the Barossa for processing.

FORECAST
In 2011, 601,600 tonnes of grapes will be crushed or processed in the Barossa - an increase of 76% over 10 years. Locally grown grapes will account for 92,753 tonnes, while 508,847 tonnes of grapes and juice from other regions will be brought into the Barossa for processing.
1.3 Quantifying the wine industry

Table 2. Grape crush equivalent at major Barossa processing facilities in 2003

<table>
<thead>
<tr>
<th>Processing facility</th>
<th>Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlando Wines, Rowland Flat, (Orlando Wyndham)</td>
<td>119,400</td>
</tr>
<tr>
<td>Richmond Grove, Tanunda (Orlando Wyndham)</td>
<td>40,000</td>
</tr>
<tr>
<td>Penfold Winery, Nuriootpa (Southcorp Wines)</td>
<td>35,000</td>
</tr>
<tr>
<td>Wolf Blass Winery, Nuriootpa (Beringer Blass Wine Estates)</td>
<td>29,100</td>
</tr>
<tr>
<td>Yalumba Winery, Angaston (The Yalumba Wine Company)</td>
<td>23,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>246, 500</strong></td>
</tr>
</tbody>
</table>

SOURCE: Australian and New Zealand Wine Industry Directory, 2004
Figure 4: Sources of grapes (excluding juice) processed in the Barossa, 2001

- **Barossa**: 55,920 tonnes
- **Lower Murray**: 44,912 tonnes
- **Limestone Coast**: 23,949 tonnes
- **Mount Lofty Ranges**: 12,498 tonnes
- **Fleurieu**: 40,422 tonnes
- **Clare Valley**: 5,991 tonnes
- **Victoria**: 12,31 tonnes

Grapes from interstate are no longer allowed to enter SA due to Phylloxera regulations. Only must and juice are permitted to enter SA.

**TOTAL**: 185,214 tonnes

**Excludes SA Other**: 291 tonnes

**SOURCE**: Phylloxera and Grape Industry Board of South Australia
1.3 Quantifying the wine industry

1.3.4 Storage, packaging & distribution

The Barossa’s role as a major national centre for wine processing, means that it is also a significant centre for the storage, packaging and distribution of wine.

The consequences of this are;
- increased traffic volumes, including heavy vehicles transporting raw materials inward for packaging and outward to distribution outlets in Australia and overseas;
- increased storage facilities, such as tank farms and warehouses for bulk and packaged wine;
- additional jobs;
- the establishment of new businesses and industries catering to storage, packaging and distribution, such as bottling plants, printing houses, transport depots etc; and
- increased volumes of solid waste, particularly from materials used in packaging raw materials.

ISSUE
Facilities required for wine storage, packaging and distribution, are generally large, obtrusive and of an industrial nature, and therefore can detract from the Barossa’s natural beauty.

RECOMMENDED ACTION
Make available opportunities for new facilities of this kind to be developed in areas of low impact.

GRAPE VALUE
In 2002, the average price paid for grapes grown in the Barossa Valley was $1,423 per tonne.

In 2002, the average price paid for grapes grown in Eden Valley was $1,631 per tonne.

In total, the estimated value of grapes grown in the Barossa in 2002 was more than $95 million.

1.3.5 Value of the wine industry

While the wine industry is vital to the economy of the Barossa, it is not easy to quantify its total value. Data on Barossa-grown grapes is available (see sidebar), but this relates to grape value which is only a small part of the total value of the industry. As well as the capital value of vineyards, wineries and processing equipment, there is enormous value added through employment, wine brands and cellar door outlets. In addition, there are many other related industries that support the wine industry and add further value to the local and broader economy. These are discussed in more detail on the opposite page.
The wine industry comprises a wide range of stakeholders, including grape growers, suppliers, winery owners/operators (and their respective employees and shareholders), relevant educational institutions, wine and tourism related associations, and community infrastructure. In addition, an extensive industrial base has developed to support the wine industry. Specialist industries that support the production of wine include:

- Vineyard contracting
- Wine and grape transport
- Wine storage tank manufacturing
- Warehousing
- Packaging/distribution
- Cooperage (barrel making)
- Machinery manufacture and sales
- Irrigation equipment
- Vine nurseries
- Marketing support, eg design, printing and public relations

Several major suppliers have established businesses in the Barossa, which give vineyard operators and wine producers greater access to equipment, materials and services.

**ISSUE**

Industrial land is at a premium in the Barossa and there are sound reasons to direct large, new wine-related industries to the Industry (Gawler Belt) Zone or regions adjacent to the Barossa.

**RECOMMENDED ACTION**

Provide infrastructure for industrial-based businesses to set up or relocate to non-sensitive areas adjacent to the Barossa.
1.4 Wine industry partners

Each time a new vineyard is established, or an existing one is redeveloped, work and income is created for a large number of businesses and individuals. Listed below, is a summary of the main actions required to establish a vineyard and a winery, and the subsequent work which is generated.

<table>
<thead>
<tr>
<th>Action required</th>
<th>Work generated for...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business plan</td>
<td>Consultants/accountants</td>
</tr>
<tr>
<td>Generate finance</td>
<td>Bankers/investors</td>
</tr>
<tr>
<td>Land acquisition</td>
<td>Real estate agents/solicitors</td>
</tr>
<tr>
<td>Planning submissions</td>
<td>District Council/consultants</td>
</tr>
<tr>
<td>Land survey</td>
<td>Commercial services</td>
</tr>
<tr>
<td>Vineyard plan &amp; soil tests</td>
<td>Commercial services</td>
</tr>
<tr>
<td>Site preparation</td>
<td>Earthmoving contractors</td>
</tr>
<tr>
<td>Vineyard preparation</td>
<td>Fertiliser suppliers/contractors</td>
</tr>
<tr>
<td>Vineyard establishment</td>
<td>Vineyard contractors</td>
</tr>
<tr>
<td>Trellising supplies</td>
<td>Fencing material supplier</td>
</tr>
<tr>
<td>Irrigation equipment</td>
<td>Irrigation supplier</td>
</tr>
<tr>
<td>Vines</td>
<td>Vine nursery/vine guard supplier</td>
</tr>
<tr>
<td>Roads</td>
<td>Civil engineering company</td>
</tr>
<tr>
<td>Electricity and trenching</td>
<td>ETSA Utilities/electrician</td>
</tr>
<tr>
<td>Water licence</td>
<td>BIL</td>
</tr>
<tr>
<td>Water connection</td>
<td>Irrigation company</td>
</tr>
<tr>
<td>Tanks</td>
<td>Tank supplier</td>
</tr>
<tr>
<td>Dam construction</td>
<td>Earthmoving contractors</td>
</tr>
<tr>
<td>Shedding</td>
<td>Shed company</td>
</tr>
<tr>
<td>Vineyard maintenance</td>
<td>Vineyard contractors</td>
</tr>
<tr>
<td>Vineyard equipment</td>
<td>Machinery suppliers</td>
</tr>
<tr>
<td>Financial records</td>
<td>Accountant</td>
</tr>
</tbody>
</table>
1.4 Wine industry partners

Table 4. CASE STUDY: WINERY “Y”

<table>
<thead>
<tr>
<th>Action required</th>
<th>Work generated for...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land purchase</td>
<td>Real estate agents/solicitors</td>
</tr>
<tr>
<td>Planning submissions</td>
<td>District Council</td>
</tr>
<tr>
<td>Planning services</td>
<td>Planners</td>
</tr>
<tr>
<td>Soil analysis</td>
<td>Commerical services</td>
</tr>
<tr>
<td>Water survey</td>
<td>Commercial services</td>
</tr>
<tr>
<td>Earthworks</td>
<td>Civil engineers</td>
</tr>
<tr>
<td>Environmental Design</td>
<td>Consultants</td>
</tr>
<tr>
<td>Landscaping</td>
<td>Consultants</td>
</tr>
<tr>
<td>Traffic management/roads</td>
<td>Consultants/civil engineers</td>
</tr>
<tr>
<td>Architectural design</td>
<td>Architects/structural engineers</td>
</tr>
<tr>
<td>Electrical</td>
<td>Electricians</td>
</tr>
<tr>
<td>Project management</td>
<td>Shedding company</td>
</tr>
<tr>
<td>Site shed</td>
<td>Hire company</td>
</tr>
<tr>
<td>Toilet hire</td>
<td>Waste mangement company</td>
</tr>
<tr>
<td>Rubbish removal</td>
<td>Fencing supplier</td>
</tr>
<tr>
<td>Fencing and gates</td>
<td>Commercial services</td>
</tr>
<tr>
<td>Waste water management</td>
<td>Engineers/Builders</td>
</tr>
<tr>
<td>Foundations</td>
<td>Plumbers</td>
</tr>
<tr>
<td>Drains</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Crusher pits</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Tank farms</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Crushers and presses</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Laboratory equipment</td>
<td>Builders</td>
</tr>
<tr>
<td>Weighbridge building</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Receival bins</td>
<td>Builders</td>
</tr>
<tr>
<td>Office amenities</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Crushers</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Fermenters</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Roofing</td>
<td>Builders</td>
</tr>
<tr>
<td>Storage tanks</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Electrical services/trenching</td>
<td>Electricians</td>
</tr>
<tr>
<td>Water reticulation</td>
<td>ETSA Utilities</td>
</tr>
<tr>
<td>Hydrants and hosereels</td>
<td>Plumbers</td>
</tr>
<tr>
<td>SA Water connection</td>
<td>Supplier</td>
</tr>
<tr>
<td>Pumps</td>
<td>SA Water</td>
</tr>
<tr>
<td>Water tanks</td>
<td>Pump supplier</td>
</tr>
<tr>
<td>Stormwater collection</td>
<td>Tank supplier</td>
</tr>
<tr>
<td>Effluent disposal</td>
<td>Plumber/supplier</td>
</tr>
<tr>
<td>Air compressor</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Natural gas reticulation</td>
<td>Gas company</td>
</tr>
<tr>
<td>Winelines</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Wine equipment</td>
<td>Winery equipment suppliers</td>
</tr>
<tr>
<td>Stairs and handrails</td>
<td>Builders</td>
</tr>
<tr>
<td>Communications upgrade</td>
<td>Communications company</td>
</tr>
</tbody>
</table>

RULE OF THUMB

For larger wineries the cost to set up is more than $1,000 per tonne of installed crush capacity.

An example of a breakdown of costs is:

- Storage - including tanks, catwalks and insulation - 25%
- Site - including earthworks, concrete and buildings - 25%
- Processing equipment - 15%
- Land and roads - 10%
- Electrical -10%
- Refrigeration -10%
- Administration block -2%
- Various mobile winery equipment - 3%
The Barossa’s core theme is wine and its strength is such that the region is the most recognised destination in South Australia, outside of Adelaide. As a result, tourism is a major industry in the Barossa.

The natural and cultural resources of the Barossa are of critical economic, social and environmental value to the tourism industry. Visitor perception relates primarily to the region’s natural beauty, European heritage and reputation as a quality wine producing area. The Barossa presents a destination focus based upon its natural and heritage attributes and its high quality, low density development.

The wine region has more than 50 cellar door sales outlets, ranging from small family wineries to major national companies. The wine theme is strongly supported by other attractions which include food produce, dining, heritage buildings, festivals and events, a range of accommodation from B&Bs to hotels, and adventure options such as hot air ballooning, cycling and bushwalking.

Over a 12-month period in 2002 there was a total of 688,000 daytrips to the Barossa, with 115,000 of these estimated to be international visitors. In addition, there were a total of 241,000 overnight visitors staying a total of 518,000 nights. Of these, 17,000 were international visitors staying a total of 39,000 nights.

Visitor numbers to local attractions and events in 2002/03 showed that Angas Park Fruit Company in Angaston attracted 64,500 visitors, while the 2003 Barossa Vintage Festival attracted 50,000 visitors.

A South Australian Tourism Commission market research study into cellar door sales outlets in South Australia in 2003 shows that day trip visitors to the Barossa attended an average of 4.2 cellar doors per trip in the region, whilst overnight visitors attended 6.2 cellar doors. This equates to 2.4 million cellar door visits.

A higher proportion of domestic holiday visitors visit wineries in the Barossa than in any other tourism region in SA.

Visitor perception of wine regions was included in the survey, with visitors asked to match certain phrases with nine different wine regions, including six from South Australia.

As shown by Table 5 (see opposite page), cellar door visitors surveyed ranked the Barossa first by a significant majority in all the positive phrases listed.

The survey found that “The Barossa is the premium wine region in South Australia with high levels of awareness and strong associations across a wide range of destination attributes.”

FACT

Spending by domestic overnight visitors to the Barossa in 2000 was estimated to be $48 million. Domestic day trip visitors spent $69m.
1.5 Tourism

**ISSUE**
The Barossa is a major tourist attraction. For tourists the attractiveness is based on the character of the landscape, townships and the picturesque vineyards, which will be compromised by extensive residential and industrial expansion. Protection and enhancement of the landscape is critical to maintaining the Barossa's viability as a tourist destination.

**RECOMMENDED ACTIONS**
- Identify and protect characteristics and key landscapes that are fundamental to the Barossa.
- Land zoned for industry, should be kept apart from core winery, heritage, tourist and important primary production areas.

### Table 5. Regional cellar door survey

<table>
<thead>
<tr>
<th>Feature</th>
<th>Barossa</th>
<th>Clare Valley</th>
<th>Yarra Valley</th>
<th>Hunter Valley</th>
<th>Margaret River</th>
<th>Limestone Coast</th>
<th>Riverland</th>
<th>Adelaide Hills</th>
<th>McLaren Vale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beautiful country side and scenery</td>
<td>59%</td>
<td>36%</td>
<td>12%</td>
<td>12%</td>
<td>13%</td>
<td>10%</td>
<td>5%</td>
<td>15%</td>
<td>29%</td>
</tr>
<tr>
<td>Lots of heritage and historical buildings</td>
<td>59%</td>
<td>18%</td>
<td>3%</td>
<td>5%</td>
<td>2%</td>
<td>4%</td>
<td>1%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Lots of wineries to visit</td>
<td>71%</td>
<td>22%</td>
<td>5%</td>
<td>12%</td>
<td>7%</td>
<td>12%</td>
<td>4%</td>
<td>7%</td>
<td>32%</td>
</tr>
<tr>
<td>Excellent cellar door facilities</td>
<td>60%</td>
<td>24%</td>
<td>5%</td>
<td>10%</td>
<td>6%</td>
<td>12%</td>
<td>4%</td>
<td>8%</td>
<td>32%</td>
</tr>
<tr>
<td>Boring</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Touristy and tacky</td>
<td>7%</td>
<td>1%</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Natural areas/bushwalking</td>
<td>28%</td>
<td>22%</td>
<td>4%</td>
<td>5%</td>
<td>7%</td>
<td>2%</td>
<td>2%</td>
<td>6%</td>
<td>16%</td>
</tr>
<tr>
<td>Easy to get around</td>
<td>46%</td>
<td>19%</td>
<td>5%</td>
<td>9%</td>
<td>5%</td>
<td>11%</td>
<td>4%</td>
<td>8%</td>
<td>28%</td>
</tr>
<tr>
<td>Good restaurants/cafes</td>
<td>50%</td>
<td>16%</td>
<td>5%</td>
<td>8%</td>
<td>5%</td>
<td>5%</td>
<td>2%</td>
<td>7%</td>
<td>24%</td>
</tr>
<tr>
<td>Sophisticated</td>
<td>34%</td>
<td>6%</td>
<td>3%</td>
<td>7%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>Laid back</td>
<td>24%</td>
<td>17%</td>
<td>4%</td>
<td>5%</td>
<td>4%</td>
<td>8%</td>
<td>4%</td>
<td>6%</td>
<td>25%</td>
</tr>
<tr>
<td>Exciting</td>
<td>22%</td>
<td>5%</td>
<td>3%</td>
<td>4%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
<td>8%</td>
</tr>
<tr>
<td>Great to visit - even if don’t like wine</td>
<td>55%</td>
<td>22%</td>
<td>5%</td>
<td>8%</td>
<td>10%</td>
<td>11%</td>
<td>4%</td>
<td>10%</td>
<td>26%</td>
</tr>
<tr>
<td>Good place to stay overnight</td>
<td>45%</td>
<td>20%</td>
<td>5%</td>
<td>8%</td>
<td>6%</td>
<td>8%</td>
<td>4%</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>An area don’t know much about</td>
<td>15%</td>
<td>14%</td>
<td>32%</td>
<td>24%</td>
<td>27%</td>
<td>25%</td>
<td>23%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Smaller family run wineries</td>
<td>32%</td>
<td>18%</td>
<td>2%</td>
<td>4%</td>
<td>4%</td>
<td>6%</td>
<td>1%</td>
<td>4%</td>
<td>21%</td>
</tr>
<tr>
<td>Great quality wines</td>
<td>60%</td>
<td>27%</td>
<td>9%</td>
<td>13%</td>
<td>13%</td>
<td>17%</td>
<td>5%</td>
<td>13%</td>
<td>34%</td>
</tr>
<tr>
<td>Interesting accommodation</td>
<td>35%</td>
<td>14%</td>
<td>2%</td>
<td>4%</td>
<td>2%</td>
<td>5%</td>
<td>1%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Lots of festivals &amp; events</td>
<td>64%</td>
<td>8%</td>
<td>2%</td>
<td>5%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
<td>22%</td>
</tr>
</tbody>
</table>

*Source: SA Tourism Commission 2003 Cellar Door Market Research*
2 Regional Overview

2.1 Towns and population

FACT
As at June 30, 2002 the population of the Barossa Council area was 19,713 and the population of the Light Regional Council area was 10,826, a total of 30,539.

FORECAST
The Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP) for the Barossa and Light Regional Council areas predicts the population will have reached 32,045 by 2006.

FACT
Between Census periods, 1996 and 2001, the townships of Nuriootpa, Tanunda and Lyndoch, all within the Barossa Valley Floor Zone, have experienced an average of 10.5% population growth. It is expected that this rate of increase has continued over the last three years.

The heart of the Barossa consists of three main townships (Angaston, Nuriootpa and Tanunda) located in close proximity of one another within the Valley floor. These towns form the nucleus of the Barossa wine industry, with major wineries located nearby. Smaller towns are located around this nucleus, providing housing and services to residents.

Metropolitan Adelaide and its northern suburbs, including Gawler, are within commuter distance, providing residential options for wine industry employees.

Population growth in Barossa townships has steadily increased over the past decade, through expansion of the wine industry and associated employment opportunities, and the appeal of semi-rural living, within commuter distance of Adelaide.

Tanunda was one of six South Australian small towns to experience more than 10% population growth in the preceding decade. Its 23% increase has been attributed to the growth of the local wine industry. Nearby, Gawler also experienced a 36% increase over the same period. Smaller towns in the Barossa have also recorded significant growth.

The towns and settlements in the Barossa are a significant part of the charm and character of the area. Growth and pressure on these communities, particularly in regard to housing provision, is occurring as the economic activity of the region increases.

ISSUE
There is uncertainty as to the requirement for additional housing in the Barossa over the next 10 years. It is unclear whether current residential zones are sufficient to accommodate the expected growth in population and new dwellings.

RECOMMENDED ACTION
Undertake a credible assessment of residential needs.

continued page 25
2.1 Towns and population

**ISSUE**
There are several constraints to continuing residential expansion in the Barossa's major towns, particularly the existing regional planning policy that generally discourages township expansion. This has been established by Barossa Council to preserve the character of its rural towns.

**RECOMMENDED ACTIONS**
- Look to Gawler, Light Regional and Mid Murray Councils to provide residential opportunities for the bulk of new employees that may result from continued expansion of the Barossa wine industry.
- Consider density controls to reduce minimum allotment sizes, encourage a range of residential types and restrict pressure on township expansion.

**ISSUE**
Residential expansion from the metropolitan area is a particular concern on the southern fringes of the region around Gawler.

**RECOMMENDED ACTION**
Barossa Council and Light Regional Council need to protect the integrity of their council areas through planning and zoning to avoid land use conflicts.

**ISSUE**
Existing infrastructure, particularly water and sewerage, is currently operating at capacity and will need significant upgrading to accommodate even relatively small amounts of residential infill or township expansion.

**RECOMMENDED ACTION**
Identify major impediments to township growth in terms of the infrastructure needed to accommodate new dwellings. Prioritise these for upgrades.

**ISSUE**
Many of the existing townships are located on or immediately adjacent to land with the greatest potential for primary production. Extension of towns, roads and service areas over such land irreversibly removes it from primary production and detracts from the rural landscape.

**RECOMMENDED ACTION**
Ensure appropriate zoning regulations are in place to preserve land with high potential for primary production and to protect the visual amenity of rural land.

---

**FACT**
Over the last six years, Barossa and Light Councils have approved an average of 212 dwellings per annum.

**FORECAST**
The creation of more than 3,000 full-time, wine-industry related jobs from 2001 to 2011 will generate a requirement for another 2,330 new dwellings.

**FACT**
Existing regional planning policy generally discourages township expansion, due to a desire to preserve the low density, country town character of existing Barossa townships, as well as the productivity of agricultural land.

**FACT**
Existing infrastructure, particularly water and sewerage, is currently operating at capacity and will need significant upgrading to accommodate even relatively small amounts of residential growth or township expansion.
2.2 Economic activity

Primary industries
Viticulture and winemaking are major components of the Barossa economy, and both are currently experiencing strong growth. Production from other agricultural industries – fruit, grain, meat, livestock, and associated manufacturing and service industries - add substantially to income generated from winemaking.

Manufacturing
The predominant manufacturing industry is the production of wine. Other manufacturing industries include those specialising in support to the wine industry and farming.

Services
The Barossa is serviced by a wide range of private, retail, health, education and recreational services. In addition, there are many Council and Government agencies and services that are struggling to cope with the pressures of growing population and economic activity.

ISSUE
Due to the perceived economic wealth of the Barossa, there is a risk of complacency from those responsible for allocating public funds. The result is a lag effect, where community infrastructure (such as health services and recreational facilities) are not of a standard to meet the needs of the population. This impacts on the region’s ability to attract employees and investors.

RECOMMENDED ACTION
Councils and State Government need to implement infrastructure investment plans and have regard for the economic dynamics of the region.

2.3 Employment

Special tabulations from the 2001 Census enable comparisons to be made between employment by place of work (i.e. the number and types of jobs located in the region) and employment by place of residence (i.e. the nature of work undertaken by residents regardless of where the jobs are located). This information shows that there are more employed residents in the Barossa and Light Regional Council areas than there are jobs, suggesting that there is a net outward flow of about 2000 employees travelling to jobs outside these council regions.

The bulk of these outward movements were by persons employed in the professional and service industries sector.
2.3 Employment

A large percentage of the jobs in these two Council areas, were directly linked to the wine industry, with more than 3000 jobs in grapegrowing, wine manufacturing and liquor wholesaling (see Table 6).

Jobs in cellar door sales outlets were not listed separately, but there were 641 jobs in accommodation, cafes and restaurants - demonstrating the significance of the links between the wine industry and tourism in the Barossa.

Expansion of the wine industry will undoubtedly generate additional work opportunities in the Barossa and Light Council areas. A recent study by Connor Holmes predicted that more wine related jobs would be created as a result of the growth of the wine industry in the region in the 10 years to 2011.

**ISSUE**
There is a need to increase the labour force to meet the demands of economic activity. However, the Barossa is close to capacity in terms of residential development.

**RECOMMENDED ACTIONS**
• Undertake a survey of major employers to determine the commuting and residential patterns of employees.
• Look to adjacent regions for new residential opportunities.

---

### Table 6. Employment in the Barossa

In 2001, those **employed** within the Barossa and Light Council areas worked in the following jobs (top 6 only):

<table>
<thead>
<tr>
<th>Type of job</th>
<th>No. of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>wine manufacturing</td>
<td>1,921</td>
</tr>
<tr>
<td>retail trade</td>
<td>1,376</td>
</tr>
<tr>
<td>other manufacturing</td>
<td>1,090</td>
</tr>
<tr>
<td>grapegrowing</td>
<td>979</td>
</tr>
<tr>
<td>health &amp; community services</td>
<td>836</td>
</tr>
<tr>
<td>education</td>
<td>807</td>
</tr>
</tbody>
</table>

In 2001, **residents** of the Barossa and Light Councils were employed in the following jobs (top 6 only):

<table>
<thead>
<tr>
<th>Type of job</th>
<th>No. of residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>retail trade</td>
<td>1,609</td>
</tr>
<tr>
<td>wine manufacturing</td>
<td>1,538</td>
</tr>
<tr>
<td>other manufacturing</td>
<td>1,337</td>
</tr>
<tr>
<td>health &amp; community services</td>
<td>1,083</td>
</tr>
<tr>
<td>grapegrowing</td>
<td>969</td>
</tr>
<tr>
<td>education</td>
<td>941</td>
</tr>
</tbody>
</table>

**SOURCE:** Census 2001 (special tabulations)
Aside from domestic and recreational uses, water is frequently required to supplement soil moisture for the cultivation of grapevines.

**SA Water**
The Barossa’s towns receive filtered water from three different parts of the SA Water network (see Figure 5).

**Barossa Infrastructure Limited (BIL)**
BIL is an incorporated company operating a private pipeline on behalf of its shareholders. It reticulates non-potable irrigation water drawn from the Warren Reservoir to approximately 340 vineyard sites within the Barossa Valley through a 180km pipeline (see Figure 6). The scheme commenced early in 2002 and supply is augmented by water from the River Murray.

The purchase or lease (by BIL) of water rights from the River Murray offsets the Warren Reservoir supply (from SA Water); thereby allowing the exchange of community owned water for water drawn from the Murray.

The scheme currently has
- 5,000mL of Premium Water (available during the growing season); and
- 2,000mL of Off Peak Water (only available outside of the growing season).

All but 780mL of Off Peak Water has now been sold.

BIL is currently increasing the supply of Premium Water to 6,000mL in 250mL increments. A further tranche of 500mL Premium Water and 1,500mL Off Peak Water will become available later, subject to demand.

The limitations to the BIL water include:
- Off Peak Water needs to be stored on farm – in soil or dam – for use in the growing season
- The pipeline route has capacity for expanded off-take of Premium Water from Gomersal back to Williamstown

Hence, the expansion of vineyards outside of that currently planted is linked to existing pipeline route and capacity.

---

**continued page 30**

---

**28**
Figure 5. Barossa and Light water supply
3.1 Water

Other
Access to ground water is limited by The Water Allocation Plan for the Barossa Prescribed Water Resources Area. Local aquifers vary in quality (salinity) and level of utilisation. It is probable that under-utilised aquifers are high in salinity. It is possible that reverse osmosis may - in time - present a cost-effective opportunity to reduce the salinity of marginal aquifers to sustainable levels for vineyard use, thereby opening up an additional water source. Other surface water sources such as the North Para River are fully utilised.

ISSUE
Water provision for viticultural, industrial, rural and domestic use is a potential constraint on further development in the Barossa. A number of areas in the Barossa experience low water pressure due to increasing demands. Expansion of viticulture and related industries will be dependent upon finding additional sources of water.

RECOMMENDED ACTION
Undertake a survey of the wine industry to determine future water requirements (for vineyards and wine processing).

ISSUE
Significant supply issues currently exist at Greenock, Shea-Oak Log and Freeling during times of peak demand. The spur to Kapunda is very old and in need of upgrade. As such the capacity to expand Kapunda will be limited unless major upgrading occurs.

RECOMMENDED ACTION
Undertake a feasibility study of upgrading SA Water spurs to Greenock/Sheoak-Log, Freeling and Kapunda.

ISSUE
The future requirements of the Barossa Reservoir and treatment plant are under review, as the system is already at capacity during the summer months.

RECOMMENDED ACTION
Take action to upgrade facilities upon completion of the review.
3.1 Water

Figure 6. BIL pipeline coverage in the Barossa
3.2 Wastewater and stormwater

**Wastewater**
Towns in the Barossa region are serviced by one of three sewage treatment systems – United Water sewer (Angaston & Gawler), on-site treatment & disposal (Springton, Eden Valley, Moculta, Sandy Creek, Wasleys & Shea-Oak Log), and Council operated Septic Tank Effluent Disposal System (STEDS) schemes (the remainder).

The Nuriootpa STEDS scheme is close to capacity, reliant on aging infrastructure and cannot continue to discharge treated wastewater into the North Para River. Many other towns also need upgrades to meet the planned population growth.

North Para Environmental Control (NPECO) currently operate – on behalf of Southcorp and Tarac - a 650mL treatment plant which has capacity for a significantly expanded throughput. The majority of other wineries treat their wastewater in-house with varying amounts of re-use.

Projected population and wine processing expansion will generate increased volumes of wastewater.

Wastewater from towns and wineries represents a significant opportunity to expand water availability through its constructive re-use for irrigation and other purposes. The Nuriootpa STEDS for example currently discharges 248mL per year into the North Para watercourse. Other disposal options currently used include tree- lots, pasture and evaporation.

The current disposal problems could be converted into water supply opportunities where dumping into the environment is replaced by constructive and profitable re-use. Tanunda STEDS for example have supplied water for vineyard irrigation for more than 30 years.

**Stormwater**
The towns in Barossa and Light Regional Councils are located on creek lines. These creeks are the principal stormwater management systems for these towns. Many towns do not have extensive underground stormwater management networks and several rely almost entirely on stormwater travelling at surface level to the nearest creek. Grass swales or drainage channels are a common feature in the area. Towns that are most problematic comprise Nuriootpa, Tanunda, Lyndoch, Stockwell and Springton.

Flood studies have been undertaken for Greenock (1986), Kapunda (2000), and Roseworthy (2002) with works proposed to control floodwaters, mainly through overland flow.

**ISSUE**
Valuable water resources are often wasted in the name of “wastewater”. This is frequently harmful to the environment through localised build-ups of salt and nutrient pollution of watercourses.

**RECOMMENDED ACTIONS**
- Treat ‘wastewater’ as a positive resource for which re-use opportunities need to be found, e.g. irrigation of parks, vineyards and possible industrial applications. Actively encourage this change through the development of a mechanism to facilitate the sale/productive use of this water.
- Collate information about the amount of wastewater generated, with a view to developing collaborative solutions to the treatment and re-use of wastewater.
3.2 Wastewater and stormwater

**ISSUE**
Problems are evident in existing stormwater systems in Nuriootpa, Tanunda, Lyndoch, Stockwell and Springton.

**RECOMMENDED ACTION**
Develop a comprehensive approach to stormwater management in all Barossa towns, with priority on the towns listed above.

3.3 Solid waste management

**FACT**
The following solid waste is generated from the processing of one tonne of grapes;
- an average of 25kgs of grape stalks;
- 120 to 140kgs of grape marc (spent grape skins).

The winemaking process generates marc (skins & seeds) and stalks during crushing and pressing of the grapes. The preparation of the wine for market involves clarification processes (the removal of grape solids) which generate spent filter earth.

Currently, most of the grape marc is re-processed by Tarac Technologies to recover valuable by-products such as alcohol, antioxidants, and wine before being used as stock-feed or compost. Most of the spent filter earth is also re-processed to recover alcohol and tartaric acid.

Wine packaging operations generate glass, cardboard and other materials, which are generally recycled through well-established recycling systems. However, only the larger wineries have effective arrangements in place for plastics.

Wines in the Barossa have implemented practices designed to minimise waste generation and to recycle wherever possible.

**ISSUE**
Plastic disposal is a problem for small to medium-sized companies and it is frequently disposed of through general waste collection into landfill.

**RECOMMENDED ACTION**
Initiate discussions between the wine industry’s forums, manufacturers and recyclers to find a solution.
Electricity
All of the towns in the Barossa region have access to electricity. Additional residential loads could probably be accommodated with virtually no modification to the existing distribution network. However, on occasions the electricity supply has been criticised by residents and businesses, with blackouts, low-voltage/current and power surges becoming problems in peak periods.

Natural gas
Current gas suppliers serve major customers in Gawler, Nuriootpa, Angaston (including the cement works), Freeling, and the Gawler Belt industrial area. Nuriootpa’s gas supply also serves some major wineries in the area. Some consideration is being given to a gas supply to Tanunda if a major industrial consumer can be identified.

The South East Australia (SEA) gas pipeline, which brings gas from Victoria, passes through the region. However, any extension to service areas within the region will depend upon securing a major consumer.

ISSUE
Periodic power failures and interruptions to domestic and industrial electricity supply, has been attributed to aged and inadequate infrastructure.

RECOMMENDED ACTION
ETSA Utilities to liaise with Councils and wineries in an effort to provide additional power supplies to cater for residential and industrial growth. These services to have a minimal impact on scenic rural landscapes.

ISSUE
There is no available data about the current and future electricity and gas requirements of Barossa industry.

RECOMMENDED ACTION
Survey major wineries and industrial sites to determine their power requirements today and in the future.
3.5 Transport

Using data from 1999, it was estimated there were 164,200 winery related truck movements (two-way) in and adjacent to the Barossa Valley that year. Total wine production in the Barossa in 1999 amounted to 282,500 tonnes. On a simple pro rata basis, winery related truck movements will have increased by 27% in 2001, and will double by 2009.

Surveys conducted by Transport SA, estimate that more than two million tonnes of goods are transported around the Barossa each year. Transport, by road, is a key cost factor for all industries.

Current traffic flows in the Barossa vary significantly. Traffic flows are greatest along the Sturt Highway between Gawler and Nuriootpa, and along Gomersal Rd to Tanunda; along Barossa Valley Way between Tanunda and Nuriootpa; and on the western approach to the Barossa between Gawler and Sandy Creek.

Heavy Vehicle Demands

The development of Gomersal Road has reduced truck movements on Barossa Valley Way, south of Rowland Flat, resulting in significant improvement in amenity in Lyndoch and Gawler. However, the movement of freight generated in the central and northern Barossa is still reliant on the existing road network.

Two-thirds of Barossa freight is generated in the Nuriootpa/Angaston area and one-third in the Tanunda/Rowland Flat area. Consequently, heavy vehicle volumes are highest in Nuriootpa, followed by Angaston and then Tanunda.

About 25% of freight movements are internal to the Barossa. Pre-Gomersal Rd upgrade, freight movements external to the Barossa were: 36% headed south via Barossa Valley Way, 33% south via Sturt Highway, 16% north east via Sturt Highway and 12% south east via Angaston.

At the present time, B-double access in the Barossa is restricted to those with an individual permit on designated routes (See Figure 7).

Kellogg Brown and Root (KBR) consultants have prepared the Northern Region Economic Development Transport Infrastructure Strategy, which is yet to be published. The recommendations are likely to include the following:

- Define strategic freight routes in the region, in particular an east-west freight network that accommodates a Murray Bridge/Williamstown/Gawler/Mid-North connection and a Sedan/Angaston/Nuriootpa connection;
- Investigate the need to provide town by-passes or alternative road networks:

FACT

In 1999 there were an estimated 164,200 winery related truck movements (two-way) in the Barossa.

FORECAST

By 2009, winery related truck movements (two-way) will have doubled to 328,400.

continued page 36
To the east of Nuriootpa (possibly using Samuel and Moppa roads to Sturt Highway);
• Directing traffic pressure away from the Barossa Valley Way and investigate the feasibility of this route as a local and tourism traffic road;
• Recognise the Sturt Highway as a major transport link and a major road safety concern and complete specific road safety measures;
• Begin the investigation of options for road or rail transport and the interconnectivity of these two modes through a possible local hub near Angaston or a local hub near Gawler;
• Improve local road access to Gomersal Road;
• Improve traffic safety at key points and in particular Kroemer’s Crossing, Stockwell Road and Murray Street, Tanunda;
• Review key concerns relating to tourism movement and signage, to keep peak load tourism traffic separate from freight activities;
• Optimise use of B-double routes in the Barossa.

Tourist demand
The Barossa is largely a self-drive tourism destination, with 93% of domestic holiday visitors nominating private car as the main transport used to travel to the region.

Tourism destinations are widely spread over the region, with tourist routes passing through places of interest in areas such as Seppeltsfield, Light Pass and Bethany.

Safety
Freight movement and traffic generated by commuters and tourism are the key transport components in the region. The safe and efficient interrelationship between these activities is important, particularly during the peak wine-related freight movements in February-April, during key tourism events and during peak commuter times.

Truck accident data indicates relatively high accident rates occurring along the primary road network – Sturt Highway, Barossa Valley Way, and the Barrier Highway – and in the main towns of Nuriootpa, Tanunda, Angaston and Kapunda.

Public transport
Public transport in the Barossa is limited to a twice-daily bus service to Adelaide and a train service that runs between Gawler and Adelaide.
3.5 Transport

ISSUE
Major wineries and industry are concentrated in the centre of the Barossa, with few exceptions. This results in the need for heavy vehicle access to and from locations in the heart of the Barossa, where tourism services and built-up areas are also concentrated, creating safety and access issues.

RECOMMENDED ACTION
Zone land appropriately to prevent further concentration of industry in the heart of the Barossa.

ISSUE
Access to the south of the Barossa by B-doubles is only permitted via Gomersal Road and the Sturt Highway and designated local roads including Stockwell Road. There is also a lack of B-double access from Angaston to the Sturt Highway.

RECOMMENDED ACTION
Improve heavy vehicle access from source to destination, for example B-Double access between Langhorne Creek and the Barossa.

ISSUE
Infrastructure is available, but rail is underutilised as an option for freight and public transport.

RECOMMENDED ACTIONS
• Standardise the existing railway line;
• Consider the integration of road/rail options, as well as opportunities for links to the Adelaide/Darwin railway line; and
• Explore rail commuter services linking northern suburbs to the Barossa.

ISSUE
Public transport in the Barossa is inadequate.

RECOMMENDED ACTION
Undertake surveys of commuter use with a view to developing a public transport system, including bus and rail, to reflect the needs and travel patterns of commuters.
3.5 Transport

Figure 7: Transport and tourist routes

LEGEND
- Red: Main Highway
- Green: Tourist route
- Blue: B Double network
- Dashed Blue: Proposed B Double network
- Grey: Railway

[Map showing transport and tourist routes with various locations marked, including Barossa Valley, Seppeltsfield, Marananga, Stockwell, Toowoomba, Bethany, and Eden Valley.]
The Barossa is substantially covered by mobile communication networks. Areas of less than satisfactory coverage remain generally in and around Mt Pleasant, Springton, Eden Valley, Angaston and Tanunda, together with black spots along main transport corridors. Mobile communications coverage is a vital element for the field based activities and dynamic nature of business operations for the Barossa wine industry.

**Internet services**
ADSL broadband services have been installed in the Nuriootpa and Tanunda exchanges by Telstra. This capacity provides high speed internet access within the service limitations for ADSL (generally a range of four linear kilometres of the exchange). This leaves other major towns, such as Angaston and Lyndoch, without high speed internet access.

In January 2004, BLD released its Broadband Services Strategy to obtain the provision of broadband services in the region.

The objectives are to ensure local businesses can be competitive in national and global markets; to retain and attract businesses in the Barossa; and to make the benefits of broadband services accessible to business and residential customers.

**ISSUE**
There is a lack of comprehensive mobile communications coverage in the Barossa.

**RECOMMENDED ACTION**
Encourage investment in mobile communication infrastructure and sharing of this infrastructure between carriers (eg. co-location).

**ISSUE**
High speed internet access is not available in most parts of the Barossa.

**RECOMMENDED ACTION**
Attract communication technology services to the Barossa.
The wine industry is one of South Australia’s most important value adding industries. The Barossa is not only Australia’s best known premium wine producing region in export markets, but is also a major wine processing, packaging and distribution hub.

Of Australia’s five largest wine companies, three are now consolidating their wine processing, packaging and distribution operations in the Barossa at an accelerating pace. This consolidation is massed on the Barossa Valley floor.

The paradox is that the scale of these operations is having an industrial impact on the region. This has the potential to destroy the rural values that are vital to the continuing success of export wine marketing and the critically important tourism industry.

The regional cellar door visitor survey (P23) clearly identifies the Barossa as SA’s top region in beautiful countryside and scenery, heritage and historical buildings.

This BLD study focuses on issues facing the Barossa now, and the impacts of the projected growth of 76% by 2011. This is but seven years away.

The Barossa is now at a major crossroad and faces unprecedented pressure in terms of (winery) scale and population, impacts on its landscapes and the draw upon its infrastructure.

The power of “Brand Barossa”, so painstakingly developed, is endangered.

This study points to the need for collaborative and co-operative action on the part of State authorities, Councils and the private sector to prevent irreversible losses to quality of sensitive landscapes, residential life, regional heritage and industrial amenity, whilst at the same time providing a framework allowing regional growth.

In the summary which follows, these issues and recommended actions are listed along with agencies or entities which should most appropriately take responsibility for implementation.

Doing nothing is not an option…action is needed now.
## Summary of recommended actions

<table>
<thead>
<tr>
<th>PAGE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Align policy and development regulations for horticulture/viticulture, wineries and ancillary activities across the Barossa GI Zone and within the four Council Development Plans as a matter of urgency.</td>
</tr>
</tbody>
</table>
| 12   | • Prepare suitable statutory planning definitions of ‘winery’ and related ancillary development in order to provide consistency in the assessment of development applications. The definition should encompass wine production, packaging, ancillary wine related activity, waste treatment and disposal, noise, odour, amenity, and tourism potential.  
   • Implement measures to ensure that new winery developments do not detract from the overall character of the Barossa. |
| 12   | • Take account of winery size in regard to impact, and consider the potential for expansion and cumulative effects.  
   • Establish limits to scale and industrial elements of wineries in sensitive landscapes. |
| 12   | Amend development plans to identify low impact areas where winery developments are more appropriate. |
| 13   | Ensure that Development Plans protect high potential viticultural land, identified by PIRSA to accommodate future growth of Barossa vineyards. |
| 14   | Assess the requirement for and availability of water. |
| 15   | • Survey major companies regarding their future intentions within the Barossa in order to identify their impacts and infrastructure needs.  
   • Modify council development plans to minimise the potential negative impacts of wine industry expansion. |
| 15   | Establish a centralised information database which coordinates information from individual wineries. The availability of accurate and reliable statistics is essential so that responsible and appropriate planning can occur. |
| 18   | Make available opportunities for new storage, packaging and distribution facilities to be developed in areas of low impact. |
| 19   | Provide opportunities and infrastructure for industrial-based businesses to set up or relocate to non-sensitive areas adjacent to the Barossa. |

**Responsibility**

<table>
<thead>
<tr>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning SA/Councils</td>
</tr>
<tr>
<td>Planning SA/Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>BiL/SA Water</td>
</tr>
<tr>
<td>BLD/Councils</td>
</tr>
<tr>
<td>BLD/Wineries</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>BLD in collaboration with Councils</td>
</tr>
</tbody>
</table>

*continued page 44*
## Summary of recommended actions

<table>
<thead>
<tr>
<th>PAGE</th>
<th>ACTION</th>
</tr>
</thead>
</table>
| 23   | • Identify and protect characteristics and key landscapes that are fundamental to the Barossa.  
      • Land zoned for industry, should be kept apart from core winery, heritage, tourist and important primary production areas. |
| 24   | Undertake a credible assessment of residential needs. |
| 25   | • Look to Gawler, Light Regional Council and Mid Murray Regional Councils to provide residential opportunities for the bulk of new employees that may result from continued expansion of the Barossa wine industry.  
      • Consider density controls to reduce minimum allotment sizes, encourage a range of residential types and restrict pressure on township expansion. |
| 25   | Barossa Council and Light Regional Council need to protect the integrity of their council areas through planning and zoning to avoid land use conflicts. |
| 25   | Identify major impediments to township growth in terms of the infrastructure needed to accommodate new dwellings. Prioritise these for upgrades. |
| 25   | Ensure appropriate zoning regulations are in place to preserve land with high potential for primary production. |
| 26   | Councils and State Government need to implement infrastructure investment plans and have regard for the economic dynamics of the region. |
| 26   | • Undertake a survey of major employers to determine the commuting and residential patterns of employees.  
      • Look to adjacent regions for new residential opportunities. |
| 30   | Undertake a survey of the wine industry to determine future water requirements (for vineyards and wine processing). |
| 30   | Undertake a feasibility study of upgrading SA Water spurs to Greenock/Sheoak-Log, Freeling and Kapunda. |
| 30   | Take action to upgrade facilities upon completion of the review. |

---

**Responsibility**

<table>
<thead>
<tr>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Councils/Planning SA/Barossa Wine &amp; Tourism Association</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils</td>
</tr>
<tr>
<td>Councils/Office of Infrastructure Development</td>
</tr>
<tr>
<td>BLD/Industry</td>
</tr>
<tr>
<td>SA Water/BIL</td>
</tr>
<tr>
<td>SA Water/BIL</td>
</tr>
<tr>
<td>SA Water/BIL</td>
</tr>
</tbody>
</table>

*continued page 45*
## Summary of recommended actions

<table>
<thead>
<tr>
<th>PAGE</th>
<th>ACTION</th>
</tr>
</thead>
</table>
| 32   | • Treat ‘wastewater’ as a positive resource for which re-use opportunities need to be found, e.g. irrigation of parks, vineyards and possible industrial applications. Actively encourage this change through the development of a mechanism to facilitate the sale/use of this water.  
• Collate information about the amount of winery wastewater generated, with a view to developing collaborative solutions to the treatment and re-use of wastewater. |
|      | RESPONSIBILITY |
|      | BLD/BIL |
| 33   | Develop a comprehensive approach to stormwater management in all Barossa towns, with priority on nominated towns. |
|      | RESPONSIBILITY |
|      | Councils |
| 33   | Initiate discussions between the wine industry’s forums, manufacturers and recyclers to find a solution to recycling plastic waste. |
|      | RESPONSIBILITY |
|      | Councils/Wineries/Industry |
| 34   | ETSA Utilities to liaise with Councils and wineries in an effort to provide additional power supplies to cater for residential and industrial growth with minimal impact on scenic rural landscapes. |
|      | RESPONSIBILITY |
|      | ETSA Utilities/Councils |
| 34   | Survey major wineries and industrial sites to determine their power requirements today and in the future. |
| 37   | Zone land appropriately to prevent further concentration of industry in the heart of the Barossa. |
| 37   | RESPONSIBILITY |
|      | Councils |
| 37   | Improve heavy vehicle access from source to destination, for example B-Double access between Langhorne Creek and the Barossa. |
|      | RESPONSIBILITY |
|      | Transport SA |
| 37   | • Standardise the existing railway line  
• Consider integration of road/rail options, as well as opportunities for links to the Adelaide/Darwin railway line.  
• Explore rail commuter services linking northern suburbs to the Barossa. |
|      | RESPONSIBILITY |
|      | Federal and State Governments/BLD/Councils |
| 37   | Undertake surveys of commuter use with a view to developing public transport system, including bus and rail, to reflect the needs and travel patterns of commuters. |
| 39   | Encourage investment in mobile communication infrastructure and sharing of this infrastructure between carriers (eg. co-location). |
| 39   | RESPONSIBILITY |
|      | BLD |
| 39   | Attract communication technology services to the Barossa. |
**Primary source**

**Other sources**
Abareconomics: Australian Wine Grape Production and Winery Intake – Projections to 2004/5 (December 2002)


Australian Wine & Brandy Corporation: various publications and website www.auswine.com.au

Australian Wine Export Council: various publications

Australian Wine & Brandy Corporation: various publications and website www.auswine.com.au

Australian Wine Export Council: various publications

Australian Wine & Brandy Corporation: various publications and website www.auswine.com.au

Barossa Valley Infrastructure Survey, 2001, Department of Industry and Trade (unpublished)

Barossa Valley Review Steering Committee: Barossa Valley Region Strategy Plan (December 1993)


Connor Holmes Consulting: Population and Residential Land Supply (December 2002)

Goss, Peter - Personal Communication


Kellog Brown and Root: Regional Action Plans for the Barossa Valley (draft, December 2002)

KBR: Northern Region Economic Development Transport Infrastructure Strategy (2003)

Light Regional Council: Development Plan

Northern Adelaide and Barossa Catchment Water Management Board: Statement of the Catchment (2001)
Bibliography

Northern Adelaide and Barossa Catchment Water Management Board - 'The Water Allocation....... Area', December 2002

Office of Tourism Industry Development: Barossa Valley Tourism Profile (March 1994)

Phylloxera & Grape Industry Board: various publications


QED Pty Ltd: The Barossa Access Study (April 2000).

SA Centre for Economic Studies: The Economic and Social Value of Barossa Wine Industry to the Local Community (February 2000)

SA Tourism Commission: Wine and Tourism (October 1997)

SATC - Regional Profile - Barossa, October 2003

SATC 2003 Cellar Door Market Research - Executive Summary

Stanford, Lawrie 2002 - A tale of two seasons - the results of the 2002


The Barossa Council: Strategic Plan 2002

The Barossa Council: Development Plan

The Winemakers' Federation of Australia: Vintage 2002

Transport SA - Classification Summary Report (Barossa Valley Way)

Winetitles: The Australian and New Zealand Wine Industry Directory, 2003 and 2004