

Cobram Strategy Plan

Industrial Land Review

Coomes Consulting for Moria Shire Council

January 2007

This Report has been prepared for:
Moira Shire

This report has been prepared by:
SGS Economics and Planning Pty. Ltd.

ACN 007 437 729
5th Floor, 171 Latrobe Street,
Melbourne Victoria 3000
phone: 61 3 8616 0331
fax: 61 3 8616 0332
email: sgsvic@sgsep.com.au
web: www.sgsep.com.au



Table of Contents

1	Introduction	1
1.1	Project Objective.....	1
1.2	The Study Area	1
2	Policy Framework Review	3
2.1	Moira Industrial Land Review	3
3	Assessment of Supply and Demand.....	7
3.1	Existing Conditions	7
3.2	Property Market Conditions	9
3.3	Industrial and Commercial Land Forecasts.....	10
3.4	Locational Assessment.....	12
4	Evaluation of Demand and Supply Analysis.	14
5	Appendix	15
5.1	Industrial Typology.....	15
5.2	Industrial Employment, Floorspace and Site Area Estimates to 2021.....	17

Tables

Table 1	Additional Industrial Land	6
Table 2	Land Overview, Non-Residential Development Types by zone, 2006.....	7
Table 3	Industrial Zoned Land Profile, 2006.....	8
Table 4	Site Value by Zones	9
Table 5	Site Value for Activities located on Industrial Land	10
Table 6	Industrial Employment Floorspace and Site Area Estimates, Moira (S) - West, 2001 - 2021	11

Figures

Figure 1	Cobram Zones.....	2
Figure 2	Cobram Industrial Areas.....	4
Figure 3	Cobram Industrial Development Sequence.....	12

1 Introduction

1.1 Project Objective

SGS Economics & Planning (SGS) was commissioned (via Coomes Consulting Group) by the Moira Shire Council to undertake a review of the Moira Shire Industrial Land Review and provide advice in regards to the likely demand for industrial land in Cobram for the next 20 years.

This economic input is intended to provide guidance for the future development of industry in the township of Cobram, aiding in the successful creation and implementation of the "Cobram Strategy Plan".

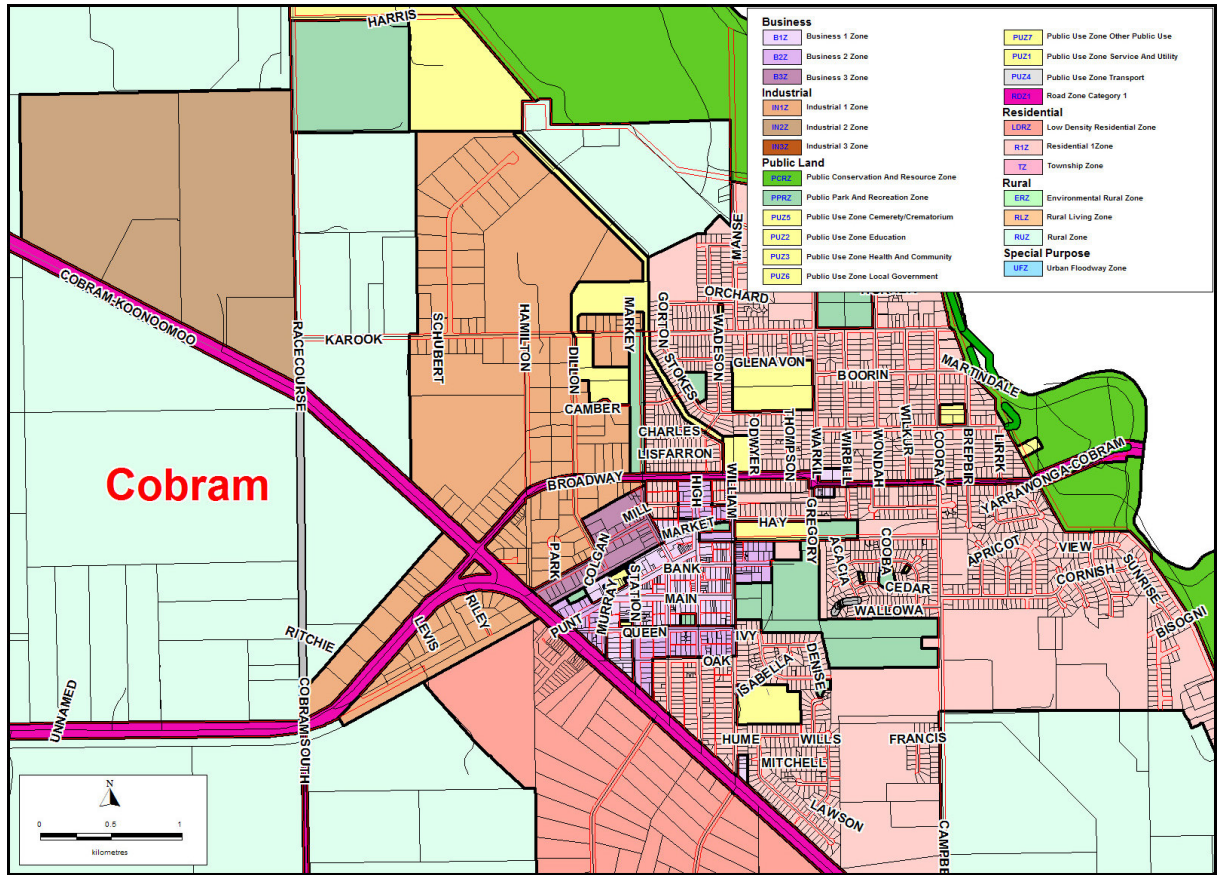
Specifically, this report:

- Provides a review of the 2004 Moira Industrial Land Review as related to Cobram
- Provides a review of existing industrial activity in Cobram
- Provides an estimate of likely future demand conditions for industrial uses in Cobram

1.2 The Study Area

Cobram is situated in the Northern region of Moira, bordered by the Murray River. The area is bound predominately by Rural Zoned land, supporting a vast agricultural sector. The greater part of the township of Cobram is Zoned Residential 1, with a proportion of Low Density Residential and Industrial Uses on the outskirts. The town itself is encircled by the Land Subject to Inundation Overlay, which features substantially across the municipality. The Cobram zoning map is shown in Figure 1 overleaf.

Figure 1 Cobram Zones



2 Policy Framework Review

2.1 Moira Industrial Land Review

*Moira Shire Council
Maunsell
November 2004*

In 2004 Maunsell was engaged by Moira Shire Council to undertake a study in regards to the development of industrial land within the Shire. This study involved, auditing existing industrial land, stakeholder consultation, identifying industrial opportunities, forecasting future needs, considering transport issues and developing planning strategies to provide for future opportunities. The aim of the study was to develop a strategic and statutory planning framework that would facilitate appropriate industrial land use and development within Moira Shire.

The following section provides an overview of the findings of Maunsell's Moira Industrial land review in relation to Cobram.

Economic Context

"The economic strengths of the Moira Shire include intensive irrigated agricultural production, associated food processing industries and tourism." (*Moira MSS, 2004*).

- The range of agricultural activities include horticulture, cereal, oilseed, livestock and dairy production.
- Agricultural production is estimated as being worth approximately \$300 million a year, employing 28.7% of the labour force.
- Agricultural output is supplied not only in Australia, but is increasingly being exported to international markets.
- Local processing of rural produce is important to the region and providing raw material for processing.

In March, 2001, Neil L Noelker Consulting produced an *Assessment of Industrial Land Needs in Cobram, Nathalia, Numurkah and Yarrawonga* and noted that between 1996 and 1999:

- 400 new businesses were established in the Shire, a growth of 26%
- Businesses associated with manufacturing increased from 218 to 433 a growth of 98.6%
- Construction associated industries grew by 41.5%
- The number of Transport and Storage operations grew by 45.6%

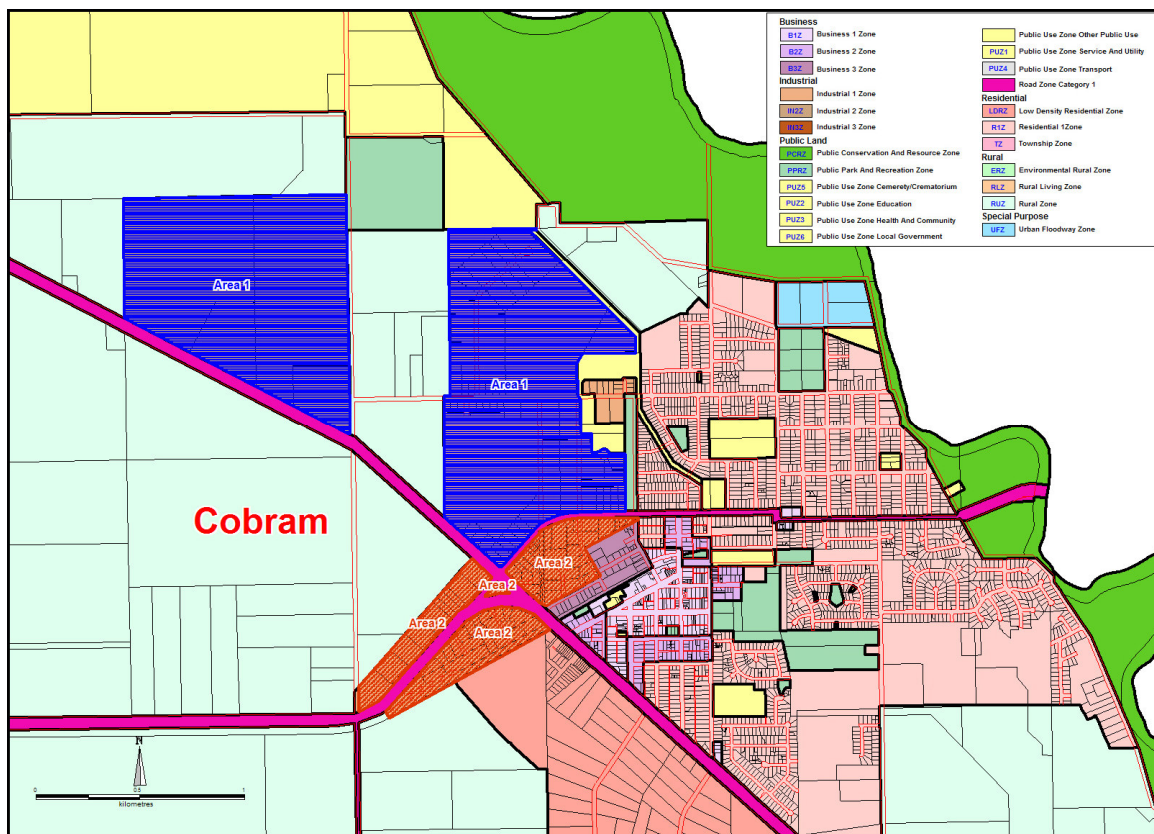
The report also noted that not only is more industrial land needed, but there is also a requirement for a significant upgrading of the infrastructure and facilities to support existing and future industry in towns.

Industrial Lands supply

The industrial area in Cobram is located in an area to the west of the township and is dissected by the Murray Valley Highway and Cobram-Koonoomoo Road, with 142 hectares of Industrial 1 Zone and 93 hectares of Industrial 2 (Table 4.1.7, p. 39)¹. The majority of this land was reported to be already taken up for industrial use, with little available to the open market.

An industrial land use audit was undertaken as part of the study to establish an overview of the industrial precincts with regards to accessibility, zoning, infrastructure provision, land use and environmental constraints. The Cobram Industrial area consists of two main areas – Area 1 is located on the northern side of the Cobram-Koonoomoo Road and Broadway Street between Ritchies Road and Gemmell Street and Area 2 is located between Ritchies Road and Cobram-Koonoomoo Road and the Murray Valley Highway and the southern side of Broadway Street between Terminus Street and Murray Valley Highway.

Figure 2 Cobram Industrial Areas



Source: SGS reproduction of Figure 2 in Moira Industrial Land Review, Moira Shire Council, 2004 (pg 36)

The audit detected a high rate of occupancy in both Area 1 and 2. While Area 1 had more vacant sites due to recent development, Area 2 had only a few vacant lots. Both areas had adjacent residential land use and public use and are easily accessible from surrounding roads. In regards to

¹ Note: these figures are inconsistent with the property data supplied by Council and used in the SGS analysis in section 3.

the planning controls, there were some inconsistencies with the zoning of these areas. Area 1 had a large passageway of rural zoned land that sits between the Industrial 1 and 2 zoned parts of this area. This continues to compromise the role and function of the Industrial Zones as some uses may not be able to meet their required buffer distances from sensitive land uses. On a positive note, the Public Use and the Public Park and Recreation Zone north of Area 1 act as a buffer from adjacent residential land use. Although Area 2 is bounded on its southern side by low density residential housing, the disused railway also abutting this area acts as an informal buffer zone. West of Area 2 is land zoned rural, which may be appropriate for future expansion of the industrial zones.

The report addressed the supply of industrial land and the extent to which it is utilised and under-utilised. Results of the audit and analysis demonstrated the requirement for a significant upgrade of the infrastructure and facilities to support existing and future industry. For Cobram, it was suggested that the first priority would be to further develop the industrial estate north of Karook Street. Other priorities included the relocation of the saleyards and redevelopment of the existing saleyards site, consideration of drainage works for new industrial development areas, schematically developing the land west of Cobram-Koonoomoo Road bounded by Richie Road, the extension of Dillon Street to Punt Road and the establishment of a buffer zone on the rail land within Cobram. It was also noted that a cluster analysis should be undertaken of the key industry sectors to ensure infrastructure is in place or planned to ensure continuous growth.

The analysis also investigated the trends in development based on local sources including the Council and real estate agents. Information provided by the Council suggested that manufacturing growth is focussed in Cobram. In particular, from 1999 – 2004 Moira Shire issued permits for 10 factories and 16 warehouses within Cobram. Real estate agents also reported that there had been a significant number of enquires for industrial land in Cobram.

Overall it has become apparent that there is a need for more industrial land. New land which could be considered for rezoning to industrial within Cobram includes, green field land to the west of the existing major Industrial 1 area and in the shorter and longer terms land bounded by the Murray Valley Highway, Richie Road and the Nathalia-Cobram Road.

Infrastructure

With respect to infrastructure issues the report noted that Cobram sources its water directly from the Murray River unlike some nearby towns within the Shire. The water authority indicated a clear preference for high water users to locate in Cobram and that this is important when directing future industrial development. In terms of gas supply, Origin Energy, the main gas supplier encourages potential new industrial gas users to locate near to the gas supply main in Cobram, as the supply is relatively more reliable. And Powercor highlighted the likely need for new power lines with increasing industrial development, as the existing capacity for large electrical loads is limited.

Emerging Opportunities/Issues

According to the Moira Industrial Lands Review, activities that are seeking future industrially zoned land include; processing of agricultural products as well as demand for storage facilities, transport facilities associated with storage, construction, and the local service industries. Cobram is

recommended as an appropriate location for catering for much of the expanded industrial capacity due to its activity structures and support infrastructure.

However, the lack of access to serviced industrial zoned land for purchase on the open market, provision of support infrastructure including transport and drainage and the availability of power and water are all seen as possible constraints to future development. As such, the report anticipated Cobram will need to provide an additional 16.5 hectares of serviced industrial land over the next 12 years until 2019. The table below highlights how many hectares will be needed over 4 year periods.

Table 1 Additional Industrial Land

Years	Cobram (hectares)
2005-2009	6
2010-2014	5.5
2015-2019	5
Total	16.5

Source: Moira Industrial Land Review, Moira Shire Council, 2004

Overall the Moira Industrial Lands Review key strategic direction for Cobram is to continue to capitalise and focus on larger scale operations, the processing of agricultural products and transport and storage. The report recommended that future industrial growth be accommodated in Cobram as follows:

- The land parcels north of Karook Street, north west of the existing industrial precinct. If this land is to be developed there would need to be funding for the provision of appropriate infrastructure in this area.
- It is recommended that residential (Oasis Village) and caravan park component of Oasis Homes be encouraged to relocate due to recent rezoning of land parcels west of Richie Road to Industrial 2, to be consistent with orderly and proper planning. It is suggested that the manufacturing component of Oasis Homes could possibly expand west towards Karook Street and Richie Road; this would provide direct access to major transport routes.
- Rezone land bounded by the Murray Valley Highway and the railway to the south, occupying frontage along the northern side of the Murray Valley Highway and bounded by the Murray Valley Highway, Broadway Street and north of the Business 3 zoned land from Industrial 1 to Business 4 zone. This will provide the opportunity to encourage industries such as peripheral sales requiring a high level of exposure to locate along major roads.
- Provide for future industrial land south of Cobram-Koonoomoo Road and south of the railway line.

3 Assessment of Supply and Demand

3.1 Existing Conditions

Table 2 below provides an overview of non-residential development conditions in Cobram by land use zone.

In total, there are 423 non-residential properties in Cobram which reside on 365.2 hectares of land.

Of these, 136 properties, or 96 hectares of land are zoned for industrial purposes, representing 26% of the non-residential land area in Cobram.

Approximately 9.5% of all properties – or 9.6% of land area – are vacant. Of the properties within the Industrial zone, 14% of properties - or 12.6% of the available Industrial zoned land – are vacant.

Table 2 Land Overview, Non-Residential Development Types by zone, 2006

Zone	No. of properties	No. of Vacant Sites	% Vacant	Total Land Area	Vacant Land Area	% of Land Vacant
B1Z	162	14	8.6%	20.25	1.16	5.7%
B2Z	21	3	14.3%	1.73	0.34	19.6%
B3Z	29	3	10.3%	3.87	1.10	28.4%
COM1Z	7	0	na	0.24	0.00	na
IN1Z	136	19	14.0%	96.11	12.09	12.6%
LDRZ	3	0	na	20.52	0.00	na
PPRZ	36	0	na	147.57	0.00	na
PUZ1	4	0	na	4.81	0.00	na
PUZ3	1	0	na	1.64	0.00	na
PUZ7	1	0	na	0.58	0.00	na
R1Z	23	1	4.3%	67.86	20.29	29.9%
Total	423	40	9.5%	365.2	34.974	9.6%

Source: SGS Economics and Planning using Moira Shire Council Data (Cobram Property info)

Note: None of the properties listed in the Cobram Property Information database were listed as being located in the Industrial 2 zone.

Table 3 overleaf summarises the industries in Cobram that reside on Industrially zoned land. Industrial and manufacturing industries account for the majority of properties (68%) and reside on 64% of the land zoned for industrial purposes. Of the industrial and manufacturing industries, factory and warehouses account for more than half the properties and land area.

Activities, such as Industrial and Manufacturing, Rural Production and Transportation, Storage, Utilities and Communication, which are traditionally classified as industrial uses, account for a total of 101 properties, residing on a total of 80 hectares – the equivalent of 84% of the available Industrial zoned land.

The greatest single industrial land user is rural production, with one property accounting for 16 hectares of industrial land. The abattoir is the second largest land holder, accounting for 8.2 hectares of industrial land.

Table 3 Industrial Zoned Land Profile, 2006

Activities	Sub-Classification	No. of Properties	Total land area (sqm)	% of Total Land area
Commercial	Funeral Parlour/Mortuary	1	1,361	0.1%
	Office	1	3,140	0.3%
	Service Station	1	4,442	0.5%
	Unspecified - Commercial	3	14,231	1.5%
	Vacant	4	46,855	4.9%
	Total		10	70,029
Culture, Recreation & Sport	Club/Clubroom	1	12,000	1.2%
	Indoor Sports Complex	1	5,410	0.6%
	Unspecified - Culture, Recreation & Sport	2	677	0.1%
	Total	4	18,087	1.9%
Industrial & Manufacturing	Abattoirs	1	82,410	8.6%
	Concrete Batching Plant	1	8,611	0.9%
	Depot	1	9,266	1.0%
	Factory	16	166,236	17.3%
	Factory Unit	1	8,000	0.8%
	Factory/Warehouse	4	14,122	1.5%
	Garage/Motor Vehicle Repairs	5	20,880	2.2%
	Heavy Industrial	1	4,016	0.4%
	Office/Factory	3	76,078	7.9%
	Office/Warehouse	8	24,683	2.6%
	Store	2	5,444	0.6%
	Unspecified - Industrial & Manufacturing	8	24,234	2.5%
	Vacant	14	73,609	7.7%
	Warehouse	16	45,081	4.7%
	Workshop	11	50,633	5.3%
Total		92	613,303	63.8%
Retail Trade	Car Sales Yard	2	4,053	0.4%
	Plant Nursery/Garden Supplies	2	11,300	1.2%
	Shop	9	20,257	2.1%
	Showroom	2	5,085	0.5%
	Timber Yard/Trade Supplies	2	10,476	1.1%
	Unspecified-Retail Trade	1	5,475	0.6%
	Vacant	1	465	0.0%
	Total	19	57,111	5.9%
Rural Production	Livestock Production-Mixed/Other	1	160,700	16.7%
Services - Public, Education & Health	Public/Government Building	1	2,650	0.3%
	Unspecified- Public, Education & Health	1	8,500	0.9%
	Total	2	11,150	1.2%
Transportation, Storage, Utilities & Communication	Bus Terminal	1	-	0.0%
	Hardstand/Storage Yard	1	4,321	0.4%
	Public Utility - Electricity	1	8,000	0.8%
	Silos	1	2,433	0.3%
	Transport Terminal	4	16,014	1.7%
Total		8	30,768	3.2%
TOTAL		136	961,148	100.0%

Source: SGS Economics and Planning using Moira Shire Council Data (Cobram Property info)

Highlights of the data are:

- Overall, Industrial 1 Zoned land accounts for 26% of Cobram’s non-residential land, with a total of 136 properties
- Cobram has approximately 96 hectares of industrial zoned land, of which 12.09 hectares is vacant

3.2 Property Market Conditions

Table 4 below shows average property values (\$) and site values per hectare for properties in Cobram utilising Moira Shire Council’s property data. Highlights for this table are:

- Values follow a common hierarchy in Cobram. Business 1 and 2 zones have the highest site value per hectare, followed by Business 3 zone.
- Following Public Use Zones, Industrially zoned land has the highest average site value. However, when land area is taken into account, the site value per hectare is significantly lower when compared to other zones.

Table 4 Site Value by Zones

Zone	Total Site Value	No.of properties	Average Site value	Total land area (hectare)	Site Value per hectare
B1Z	\$ 18,862,000	161	\$ 117,155	20.25	\$ 931,305
B2Z	\$ 2,518,000	21	\$ 119,905	1.73	\$ 1,459,118
B3Z	\$ 2,794,000	28	\$ 99,786	3.87	\$ 721,274
IN1Z	\$ 16,795,000	126	\$ 133,294	95.20	\$ 176,423
LDRZ	\$ 386,000	3	\$ 128,667	20.52	\$ 18,811
PPRZ	\$ 839,000	8	\$ 104,875	1.87	\$ 448,208
PUZ1	\$ 656,000	4	\$ 164,000	4.81	\$ 136,442
PUZ3	\$ 411,000	1	\$ 411,000	1.64	\$ 250,000
R1Z	\$ 2,754,000	16	\$ 172,125	67.80	\$ 40,617
Total	\$ 46,015,000	368	\$ 1,450,806	217.70	\$ 211,372

Source: SGS Economics and Planning using Moira Shire Council Data (Cobram Property info)

Note: this data excludes 54 observations with incomplete land area and site value data.

Table 5 below shows average property values (\$) and site values per hectare for properties residing on industrially zoned land in Cobram utilising Moira Shire Council’s property data.

Highlights for this table are:

- Values for industrial land also follow a hierarchy of value depending on the land use. Land zoned for industrial purposes, which is utilised for Retail Trade, attracts the highest value per hectare. Transportation, Storage, Utilities and Communication attracts the second highest value per hectare followed by Commercial uses.
- Industrial zoned land utilised for rural production has the lowest value per hectare.

Table 5 Site Value for Activities located on Industrial Land

Activities	Total Site Value	No. of Properties	Average Site value	Total land area (hectare)	Site Value per hectare
Commercial	\$ 1,414,000	10	\$ 141,400	7.00	\$ 201,916
Culture, Recreation & Sport	\$ 333,000	2	\$ 166,500	1.81	\$ 184,110
Industrial & Manufacturing	\$ 11,365,000	87	\$ 130,632	61.33	\$ 185,308
Retail Trade	\$ 2,613,000	19	\$ 137,526	5.71	\$ 457,530
Rural Production	\$ 210,000	1	\$ 210,000	16.07	\$ 13,068
Services - Public, Education & Health	\$ 79,000	1	\$ 79,000	1.12	\$ 70,852
Transportation, Storage, Utilities & Communication	\$ 781,000	6	\$ 130,167	3.08	\$ 253,835
TOTAL	\$ 16,795,000	126	\$ 133,294	96.11	\$ 174,739

Source: SGS Economics and Planning using Moira Shire Council Data (Cobram Property info)

Note: this data excludes 10 observations with incomplete land area and site value data.

The analysis in the above sections shows that Cobram has approximately 96 hectares of industrial land that is occupied by a variety of industry focused businesses.

The percentage of industrial zoned land that remains vacant is 12.6% (see table 2) which can be considered low. A typical vacancy rate for Industrial estates is about 20%.

Most of Cobram's industrial land is occupied by Industrial and Manufacturing related businesses. In addition, the profile data shows that elements of Commercial, Peripheral Retail and Transportation, Storage, Utilities and Communication uses also reside on Industrial land. Most of these activities occupy 'factoryettes' and depots.

3.3 Industrial and Commercial Land Forecasts

The following Industrial and Commercial Land Forecast analysis was undertaken by SGS in 2005 for Moira Shire Council's Numurkah Urban Design Framework². The data used in this analysis refers to the SLA Moira (S) – West, which incorporates the townships of Numurkah and Cobram and can therefore be utilised for the purpose of determining future industrial land requirements in Cobram. Specific details of typology and the methodology used can be found in the Appendix.

The results of the analysis are shown in the following table.

In summary, Moira (S) – West could have by 2021:

- About 918 additional industrial land jobs, almost all of which are in Manufacturing; and
- About 97,000 sqm of additional industrial floorspace occupying about 24.4 hectares of industrial land.

² Numurkah Urban Design Framework – Economic Analysis. Context Conybeare for Moira Shire Council (May, 2005)

Table 6 Industrial Employment Floorspace and Site Area Estimates, Moira (S) - West, 2001 - 2021

Sub-Category	Industry	Employment Change 2001-2021	Floorspace per Employee (Sq m)	Floorspace Change 2001-2021 (Sq m)	Floorspace to Site Area Ratio	Site Area Change 2001-2021 (Sq m)	Site Area Change 2001-2021 (Ha)
Manufacturing							
	Meat and dairy products	63	100	6,255	50%	12,510	1.25
	Other food products	506	80	40,716	50%	81,432	8.14
	Beverages, tobacco products	14	80	1,110	50%	2,219	0.22
	Textiles	2	60	112	50%	224	0.02
	Clothing and footwear	1	90	124	50%	248	0.02
	Wood and wood products	4	45	197	50%	395	0.04
	Paper, printing and publishing	18	70	1,271	50%	2,541	0.25
	Petroleum and coal products	0	200	0	50%	0	0.00
	Chemicals	1	200	287	50%	574	0.06
	Rubber and plastic products	0	150	0	50%	0	0.00
	Non-metallic mineral products	4	80	333	50%	666	0.07
	Basic metals and products	17	120	2,080	50%	4,159	0.42
	Fabricated metal products	8	30	226	50%	453	0.05
	Transport equipment	12	50	587	50%	1,174	0.12
	Other machinery and equipment	5	60	280	50%	561	0.06
	Miscellaneous manufacturing	18	65	1,147	50%	2,293	0.23
	Sub-Total	673		54,725		109,449	10.94
Freight Oriented							
	Wholesale trade	87	220	19,084	30%	63,612	6.36
	Transport and storage	67	220	14,679	30%	48,932	4.89
	Sub-Total	153		33,763		112,543	11.25
Service Industry							
	Construction	0	150	-1	60%	-2	0.00
	Repairs	42	55	2,315	60%	3,859	0.39
	Sub-Total	42		2,314		3,856	0.39
Utilities							
	Electricity, gas and water	32	120	3,815	30%	12,718	1.27
	Communication services	18	120	2,137	40%	5,342	0.53
	Sub-Total	50		5,952		18,060	1.81
Total		918		96,753		243,908	24.39

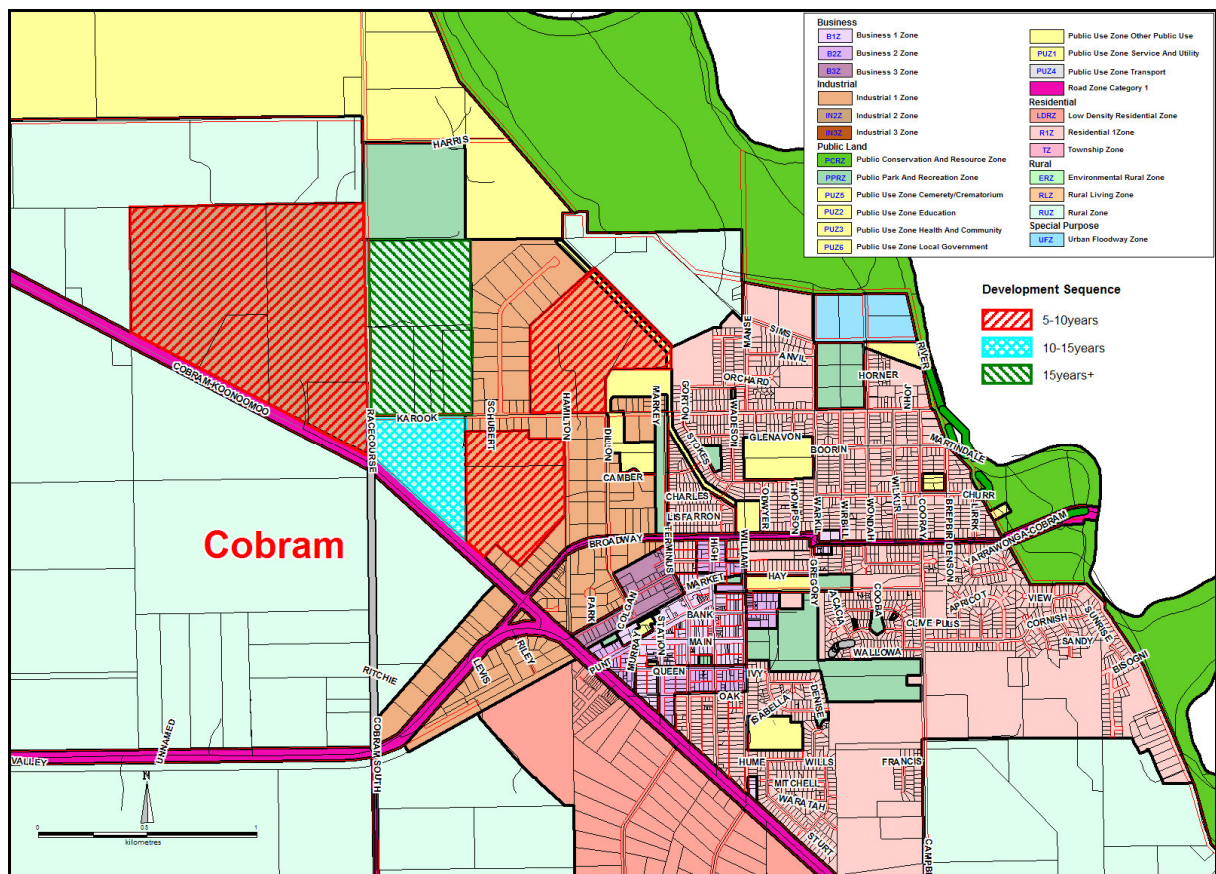
3.4 Locational Assessment

A sensible approach to industrial development is to provide for a consolidated industrial precinct to ensure land use buffers, infrastructure and amenity can be more easily managed compared to a situation where there are numerous precincts. This will also provide for business interaction opportunities. This is particularly relevant for industries which provide services to the local population. Insofar as large scale, export orientated industries, such as major food processing plants, which may require buffer from sensitive uses, it is difficult to plan fully for these as they require very large parcels of land and are commissioned on an ad-hoc basis.

A position on or near major road links is preferred, to provide businesses with quality access and exposure. Flat land is a necessity for larger Industrial operations, with gradients of less than 5% being preferred (ideally no gradient).

This general location typology potentially lends itself towards the continued development of the existing industrial precinct on the western boundary of Cobram, generally north of the Cobram-Koonoomoo Road axis.

Figure 3 Cobram Industrial Development Sequence



Growth in the Cobram industrial precinct should initially be accommodated through infill development within existing industrial zoned land. This includes the continued development of

Industrial 1 zoned land both to the north and south of Karook Street and the recently rezoned Industrial 2 precinct to the west of Ritchie Road.

In the 10 to 15 year timeframe, the 16 hectare land parcel boarded by Cobram-Koonoomoo Road, Ritchies Road and Karook Street should be made available for industrial uses. This parcel of land is strategically located on a main road adjacent to the existing industrial areas, thus consolidating the two precincts and allowing infrastructure to be more easily managed.

The longer term expansion of industrial activities in Cobram should be directed to land to the north of Karook Street. This land is boarded by industrial uses to the east and west. Its eventual rezoning for industrial uses would further consolidate the existing areas, ensure a buffer for industry located in the Industrial 2 zone and allow for the effective management of infrastructure.

This development sequence would provide for a connected industrial precinct fostering business interaction and minimising the risks associated with the development of incompatible land uses. It would also ensure the efficient provision and management of infrastructure and amenity.

4 Evaluation of Demand and Supply Analysis.

SGS's assessment of the supply and demand of industrial land in Cobram indicates that there is currently approximately 96 hectares of Industrial zoned land that is occupied by a variety of industry focused businesses. Of this available land, 12.6% remains vacant, which is considered to be low against the typical vacancy rate for industrial estates of about 20%. This analysis supports the Maunsell reports recognition of the lack of access to serviced industrial land and the constraints this will impose on future development.

At a minimum, Cobram can expect to grow its industrial land base by at least 12.3 hectares to 2021. This assumes that all currently vacant land is made available on the open market with 100% occupancy. A more likely scenario would see a continuation of the current 12.6% vacancy rate, and the growth of the industrial land base by 24 hectares by 2021. The Moira Industrial Land Review's estimated land forecast of 16.5 hectares of industrial land to the year 2019 falls within SGS's calculated site estimates.

The extent to which Cobram can capture the demand for industrial land uses projected above depends on various factors including the relative supply of suitable land, attractiveness of the area to various types of land users, local government policies, quality of the infrastructure, availability of skilled labour, etc.

While some of these factors can be readily determined (such as land supply) others are more difficult. In addition, it is not possible to be precise about how the market forces will shape up and which towns it would favour in the future.

5 Appendix

5.1 Industrial Typology

Twenty-two of the industry sectors in the employment forecasts are identified as users of 'industrial land'. The 22 sectors are classified according to the four industrial land typologies or sub-categories as follows.

- Manufacturing:
 - Meat and dairy products
 - Other food products
 - Beverages, tobacco products
 - Textiles
 - Clothing and footwear
 - Wood and wood products
 - Paper, printing and publishing
 - Petroleum and coal products
 - Chemicals
 - Rubber and plastic products
 - Non-metallic mineral products
 - Basic metals and products
 - Fabricated metal products
 - Transport equipment
 - Other machinery and equipment
 - Miscellaneous manufacturing

- Freight Oriented:
 - Wholesale trade
 - Transport and storage

- Service Industry:
 - Construction
 - Repairs

- Utilities:
 - Electricity, gas and water
 - Communication services

Sectors within the industrial land sub-categories have common characteristics. These are described below.

Manufacturing

This encompasses firms that 'make things'. Firms in this category produce goods in a competitive global market for domestic and export sales. Some firms in this category will use processes that are hazardous or noisy and thus require buffer distances from 'sensitive' uses, including general industrial activities. However, modern manufacturing is mostly undertaken in 'hi tech' or modern industrial facilities in order to remain competitive in the new economy.

Note that an industry sector should not be classified as either 'hi tech' or 'offensive' in a generalised fashion, because it is likely that all industry sectors will have some firms that fall in both categories. In sectors like textiles for example - which may invoke images of smoke stacks and low-skilled manual labour - there will be a proportion of firms that are in fact hi-technology and export oriented. The proportion of hi-tech firms in textiles might not be as high as in sectors like information technology or pharmaceuticals, but the level of sophistication in the sector must not be dismissed.

On this basis it is recommended that a mix of environments be provided to cater for production activities across all sectors.

Freight Oriented

This encompasses firms that 'store, package and transport things'. Firms in this category do not produce goods, but rather act as intermediaries in the movement of goods from production to the end user. Firms in this category are driven by domestic movement of goods in addition to export and import activity.

These activities would mainly occupy warehouse type facilities in Moira.

Service Industry

This encompasses firms that 'fix and service things' from an industrial setting. This includes car repairs and trade supplies and related uses that are driven by the size and composition of the regional population and business base.

These activities occupy 'factoryettes' and depots.

Utilities

This encompasses firms that provide services from an industrial or related employment land setting. This includes electricity, gas, water supply, telecommunication and related facilities. These uses are driven by the size and composition of the regional population and business base.

Some of this activity will seek out industrial or related land but others can be located in the town centre (e.g. postal and courier services).

5.2 Industrial Employment, Floorspace and Site Area Estimates to 2021

In order to derive gross floorspace estimates for each industrial land use category and sector, indicative employment to floorspace ratios are applied. These ratios are based on the Perth Land Use Census as collated by PlanningWA. This database was adjusted for the local context based on research on the industrial market in Victoria.

The employment to floorspace ratios provide an estimate of gross floorspace that may be added to Moira (S) – West over the period 2001 to 2021.

The floorspace figures are then converted into site area needs based on floorspace to site area ratios. These ratios are sourced from SGS Economics & Planning's database.

Note that the results of the floorspace and site area estimates to 2021 are sensitive to the two ratio sets used. Best estimates are used in this analysis, but modifications to these ratio sets can be made to provide a range of scenarios.