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Department of State Development, Infrastructure and Planning

Draft Darling Downs Economic Development Strategy

Draft for Stakeholder Consultation

October 2012

Queensland Government

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Introduction

Background

The Queensland Government intends to develop regional plans that foster economic opportunities, address land use issues and build communities. In collaboration with key industry and community groups, local government, and state government agencies, the Department of State Development, Infrastructure and Planning (DSDIP) is leading the preparation of the plan.

The Queensland Government is committed to creating strong and diverse regional economies and unlocking the 'four pillars' of the Queensland economy: the agriculture, construction, resources and tourism sectors. These sectors drive economic growth, employment and prosperity - through the jobs and incomes they generate; through resulting economic effects along their supply chains; and, in the demand generated for a wide range of goods and services in the state's regions. There is also a focus on streamlining regulatory practices and creating certainty to help regions achieve their economic potential, and developing new strategies and policies to support long-term productive growth in Queensland.

Purpose

The purpose of this document is to facilitate discussion and understanding between the state government and key stakeholders in the Darling Downs region for an economic development strategy ('the strategy') for the region as a whole.

The strategy has undergone initial consultation with state government agencies, industry and local government and this version of the strategy incorporates feedback from this process. These discussions and contributions are developing a shared understanding and a clear high level direction for economic development efforts for the Darling Downs region as a whole over the medium to long term.

The draft strategy provides this proposed direction by:

- Developing a vision and supporting strategic economic themes to help guide the region's future economic development
- Identifying opportunities to help drive economic development and capitalise on:
    - Existing competitive strengths;
    - Emerging growth opportunities; and
    - Opportunities for greater diversification of the regional economy.
- Identifying challenges for economic development and strategies that address them, to capitalise on the region's growth potential.

For the strategy to remain relevant to dynamic economic forces, an ongoing monitoring and review framework will be developed and implemented.

Context

Once a shared understanding - of the regional competitive strengths, economic development opportunities and issues for economic development - is established through this draft strategy, it can be contextualised in terms of the regional infrastructure situation and regional issues. The other two inputs to the regional plan are the *Infrastructure Baseline and the Regional Issues paper.*

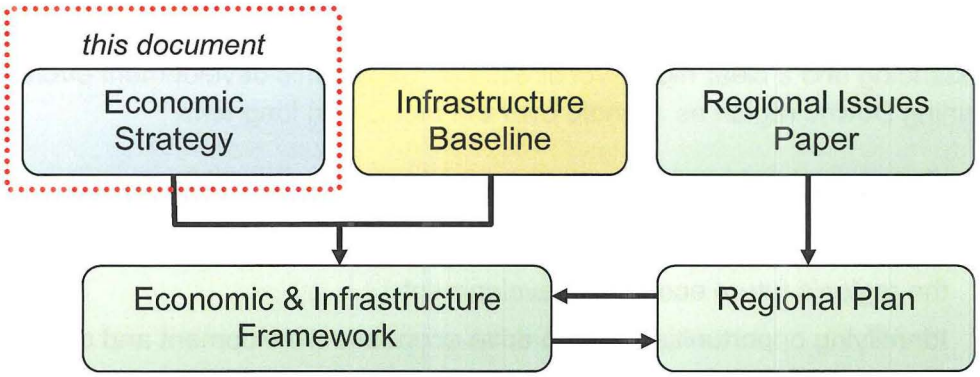
- The purpose of the *Infrastructure Baseline* is to develop a shared understanding of the infrastructure supporting the region's economic development including related opportunities and challenges to future economic development.

- The purpose of the *Regional Issues* paper is to identify issues raised by stakeholders in the region and propose a range of strategies to address these issues. These issues were initially grouped based on eight themes including economic development, agriculture, resources, tourism, infrastructure, natural environment, flooding and liveability.

These draft documents are currently undergoing consultation.

The Strategy will form a key input for the *Economic and Infrastructure Framework.* The framework will bring the economic and infrastructure components together to identify priority infrastructure outcomes that support the region's future economic development. A draft framework is proposed to be released for public consultation along with the draft regional plan in February 2013. See the **Next Steps** section in this report for further details.

Figure 1 Context of the economic development strategy.



Regional boundaries

The document uses "Darling Downs" to describe the region covered by the Darling Downs regional plan, made up of the following local government areas: Toowoomba, Western Downs, Southern Downs, Goondiwindi, Maranoa and Balonne.

Summary

The Darling Downs region is being transformed by the considerable economic development opportunities emanating from a dynamic global market. The region's competitive strengths in future will be largely developed around its resources, including development of energy and mineral resources and agriculture and food production.

The Darling Downs region is a large producer and exporter of agricultural goods, accounting for around a quarter of the state's agricultural production[1]. The region's large reserves of thermal coal and coal seam gas continue to attract international investment to the Surat Basin[2]. This investment is increasing demand for services to resources and energy, construction and engineering, metal-based manufacturing and transport. Associated population growth is also creating opportunities for an expanded services sector in the region.

Tourism is one of Queensland's key industries and a major economic contributor regionally, particularly in terms of jobs. Emerging tourism opportunities in the Darling Downs include food and wine based tourism, as well as business travel associated with the mining and energy sector.

The proposed vision for the region is

A productive and resilient Darling Downs regional economy, capitalising on its competitive strengths and growth potential, capturing supply chain opportunities, and retaining and improving liveability.

Despite these opportunities, the region's future economic development is currently constrained by the capacity of existing infrastructure, conflicts over resource allocation and the availability of skilled labour.

Significant challenges are presented by current and future infrastructure requirements and the impacts of the growing sectors in the region.

Accordingly, the draft strategy identifies the following strategic economic themes:

- Promoting a shared vision of the region's economic and social development potential through advocacy and leadership
- Strengthening supply chains and improving productivity by promoting business innovation, technology and entrepreneurship
- Building long-term economic resilience via diversification and market expansion, capturing the benefits of linkages with other regions and globally
- Supporting skills, education and workforce development to help achieve the state's unemployment target of four per cent

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[1] Australian Bureau of Statistics, *Agricultural Commodities, Australia*, 2005-06, cat. no. 7125.0

[2] Australian Bureau of Resources and Energy Economics, *Mining Industry Major Projects Listing, April 2012,*

- Planning that reduces red tape and provides access to resources to meet emerging global opportunities
- Addressing resource allocation conflicts, capturing complementary land use opportunities, and promoting co-existence

The Strategy

Economic policy context

The Darling Downs region faces significant strategic challenges to develop its full economic potential and meet the opportunities and challenges of the global marketplace.

In recent times, most of Australia's improvements in living standards have come from favourable terms of trade (the prices of exports rising faster than imports). Australia has benefitted from high prices for its resources, but with commodity prices now weakening (although still high by historical standards) and the gains from the high terms of trade likely to dissipate, the onus is now shifting to productivity growth to drive improvements in the region's living standards. Productivity growth is the most important source of long-term improvements in material living standards. It enables businesses to produce more goods and services with the same or fewer resources, either through investment in innovation, infrastructure or skills.

Productivity growth therefore influences industry competitiveness and is critical to delivering on the Queensland Government's four per cent unemployment target and its objective of growing a four pillar economy based on resources, construction, agriculture and tourism. A number of the government's strategies and policies are designed to support long-term productivity growth in Queensland. These include actions to address skills shortages; encourage research, development and knowledge and innovation capability; promote efficient regulatory frameworks; and infrastructure investment.

Economic research has highlighted the importance of industry clusters and supply chains in building productive regions. For this reason, regional economic development is, by necessity, a collaborative process involving business, government at multiple levels, institutions and private sector organisations. At the local level, partners acting together can strongly influence regional economies and build successful communities.

The draft *Darling Downs Infrastructure Baseline* documents the interconnectedness of the region to the broader state economy. This infrastructure is not only important for the Darling Downs economy; it is also the means by which the wealth generated in the Darling Downs spreads to other regions, helping to build a strong Queensland economy. It demonstrates the importance of integrated approaches to regional economic development and planning, and the need to understand and support business and sectoral linkages along supply chains.

In recent years, the resources, agricultural and related sectors have experienced strong growth. With a relatively robust outlook in these sectors over the medium term, employment and population growth in the region is expected to accelerate.

However, the high Australian dollar has generally reduced the competitiveness of trade exposed sectors including tourism, education and manufacturing, leading to what is commonly described as a 'two speed' economy. The policy intent here has been on assisting these industries to be more flexible, innovative, outward looking, and, where appropriate, facilitate adjustment.

There is significant potential to increase and diversify the region's agricultural exports. However, the international trading system for agriculture and food is complex and fragmented. Export success across a wider range of agricultural products, including fruit and vegetables, will come with innovative solutions to market access barriers, as well as strong collaboration along supply chains.

Investment is also critical to maintain and accelerate economic development in the Darling Downs region. Private investment is helping to develop export supply chains and build critical economic infrastructure for the resources and agricultural sectors. Infrastructure investment is also facilitating growth in the region's tourism sector, although lack of available tourist accommodation is a current constraint in resource communities.

The competitive strengths of the Darling Downs across a range of sectors make it an attractive place to invest. Streamlining regulation, where appropriate, and addressing critical issues, like the availability of skills, will further enhance the region's competitiveness. A planning system that addresses the relative benefits of each sector of the economy is needed to guide investment decisions (see **Appendix 1** for details on the preliminary state planning policy).

Regional connectivity

This strategy is based on an analysis of the Darling Downs functional economic area i.e. it incorporates economic connections that extend outside the region's administrative boundaries, including northern New South Wales.

For example, it is important that the strategy incorporates transport services and supporting infrastructure (including freight connections to ports in Gladstone, Brisbane and other locations). These links are vital to building competitive supply chains and accessing national and global markets for goods and services produced in the Darling Downs. By incorporating the wider functional economic area of the Darling Downs, the strategy will:

- Assist in balancing the interests of mining and other industries such as agriculture;
- Consider the full range of benefits and costs of policies and aim to minimise negative spatial impacts;
- Take into account external barriers, positive impacts and opportunities; and
- Promote partnerships between local authorities and public sector organisations, contributing to more effective coordination and providing a common voice on priority setting.

Economic Development Strategy Framework

A high level summary of the framework used to develop the strategy for Darling Downs is summarised in the below schematic.

Where are we now?

Current Advantages

- Natural Resource Endowment
- Significant Investment Pipeline
- Strategic Location and Proximity to Markets
- Growing Population and Strong Labour Force

Competitive Strengths

- Agriculture
- Coal
- CSG / LNG
- Energy
- Manufacturing
- Construction
- Tourism
- Business, Professional and Health Services
- Education

Where do we want to be in future?

Vision

A productive and resilient Darling Downs regional economy, capitalising on its competitive strengths and growth potential, capturing supply chain opportunities, and retaining and improving liveability.

Strategic Economic Themes

1. Promoting a shared vision of the region's economic and social development potential through advocacy and leadership.
2. Strengthening supply chains and improving productivity by promoting business innovation, technology and entrepreneurship.
3. Building long term economic resilience via diversification and market expansion, capturing the benefits of linkages with other regions and globally.
4. Supporting skills, education and workforce development to help achieve the state's unemployment target of four per cent
5. Planning that reduces red tape and provides access to resources to meet emerging global opportunities.
6. Addressing resource allocation conflicts, capturing complementary land use opportunities and promoting co-existence.

How are we going to get there?

Develop Strategies to Capitalise on Future Economic Opportunities

Develop Strategies to Address Economic Development Issues

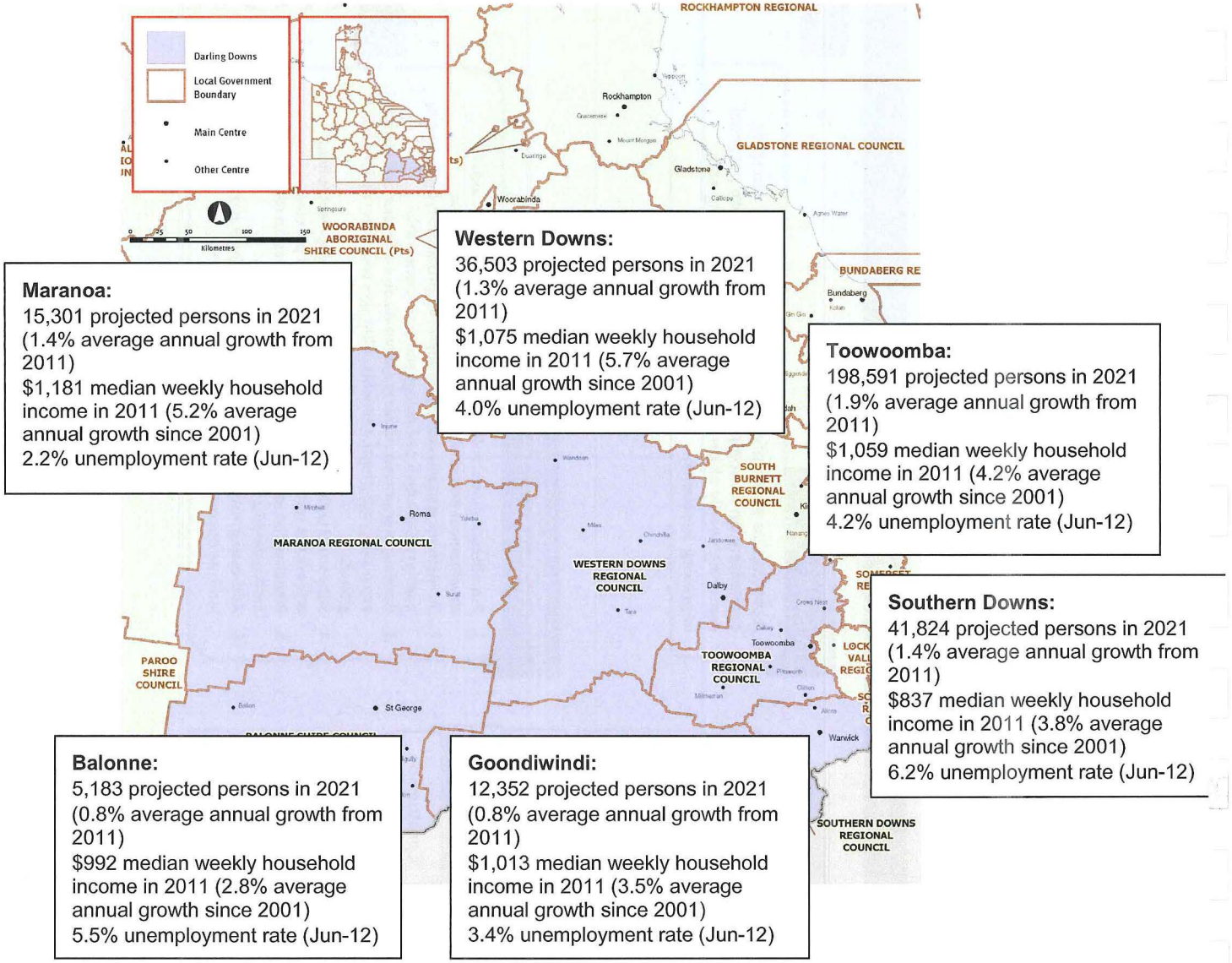
- Additional infrastructure to support growth
- Availability of suitably zoned and developed land
- Availability of skilled and non-skilled labour
- Water availability and natural and agricultural resources management
- Economic resilience

Economic baseline

Darling Downs economic snapshot

The Darling Downs region encompasses six local government areas, including Toowoomba Regional Council, Southern Downs Regional Council, Goondiwindi Regional Council, Western Downs Regional Council, Maranoa Regional Council and Balonne Shire Council (**Figure 2**). The region includes the urban environment of Toowoomba City, large rural towns such as Warwick, Roma, St George and Goondiwindi, and growing communities such as Dalby and many small rural communities.

Figure 2 Darling Downs – Local Government Area overview



Maranoa:
15,301 projected persons in 2021 (1.4% average annual growth from 2011)
$1,181 median weekly household income in 2011 (5.2% average annual growth since 2001)
2.2% unemployment rate (Jun-12)

Western Downs:
36,503 projected persons in 2021 (1.3% average annual growth from 2011)
$1,075 median weekly household income in 2011 (5.7% average annual growth since 2001)
4.0% unemployment rate (Jun-12)

Toowoomba:
198,591 projected persons in 2021 (1.9% average annual growth from 2011)
$1,059 median weekly household income in 2011 (4.2% average annual growth since 2001)
4.2% unemployment rate (Jun-12)

Southern Downs:
41,824 projected persons in 2021 (1.4% average annual growth from 2011)
$837 median weekly household income in 2011 (3.8% average annual growth since 2001)
6.2% unemployment rate (Jun-12)

Balonne:
5,183 projected persons in 2021 (0.8% average annual growth from 2011)
$992 median weekly household income in 2011 (2.8% average annual growth since 2001)
5.5% unemployment rate (Jun-12)

Goondiwindi:
12,352 projected persons in 2021 (0.8% average annual growth from 2011)
$1,013 median weekly household income in 2011 (3.5% average annual growth since 2001)
3.4% unemployment rate (Jun-12)

Sources and Notes: Population projections are based on the latest Queensland Treasury OESR medium series projections (2011 edition). It should be noted that the new edition of the population projections is currently being prepared based on revised estimated resident population and assumptions around future population changes and expected to be released in late 2013. Household income is based on the 2011 ABS census and labour market data are based on the smoothed series and it should be noted that small area labour market data can be volatile and are subject to sampling error. These are all based on ASGC 2011.

Major regional centres

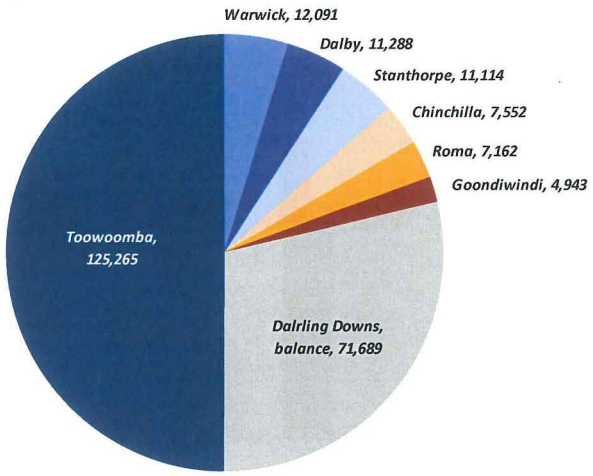
The Darling Downs estimated resident population was approximately 250,000 in 2011, equivalent to 5.6 per cent of the state total.

The major population centre in the region is Toowoomba, which is home to half of the Darling Downs estimated resident population (around 125,000 persons).

A further 20 per cent of the resident population is spread across the towns of Warwick, Dalby, Stanthorpe, Chinchilla, Roma and Goondiwindi (see **Appendix 2** for definition of regional centres). These towns form important transport hubs for the movement of goods and services throughout South-Western Queensland, and link to neighbouring regions such as Central Queensland and northern New South Wales.

The remaining 30 per cent of the region's resident population is located outside of these major population centres in the outskirts of the Toowoomba, Western Downs, Southern Downs, Goondiwindi, Balonne and Maranoa local government areas.

Figure 3 **Major population centres, Jun-11**



Source: OESR QRSIS Database, based on Australian Bureau of Statistics, *Regional Population Growth, Australia*, 2011, cat. no. 3218.0 and unpublished data. Accessed 15/10/2012. Data is at ASGC 2011 and based on revised estimates re-based using the 2011 census.

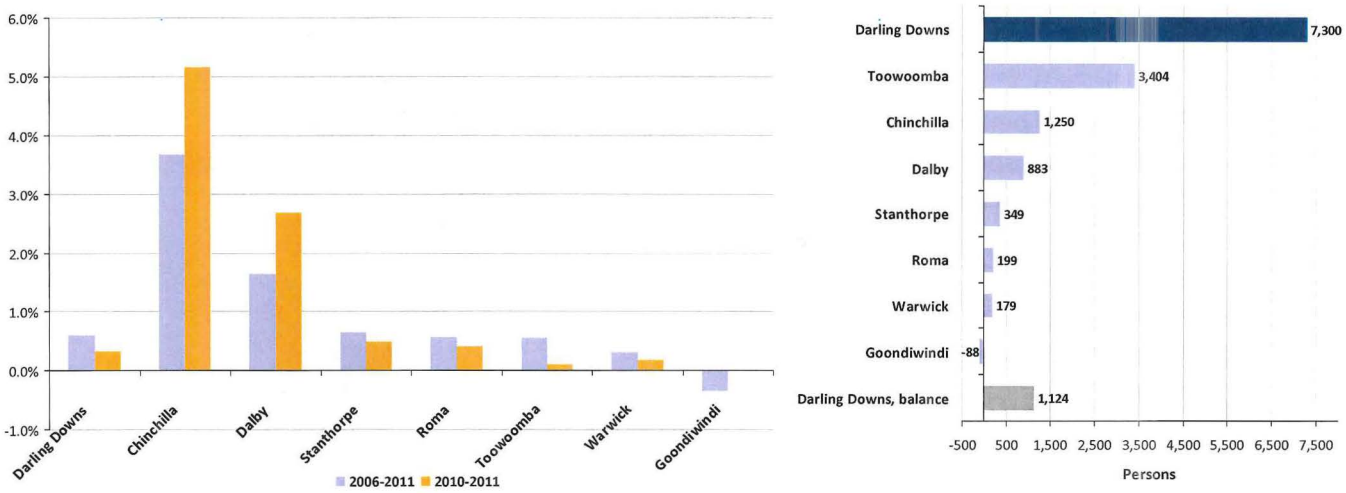
Recent resident population growth trends

Between 2006 and 2011, the Darling Downs estimated resident population increased by 7,300 persons, equivalent to annual growth of 0.6 per cent **(Figure 4)**. This was well below the Queensland average of 1.8 per cent over the same period.

The fastest growth rates were seen in Chinchilla and Dalby, which averaged 3.7 per cent and 1.6 per cent annual growth respectively between 2006 and 2011. Over the last year (2010 to 2011) population growth in these two towns was well above the five year average, whereas other major centres have seen growth slow relative to the five year average over the past twelve months. Despite Toowoomba's relatively slow population growth over the period, it still contributed almost half (3,400) of Darling Downs population growth between 2006 and 2011.

The relatively strong growth in Chinchilla and Dalby can be attributed at least in part to energy and coal seam gas (CSG) developments currently underway in the Western Downs region, which are attracting significant investment and labour. These two towns are home to a significant share of the workforce associated with the projects, which has contributed to rapid resident population growth. In addition, these developments are also drawing in significant numbers of temporary residents to help address capacity and skill gaps.

Figure 4 Estimated resident population growth in major population centres in Darling Downs

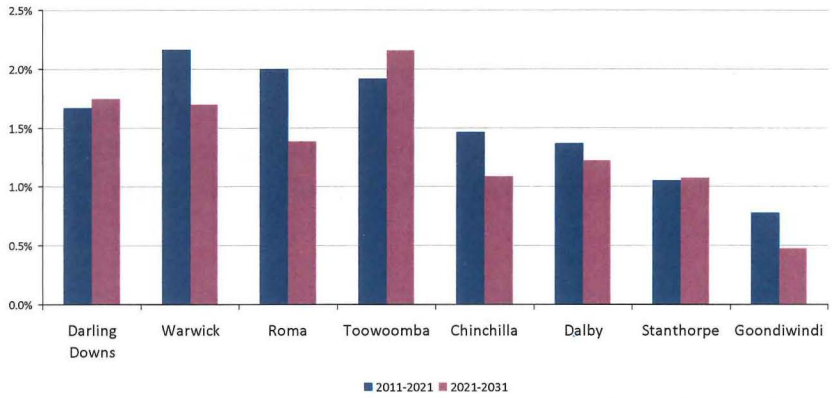


Source: OESR QRSIS Database, based on Australian Bureau of Statistics, *Regional Population Growth, Australia*, 2011, cat. no. 3218.0 and unpublished data as at October 2012. Data is at ASGS 2011

Future resident population growth projections

Between 2011 and 2021, the fastest population growth is expected to occur in Warwick and Roma, at around 2 per cent per year (**Figure 5**). Growth is projected to slow in these towns between 2021 and 2031 to around 1.5 per cent per year on average. Toowoomba's growth is projected to remain strong over the following two decades, averaging around 2 per cent out to 2031, with growth projected to pick up between 2021 and 2031. This suggests that Toowoomba will continue to develop as a major regional hub, providing an important link between South West Queensland and South East Queensland (SEQ).

Figure 5 Projected population growth, 2011 to 2031

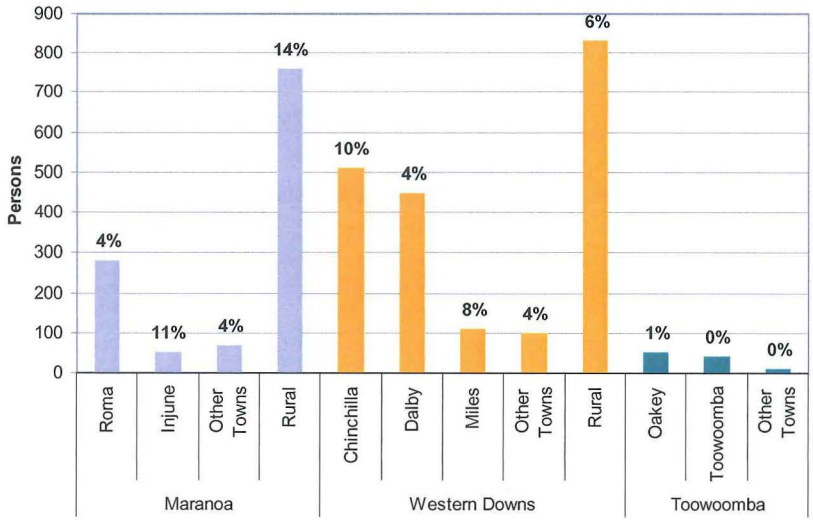


Source: OESR QRSIS Database, based on Queensland Government Population Projections, 2011 edition. Data is at ASGS 2011.

Non-resident population

A recent study by Queensland Treasury and Trade (August 2012)[3] examined in detail population levels in the Surat Basin including non-resident population. This study found that the number of non-resident workers living in the Surat Basin increased by 730 people or 29 per cent over 2011. Some 3,270 fly-in, fly-out/drive-in, drive-out (FIFO/DIDO) workers associated with the resource sector and construction of related infrastructure were counted on-shift at the end of July 2011. Most of these were employed and accommodated in the local government areas of Western Downs and Maranoa, where CSG operations are largely located. Western Downs has the largest share of non-resident workers (61 per cent of total) with just over one third in Maranoa and a much smaller share in Toowoomba (**Figure 6**).

Figure 6 Non-Resident Workforce Regional Breakdown



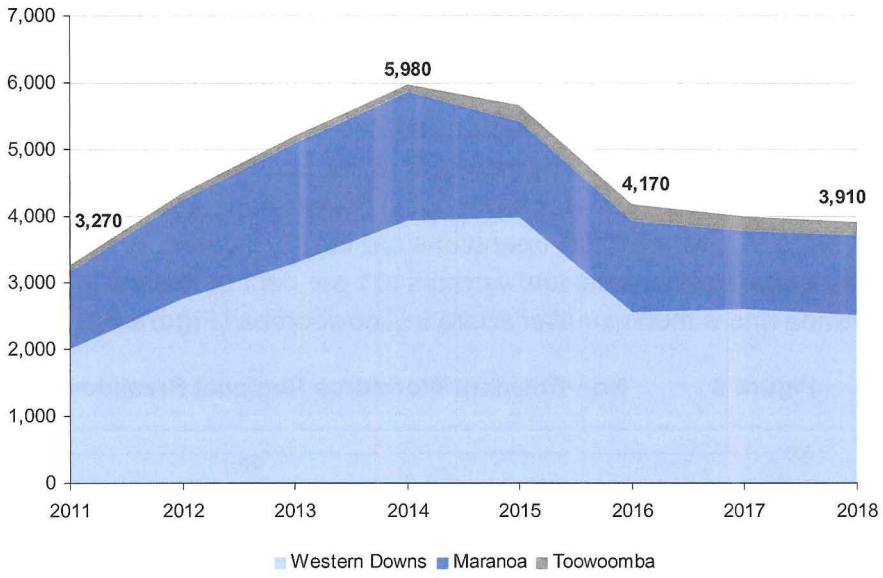
Source: Queensland Treasury Surat Basin Population Report 2011
Note: % figures indicate the share of the town's total population made up of non-resident workers

[3] Queensland Treasury and Trade, Office of Economic and Statistical Research, Surat Basin Population Report, 2011, August 2012

The study also found that worker accommodation villages (WAV) were the most commonly used form of accommodation for FIFO/DIDO workers. Nearly two thirds of non-resident workers on-shift in the Surat Basin in July 2011 stayed in WAVs. Around two thirds of non-resident workers on-shift in Maranoa in July 2011 stayed in WAVs located on the gas fields due to the distance between the gas fields and existing population centres. By contrast, non-resident workers in Western Downs were more likely to stay in towns (almost 60 per cent) where larger WAVs and hotels/motels were located.

This study also found that despite recent activity, the full employment and population impacts of resource industry development in the Surat Basin have yet to occur. Specifically, **Figure 7** highlights that the number of non-resident workers on-shift in the Surat Basin are expected to peak at 5,980 in 2014, reflecting the cumulative construction phases of major CSG and coal projects.

Figure 7 Non-Resident Projections



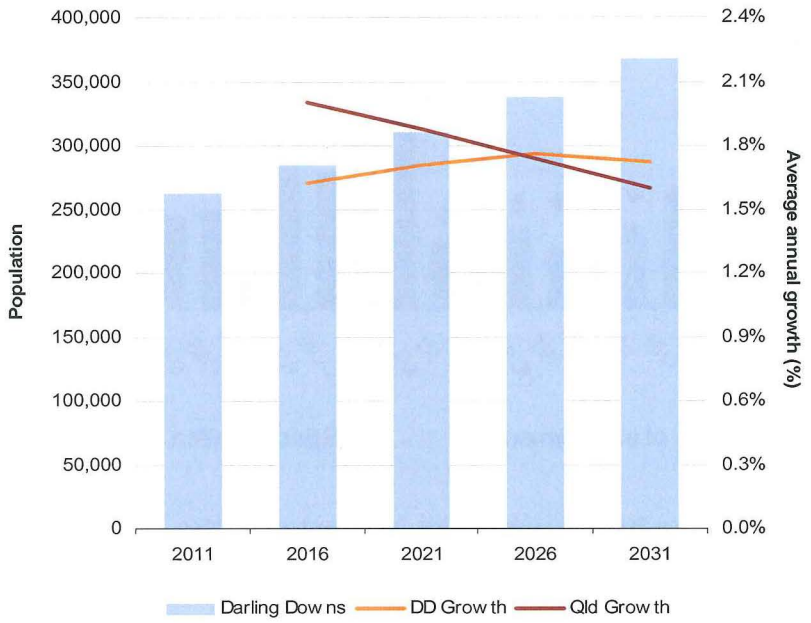
Source: OESR Medium Series, Queensland Treasury and Trade Surat Basin Population Report 2011

Key Trend and Drivers

Strong future population growth a key long term driver

The Darling Downs estimated resident population is projected to reach 309,754 persons in 2021 and 368,114 persons in 2031 (**Figure 8**), with most additional persons expected to reside in the Toowoomba local government area. This strong growth on top of projected increase in the non-resident population will drive demand in housing and construction, retail trade and other services including health care and education, as well as electricity, water and other utilities.

Figure 8 Projected population growth, 2011 – 2031



Source: Queensland Government population projections, 2011 edition (medium series), Office of Economic and Statistical Research, Queensland Treasury and Trade.

Favourable labour market

The Darling Downs labour market has generally outperformed the state as a whole over the past three years, with the unemployment rate well below the state average (4.3 per cent compared with 5.5 per cent) as at June 2012. Employment growth has also been stronger (particularly over the year to June 2012) in the region as a whole. **Figure 2** previously highlighted some regional variations in the unemployment rate.

Table 1 Labour market outcomes

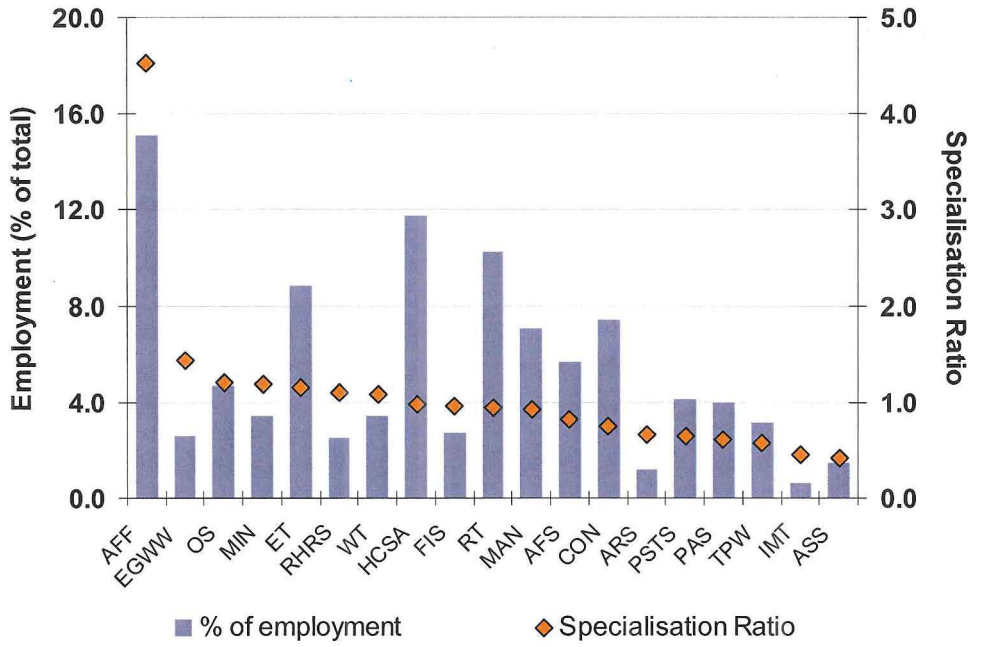
	Employed persons			Average annual employment growth		UE Rate
	Jun-09	Jun-11	Jun-12	Jun-09 to Jun-12	Jun-11 to Jun-12	Jun-12
	- number -			%		%
Darling Downs	**127,880**	**130,596**	**138,423**	**2.7**	**6.0**	**4.3**
QUEENSLAND	2,227,200	2,326,400	2,342,100	1.7	0.7	5.5

Source: QRSIS Database, accessed 03/07/2012. Based on ASGC 2011

Regional Industry Structure

Examining employment by industry provides insight into the structure of a regional economy. Specialisation ratios can be used to help point to industries where a region has notable strengths compared with the state average. **Figure 9** provides a breakdown of regional employment by industry, ranked by specialisation ratios[4].

Figure 9 Darling Downs, employment by industry (year to May 2012)[5]



Source: ABS Labour Force Survey, published by the Department of Education, Employment and Workplace Relations

Note: Darling Downs and South West statistical divisions used as a proxy for the Darling Downs region

Agriculture is the largest employing industry in the region, accounting for around 15 per cent of total employment in the year to May 2012 (or June quarter 2012). The industry has a high specialisation ratio, with a share of employment in Darling Downs more than four times as high as the state average. Mining has significantly increased its specialisation in the region in line with the expanding thermal coal and CSG activities, as has electricity, gas, water and waste services.

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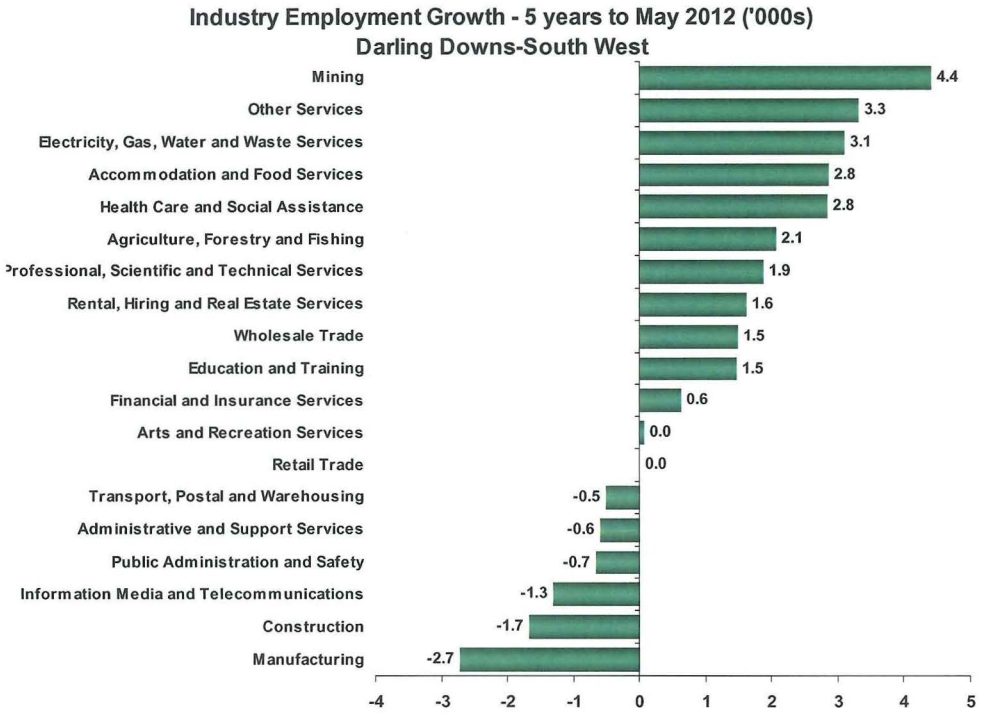
[4] The industry specialisation ratio is calculated by dividing the industry's share of employment in a region (Darling Downs) with a reference economy (Queensland). E.g. Agriculture employed 12.8% of Darling Downs' workforce and 3.4% of Queensland's workforce in 2006, giving a specialisation ratio of 3.8 (12.8 / 3.4).

[5] This section will be updated when the second release of the ABS 2011 census is released. Abbreviations used in Figure 9 are as follows: AFF = Agriculture, forestry and fishing, EGWW = Electricity, gas, water and waste, OS = Other services, MIN = Mining, ET = Education & training, RHRS = Rental, hiring and real estate, WT = Wholesale trade, HCSA = Health care & social assistance, FIS = Financial and Insurance services, RT = Retail trade, MAN = Manufacturing, AFS = Accommodation & food services, CON = Construction, ARS = Arts & recreation services, PSTS = Professional, scientific and technical services, PAS = Public administration & safety, TPW = Transport, postal and warehousing, IMT = Information, media & telecommunications, ASS = Administrative & support services. It should be noted that these figures cover the Darling Downs-South West labour force region.

Further, over the last five years to June quarter 2012, mining has been a key driver of employment growth in the region (**Figure 10**). Other industries that have increased employment include accommodation and food services with much of this likely to have been driven by mining sector activity. Employment decreases in construction and manufacturing reflect aspects of the two speed economy at play (see Economic Policy Context).

However, construction and manufacturing industries are large employers in the region and as major resource and energy projects come on-line, employment should ramp up in these industries over the construction phase (along with other key supplying and related industries including transport). Employment will also likely continue to increase in mining as these projects move into the operations phase.

Figure 10 Darling Downs, employment by industry (5 years to May 2012)[6]



Source: ABS Labour Force Survey, published by the Department of Education, Employment and Workplace Relations

Note: Darling Downs and South West statistical divisions used as a proxy for the Darling Downs region

Exports and investment are key economic drivers

Queensland and its regions are benefitting greatly from the enormous transformation that is occurring in the world economy as the Asia Pacific region (particularly China) takes over as the engine of global growth from the West.

Population and income growth in low and middle income countries such as India, China, and Indonesia, is resulting in growing demands for energy, materials, protein

[6] These figures cover the Darling Downs-South West labour force region.

in diets (e.g. meat and livestock products), variety and quality (e.g. of foodstuffs), convenience, education, experiences, environmental amenity, and services.

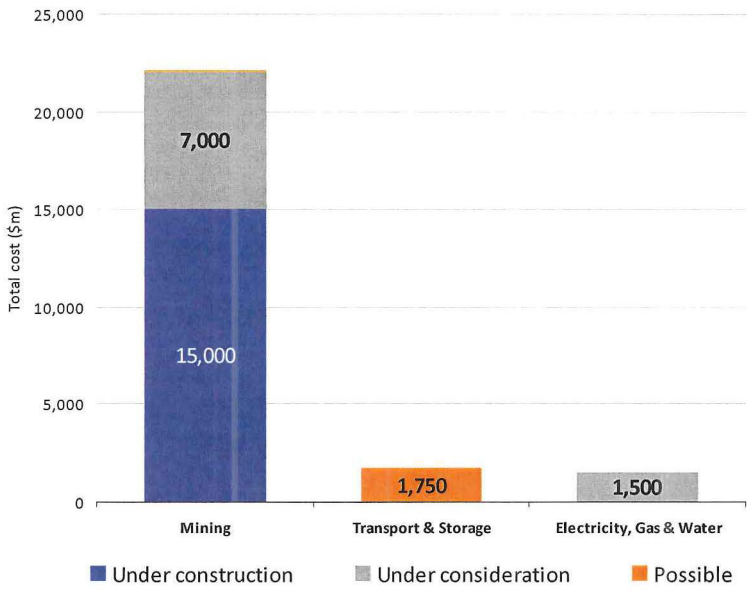
The Darling Downs region is well placed to meet these growing demands. The region's climate, soil and available water support a diverse agricultural industry with strong established links to Asian markets. The Darling Downs can potentially benefit from a range of new export opportunities for agriculture and food processing (including grains, vegetables, fruit, beef, lamb and wine) and increased investment.

The Darling Downs is also well positioned to take advantage of global developments in energy markets. The region's CSG reserves in the Surat Basin will provide the feedstock for Queensland's new liquefied natural gas (LNG) export industry, with the development of massive thermal coal resources in the Surat Basin proposed. Three LNG projects, with a combined capital cost of around $60 billion, are currently under construction in Gladstone, supported by substantial direct foreign investment. A final investment decision on a fourth major project is due in 2013. These projects will process CSG from the neighbouring Surat Basin and export the refined LNG to major Asian markets via the Port of Gladstone.

Rising demand is of course accompanied by rising supply, i.e. increasing competition from emerging countries in a wide range of more traditional markets. While better placed than many regions, the Darling Downs is not immune from the resulting structural adjustment pressures.

Figure 11 shows the value of known major projects located in the region. This highlights that a considerable portion of the investment pipeline is linked to development of the resources sector in the region.

Figure 11 Value of Major Projects in Darling Downs-South West, June 2012



Note: Projects are assigned to regions by Deloitte Access Economics based on Statistical Divisions.
Source: Deloitte Access Economic Investment Monitor, June 2012. Darling Downs and South West statistical divisions used as a proxy for the Darling Downs region

Transport is a key economic enabler for future economic development

Transport infrastructure and services are vital to building competitive supply chains and accessing national and global markets. High fuel and energy input costs from traditional oil and gas sources pose a growing risk to the competitiveness of the transport systems which are vital to the region.

The rail network in the Darling Downs predominantly carries coal as well as limited quantities of grain, livestock haulage and general freight. Significant local road freight movement is generated by intensive agricultural production, location processing and handling of local agricultural production.[7] The transport industry and road networks within the Darling Downs are generally at full capacity, particularly those used for grain, beef and cotton. This is currently inhibiting industry growth in the region.

Toowoomba City is one of the most important freight hubs within the Darling Downs. It is closely linked to SEQ, and also acts as the gateway to the resource-rich Surat Basin Energy Precinct. Miles and Dalby in the Western Downs and Warwick and Stanthorpe in the Southern Downs are also important freight centres. Miles and Wandoan in particular have developed into transport and service hubs for both the resources and agricultural sectors.[8]

There is considerable economic interchange between the Darling Downs and northern New South Wales. The Goondiwindi, Southern Downs and Balonne local government areas share a border with New South Wales. The Goondiwindi local government area provides a focal point for export commodities from the region and northern New South Wales. In particular, rail movements of cotton from Goondiwindi to the Port of Brisbane over recent years have benefitted from an increase in cotton freight from the northern New South Wales. In addition to cotton, Goondiwindi is one of the largest producers of wheat in the state. Most grains produced in the region are also transported to the Port of Brisbane for export.

The proposed Surat Basin Railway, also known as the Southern Missing Link, would connect the region to the Port of Gladstone. Surat Basin coal would be exported through the Wiggins Island Coal Export Terminal (WICET), which is yet to be built, and other new terminal proposals.

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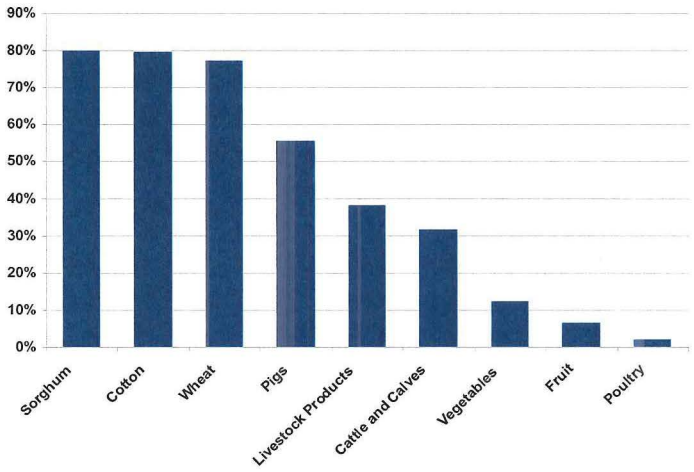
[7] Eastern Downs Integrated Transport Plan, Queensland Transport, 2003
[8] Darling Downs Infrastructure Baseline, draft – for stakeholder consultation, August 2012.

Competitive strengths

Agriculture

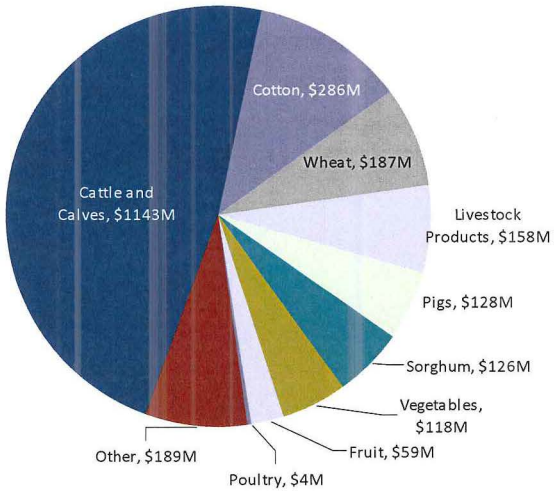
Agriculture is an established competitive strength in the region, reflecting developments over the last 100 years and the region's ability to capitalise on highly productive soils, access to water, sub-tropical climate and relatively easy access to ports. These factors support broad agricultural production, as well as associated food processing and value adding services. For certain crops, including sorghum, cotton and wheat; the region's contribution to Queensland production is around 80 per cent (**Figure 12**). The Darling Downs also plays a major part in the state's meat supply chain as a producer of cattle and calves and pigs. The Darling Downs' diverse agriculture base is further evidenced in **Figure 13**.

Figure 12 Darling Downs' contribution to Queensland production, 2005-06 (%)



Source: Australian Bureau of Statistics, *Agricultural Commodities, Australia*, 2005-06, cat. no. 7125.0

Figure 13 Agriculture value of production in Darling Downs, 2005-06



Source: Australian Bureau of Statistics, *Agricultural Commodities, Australia*, 2005-06, cat. no. 7125.0

It should be noted that this section will be updated when the ABS releases small area data from the 2011 agriculture census.

The production of cereals and cotton is extremely resource intensive (particularly in regard to water) and water security and highly resilient farming systems will therefore be important factors in growing the industry in future.

Agricultural production in the region is diverse, including vegetables and fruit (particularly in Southern Downs) as well as livestock products (mainly eggs and milk with the bulk produced in Toowoomba).

While Toowoomba and Western Downs are the largest regions in terms of value, agriculture is the economic mainstay for other local government areas in the region including Balonne, Goondiwindi, Southern Downs and Maranoa.

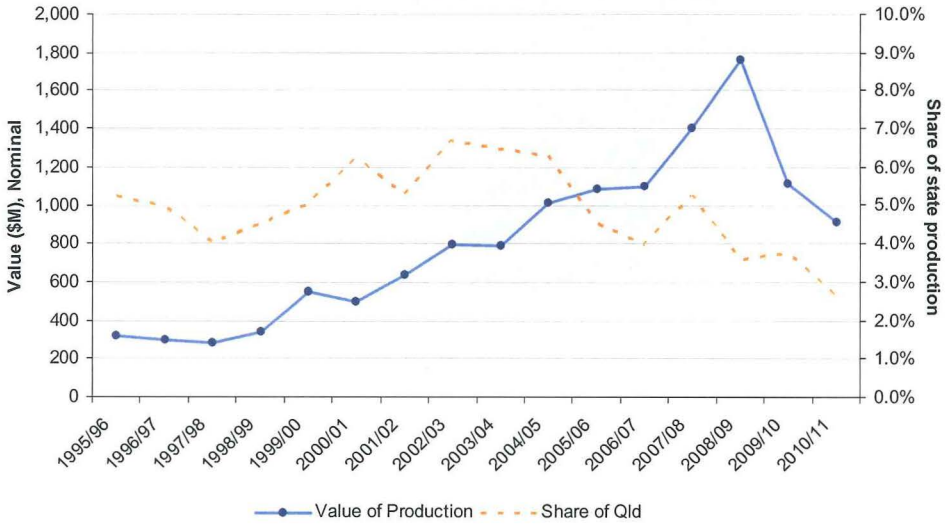
The region's agricultural base also has strong supply chain linkages with downstream food manufacturing industries, as well as wholesale trade, transport and food services.

The region produces around 80 per cent, 10 per cent and 5 per cent of Queensland's cypress, hardwood and softwood forestry production respectively for Queensland's timber processing industry. Most forestry lands, native cypress and hardwood, are grazed and managed as silvopastoral systems - production systems that combine forestry and grazing in a mutually beneficial way.

Mining and Energy

While the region currently only accounts for a relatively small share of Queensland's mining production (see **Figure 14**), it is fast becoming a major energy hub as large resources of thermal coal and coal seam gas continue to attract investment.

Figure 14 Value of mining production in Darling Downs-South West



Source: Data provided by OESR & DNRM, values are in nominal terms
Notes: Based on ASGC 200-1 and 2006. Darling Downs and South West statistical divisions used as a proxy for the Darling Downs region

There is a large pipeline of resources and energy developments currently proposed for the region, particularly in the Western Downs. These projects have considerable potential to drive the region's future economic development.

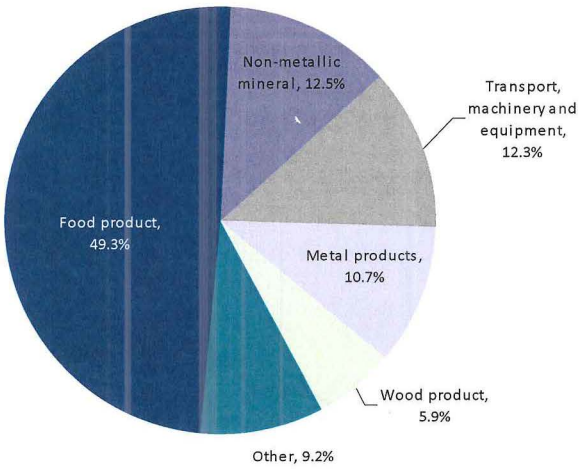
As an example, the largest proposed coal development (conditional environmental approval granted in March 2011) is the Wandoan Project which includes an open cut mine, a coal handling plant, and support facilities. It is expected that the project will produce around 30 Mt of coal annually and have a life of more than 30 years. The construction and operational phases of the project are set to employ 1,375 and 844 workers, respectively. Further, with almost $2 billion worth of proposed expenditure, this project has the potential to stimulate economic growth in the state as a whole as well as in the Darling Downs region[9].

Furthermore, the region is experiencing growth from exploration in the energy and resource sectors. The Darling Downs holds one of Australia's largest undeveloped energy resources with over 10 per cent of Queensland's coal deposits and an estimated 65 per cent of Queensland's known CSG reserves. There is potential for a wide range of new energy developments utilising the abundance of coal, CSG, solar and wind resources in the region, close to established energy infrastructure.

Manufacturing

Key manufacturing activities in the region include food (in particular meat and meat products), specialised metal products, agricultural machinery, and non-metallic mineral products (**Figure 15**).

Figure 15 Structure of the Darling Down's Manufacturing Industry, 2006-07[10]



Source: Australian Bureau of Statistics, *Manufacturing Industry, Australia*, 2006-07, Cat No: 8221.0
Darling Downs and South West statistical divisions used as a proxy for the Darling Downs region.

[9] Project information including capacity, employment etc is sourced from Southern Queensland Mining and Energy Development projects based on ABARE April 2011 and DNRM, Brisbane September 2012
[10] This is based on the latest ABS publication that provides data on manufacturing by region. This will be updated when an update is released

Toowoomba local government area has traditionally been home to a large number of abattoirs and processors due to its proximity to major cattle producing areas in Southern Queensland, as well as SEQ (where most of the state's consumption occurs). This close proximity to the Port of Brisbane is also an important factor influencing the location of processors, with a significant proportion of Queensland meat (particularly beef) exported overseas, primarily to markets in Asia and the United States.

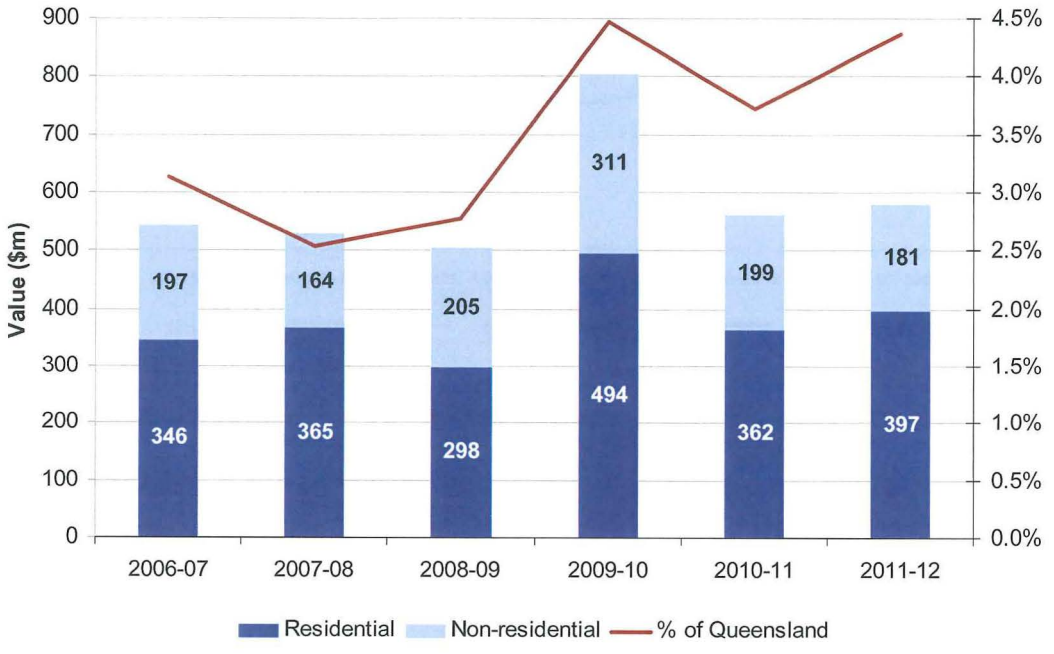
The machinery, equipment and metals manufacturing segments stand to benefit from the surging investment in the resources sector, to which they are closely linked. However, manufacturers are exposed to global pressures such as the high Australian dollar and uncertainty in world markets. High labour costs, workforce retention and rising energy costs also pose significant challenges for the industry.

Construction

The construction industry encompasses residential, non-residential and engineering related construction. Surging investment in the energy and resources sector stands to benefit the construction industry in the Darling Downs, particularly engineering related construction as projects ramp up.

While building approvals remain subdued in the region, this is also the case for the state and nation as a whole, reflecting continuing investment uncertainty in the wake of the global financial crisis (**Figure 16**). Strong projected population growth should support future activity in residential construction in the Darling Downs region over the long term.

Figure 16 Value of Building Approvals, Darling Downs



Australian Bureau of Statistics, *Building Approvals, Australia*, June 2012, Cat No. 8731

Tourism

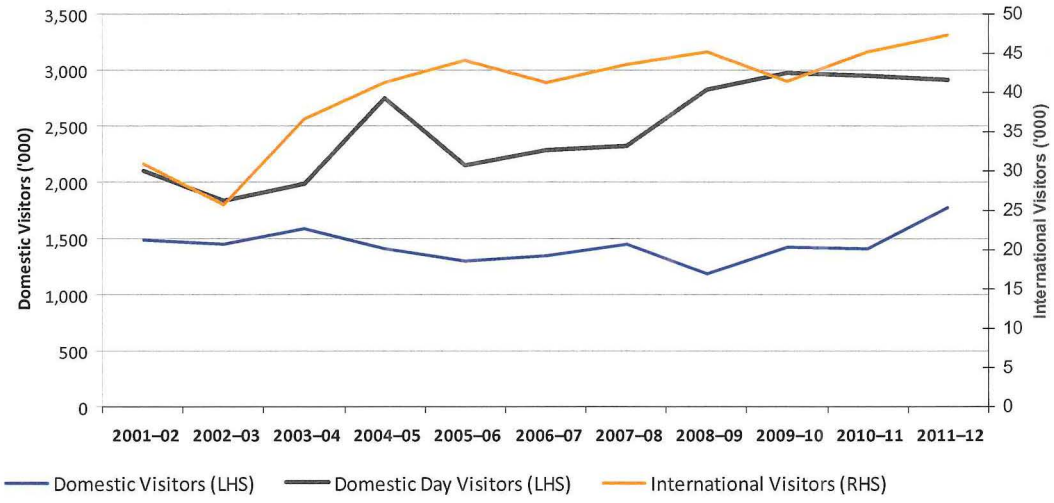
Traditionally, the tourism industry has not been a major sector in the Darling Downs region, though it plays a significant role in certain locations such as Stanthorpe in the Southern Downs. Increasing activity in the resources and energy sector will stimulate future demand in tourism intensive industries such as accommodation.

The region as a whole is currently experiencing increased numbers of visitors (see **Figure 17**) and visitor growth to the region is among the strongest in Queensland. The number of domestic and international visitors all increased with domestic day visitors remaining flat since 2009-10. Across all three visitor types, the number of visitors remains significantly higher on average compared with ten years ago.

The purpose of travel differs markedly across the region, with Toowoomba and particularly Western Downs recording among the highest shares of business visitation across the state, likely linked to the surging resources and energy related investment occurring in these areas.

The Southern Downs local government area recorded the highest share of holiday visitors across the Darling Downs, for both domestic and international visitors[11]. Southern Downs is a well known wine and food region, and a large share of holiday visitation is likely linked to the food and wine segment of the tourism market.

Figure 17 Total visitors to Darling Downs tourism region



Source: Tourism Research Australia 2011, Office of Economic and Statistical Research, Queensland Treasury

[11] Tourism Queensland Summary Visitor Statistics, based on Visitor Surveys conducted by Tourism Research Australia, March 2012.

Business, Professional and Health Services

Economic and population growth brings with it growing demand for a wide range of business and professional services, health and social services, as well as consumer-oriented manufacturing.

Mainly located in larger population centres, these activities can transform the economic base – and liveability – of many towns, giving rise to a "virtuous cycle" that attracts more people and more businesses to thriving communities.

Globalisation and the growing use of online business applications means that many of these services can be provided from anywhere – including from the towns and cities in the Darling Downs.

The Darling Downs has a substantial population base, with Toowoomba being one of Australia's largest inland regional cities. The rapid projected growth in population will bring a wide range of opportunities for already well established property and business services, health and social services, professional, scientific and technical services, and financial services industries.

Education

The Darling Downs region offers extensive and high standard education and training services for both national and international students. It provides both academic and vocational training. Existing educational facilities include the University of Southern Queensland (USQ), Dalby Agricultural College, Queensland College of Wine Tourism and Southern Queensland Institute of TAFE.

USQ is based in Toowoomba and offers on–campus and distance education. The university includes campuses at Fraser Coast and Springfield and is home to a number of leading Australian research centres including the Australian Centre for Sustainable Catchments, the National Centre for Engineering in Agriculture and the Centre of Excellence in Engineered Fibre Composites. The university provides a range of tertiary degree opportunities and generates wealth and investment within Toowoomba and other parts of the Darling Downs.

Southern Queensland Institute of TAFE has a number of campuses across the Darling Downs. Courses include building and construction, information technology and engineering, specialist studies in horticulture and agriculture, and hospitality.

The Queensland College of Wine Tourism is a joint venture between the Queensland Department of Education and Training and USQ and provides an education and training facility for the Queensland wine tourism industry. The college facilitates education and training at secondary, TAFE and tertiary levels through its education partners, such as Southern Queensland Institute of TAFE, and USQ – Faculty of Sciences.

The percentage of the adult population with a post-school qualification has grown strongly in the Darling Downs region over the past decade, from around 37 per cent in 2001 to almost 50 per cent in 2011, marginally below the Queensland average.[12]

[12] ABS Census of population and housing time series profile: TC30, Non-school qualification

Opportunity assessment

The following opportunity assessment identifies and articulates economic opportunities as well as some economic development issues identified for the Darling Downs region. This assessment also identifies some priorities to help the region capitalise on these opportunities and realise its economic potential.

Agriculture and food processing

Agricultural production in the Darling Downs is expected to expand in line with growing export demand. Population and income growth in low and middle income countries such as India, China, and Indonesia are fuelling strong global trade in high-value foods, particularly meat and livestock products, vegetable oils, fruits and vegetables. The Darling Downs is well positioned to tap into these overseas markets, as well as the expanding population base of SEQ. Furthermore, due to urban growth in SEQ and associated loss of land capacity to supply locally, some production may move to the Darling Downs region (e.g. poultry).

While the Darling Downs has established transport and logistics links to southern markets and the Port of Brisbane, the Toowoomba Range is a current constraint on the capacity of the rail network to deliver increased volumes of grain for export. In 2010-11, 1.3 million tonnes of grain, 777,000 tonnes of meat products and 276,000 tonnes of cotton were exported from the Port of Brisbane.

The co-existence of agriculture and food processing industries in the same region decreases transport and storage requirements and costs. Over 500 of the region's 900 manufacturing businesses are currently involved in food manufacturing. These businesses range from small and medium-sized enterprises manufacturing premium food and wine products, to large, sophisticated businesses employing up to 1,000 staff (meat abattoirs). In addition, a large volume of agricultural produce from outside the Darling Downs is processed within the region including the Lockyer Valley.

The Queensland Government has adopted an aspirational target of doubling the volume of food production in the state by 2040. The Darling Downs must play a big part in the achievement of this target, notwithstanding intense competition for resources from mining, non-food agriculture and other sectors. Growth opportunities include intensification of production (through raising productivity and competitiveness); diversification (into higher value-added production); expansion of food processing; and developing domestic and export markets for products. Transport infrastructure may be a constraint for realising these opportunities. Another potential constraint on achieving optimum productivity is the number of smaller land holdings particularly in the Toowoomba Regional Council area.

Planned projects for reuse of CSG water in agriculture may also create new opportunities for expansion of irrigated agribusiness, albeit in competition with other sectors and in the context of environmental considerations.

Specific potential growth sectors include, but are not limited to:

- *Fruit and vegetables* – increased market demand is feasible because the population of SEQ is forecast to increase by 1.3 million people by 2031. This would create demand for a further 178 million kilograms of vegetable products per annum
- *Cotton and grain sorghum* – factors and markets continue to open up new opportunities (e.g. biofuels)
- *High-protein wheat* – Noodles (predominantly yellow alkaline noodles) and baked goods are a significant end use for high-protein, premium quality wheat, particularly in Japan, South Korea and Taiwan. The region is well positioned to progressively capture these markets worth about $42 million.
- *Intensive livestock, beef, sheep, piggeries and poultry* – The livestock industry is well established in the region. There is a rising global demand for quality meat and the region has a potential to expand into new markets such as China. Poultry production is expected to shift to the Darling Downs as facilities are pushed out of SEQ by residential development.
- *Gourmet food and wine* –Tourist numbers within SEQ Country (including the Darling Downs and Wide Bay Burnett) are expected to continue to grow. Gourmet food (including indigenous food) and cellar-door wine sales are key drivers for tourism growth in the region.
- *Pulses* – Increasing demand for pulses worldwide. The Darling Downs is well positioned to grow pulse crops for domestic and export markets.
- *Forestry and timber processing* – opportunity to increase silvopastoral (grazing and timber) production systems on grazed land and increased downstream processing using new/expanded processing facilities. Timber processing facilities are located throughout the region, mainly cypress, but also Queensland's largest hardwood processor at Wandoan.

Actions

Potential **strategies** to realise the opportunity may include:

- Helping agribusinesses and their supply chains to capture value-adding opportunities
- Increasing productivity, competitiveness and resilience of agribusinesses and their supply chains through innovation, cutting edge technologies, practices and processes, and commercialisation
- Attracting business and industry investment in agricultural production and food processing
- Diversifying through the development of agri-tourism products including food and wine tourism in the Granite Belt and farm stay and cultural heritage experiences
- Proactively mitigating and managing biosecurity threats (pests, diseases, weeds etc) to protect agricultural assets.

Specific **activities** may include:

- Increase productivity through industry benchmarking and research, development and extension

- Undertake regional food initiatives to build knowledge of local food production and processing capabilities and the capacity of food producers to market their product in Australia and overseas
- Provide expertise in the region to facilitate development of key agricultural sectors where the region has significant competitive advantage in a state and national context e.g. intensive livestock (beef, pork, poultry, dairy), grains, irrigated and dry land cropping and related food and value added processing
- Finalise agricultural land audits to identify 'priority agricultural' areas and appropriate areas for intensive animal industries
- Investigate opportunities for intensive horticulture, intensive animal industries and agricultural production to use treated CSG water
- Support Australian Government efforts to negotiate regional and bilateral trade agreements including agriculture as a priority
- Encourage food processing to relocate to the Darling Downs
- Cut unnecessary red tape affecting the ability to do business.

Outcomes

If this opportunity is realised, the following **benefits** may be seen:

- Increased economic growth within the Darling Downs region, particularly within the agricultural and food processing industries.
- New export markets developed
- Improved productivity of agricultural industries
- Investment attracted to the region
- New business start-ups, particularly in intensive horticulture and agricultural production
- Conservation of good-quality agricultural land and water.

Coal, CSG extraction, and other energy development and services

Coal

The Surat Basin holds more than four billion tonnes of thermal coal resources. Very large areas of the coal measures of the Surat Basin are as yet unexplored and will be a major target for exploration and eventual development for several decades to come.

There are currently five coal mines operating in the region, and a number of new coal mine developments are undergoing assessment in order to obtain Government approval. These proposals include Cockatoo Coal's $1.12 billion Northern Surat (Collingwood and Taroom) coal projects and Xstrata's Wandoan project which, if it proceeds, will be Australia's largest coal mine.

The combined production capacity of projects currently under assessment in the region will be over 100 Mt of thermal coal if planned projects go ahead. However, development of Surat Basin Rail project, often referred to as 'Southern Missing Link', is necessary to unlock Surat Basin's coal reserves. Conversely, the timing and execution of the related mining projects, particularly the Wandoan project, are vital to the successful development of this new railway. The proposal would develop a greenfields 214 kilometre railway, opening up the Surat Basin's thermal coal reserves for export via the Port of Gladstone.

CSG

Approximately 65 per cent of Queensland's known CSG reserves are located in the Surat Basin, presenting enormous opportunities for the Darling Downs to supply Queensland's new CSG to LNG export industry.

CSG has attracted significant investment interest by major global resource companies, particularly in light of increased global demand for lower emission energy and gas-fired power generation. There is already significant gas production in the region which supplies existing industrial and domestic users and several gas fired power stations within and external to the region.

Future demand for CSG will be driven by major LNG projects either under construction or planned for Queensland. The majority of the gas fields that will supply these major LNG projects are located in the Surat Basin. Three LNG projects have so far commenced construction in Gladstone and are scheduled to start up in the next few years. These projects are the:

- A$23 billion Australia Pacific LNG (APLNG) project;
- US$18.5 billion Gladstone LNG (GLNG) project; and
- US$20.4 billion Queensland Curtis LNG (QCLNG) project.

A Final Investment Decision on a fourth major CSG to LNG project ('Arrow LNG') is scheduled for 2013. These projects are leading CSG development in the region and are set to stimulate significant economic development along the supply chain.

In addition to the extraction of CSG, these projects also involve the construction of field compression stations, gas pipelines, water treatment plants and water distribution.

Other energy development, power generation and services

Growth opportunities in the coal and CSG sectors may include commercial application of existing, and development of new, coal-to-liquids technologies, engineering, drilling, and transport and containment technologies. There are also as yet large untested areas with considerable potential for unconventional petroleum exploration in the Surat and Eromanga Basin sequences.

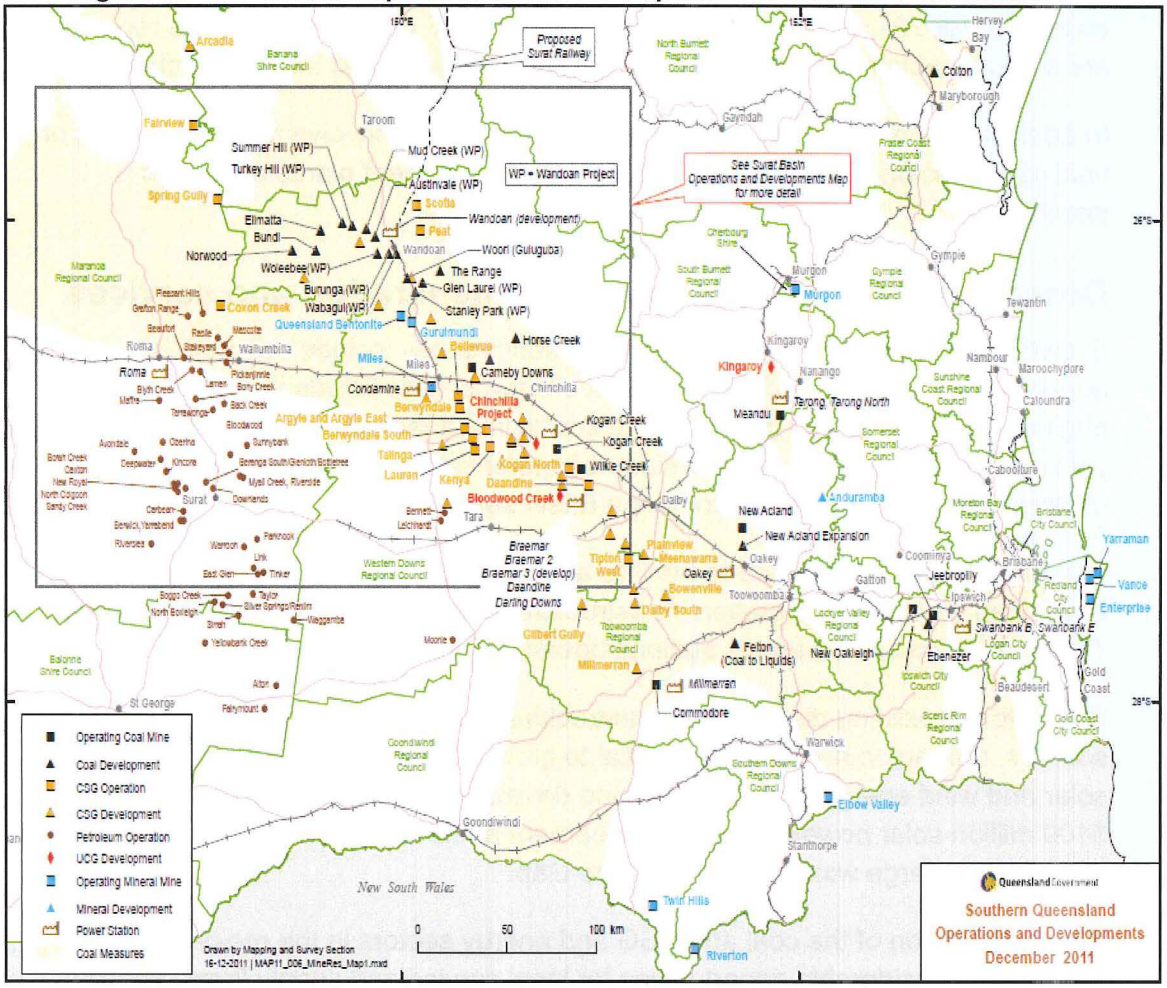
The region is well positioned to tap into a growing demand for energy due to its well developed electricity generation infrastructure and availability of energy resources. There are already nine power stations operating in the region.

Owing to the existing distribution infrastructure and availability of clean energy sources, the region also has a potential to grow a clean energy industry. A number of solar and wind energy projects are being developed or are proposed, including the $100 million solar power booster development at the Kogan Creek coal-fired power station and a large wind farm at Coopers Gap.

Rapid expansion of the coal and CSG and energy sectors in the region is also presenting considerable opportunities for local service and supply firms. Specific growth areas include exploration services; underground and above ground site construction services; engineering, fabrication and machining; drilling and gas well castings; construction, mechanical repairs; environmental services; and transport, accommodation, catering and logistics. Major project proponents in the Surat Basin are demonstrating eagerness to contract local suppliers for services and products.

In order to capture opportunities in mining and energy sectors, issues of labour shortages, co-existence of the resources sector and agriculture, infrastructure provision and transport and logistics services need to be addressed (see Issues section).

Figure 18 Current Operations and Developments in Southern Queensland



Source: *Southern Queensland Mining Petroleum Energy Operations, December 2011*

Actions

Potential **strategies** to realise the opportunity may include:

- Facilitating and advocating for required infrastructure developments
- Supporting local businesses to capture supply chain opportunities in areas such as transport, logistics and services
- Improving local firms' competitiveness and resilience through innovation, adoption of new technology and commercialisation
- Attracting business and industry investment
- Transfer of skills developed in mining to other industries
- Collaborative land use strategies developed between the resource and agricultural sectors.

While commodities are largely driven by external markets, additional factors such as adequate planning to avoid conflict with other land uses and provision of appropriate infrastructure are essential in ensuring the operations are efficient enough to provide a competitive advantage in this sector.

Specific **activities** may include:

- Scientific research into adequate rehabilitation and mitigation strategies for temporary impacts between sectors
- Identification and promotion of resource and energy project supply chain opportunities to tier 3, 4 and 5 servicing firms
- Capability development with firms to help win tenders, including collaboration
- Investment attraction activities to fill capability gaps to service major resource and energy projects
- Promote employment and supply chain opportunities in the Surat Basin to areas adjacent to the Surat Basin including the Wide Bay Burnett and the South West
- Work with major project proponents and regional business to respond to emerging skill needs arising from the strong employment growth
- Continue to implement the Surat Basin Workforce Development Strategy
- Facilitate the Surat Basin Rail project through statutory assessment and planning and approval processes.

Outcomes

If this opportunity is realised, the following **benefits** may be seen:

- Increased business activity within resource and energy sector and related supply chains, leading to increased output and employment growth and retention
- Productivity improvements by local business
- New investment attracted to the region
- New infrastructure development
- Increased skills development in regional businesses.

Resources and agriculture supply chains – metals, equipment, other manufacturing

The expansion of the agriculture, energy and resource sectors has generated increased demand for specialised metals and other products. This demand will provide a boost to the metal manufacturing sector, which has well established skills and supply chains from servicing the agriculture sector over an extended period. Industry projections for the metal products sector in the Surat Basin indicate that it has the capability to grow by 3.8% per annum to $269.0 million by 2031 – more than twice its current industry contribution (*Surat Basin Economic Development Strategy*, 2011). Plastic pipes manufacturers have also established in the region to supply resources sector developments, and there has been interest from other major construction product firms.

Specific opportunities for growth in metal products and associated equipment manufacturing include:

- Structural metal products including structural steel products and applications, steel components, architectural aluminium manufacturing
- Iron and steel manufacturing: steel pipe and tube manufacturing, specialised steam, gas or water pipe fittings and valves, iron and steel for structures/decking
- Pre-fabricated modules
- Specialist transport and defence equipment
- Mining equipment manufacture and refurbishment/maintenance
- Electrical infrastructure parts manufacture
- Railway equipment e.g. rolling stock, rail structures.

Regional businesses are facing competition from companies based in neighbouring regions. However, there may be opportunities for cross-regional partnerships and collaborations to win new contracts and fill the supply chain gaps. Improved transport infrastructure will strengthen manufacturing opportunities by improving supply chain efficiencies and access to markets.

Actions

Potential **strategies** to realise the opportunity may include:

- Supporting local businesses to capture opportunities
- Improving local firms' competitiveness and sustainability through innovation, cutting-edge technologies, practices and process and commercialisation
- Attracting business and industry investment
- Fostering cross-regional collaboration to meet resource sector demand and fill supply chain gaps.

Fostering the sector will lead to further diversification of the regional economy and provide employment.

Specific **activities** may include:

- Identification and promotion of resource and energy project supply chain opportunities to tier 3 and 4 servicing firms
- Capability development to help firms win tenders, including collaborations.

Outcomes

If this opportunity is realised, the following **benefits** may be seen:

- Increased business activity within the resources and energy sector and related supply chains, leading to increased business turnover and jobs growth and retention
- New investment attracted to the region
- Productivity improvements by local businesses
- Increased capacity of firms to innovate, effectively respond to new supply chain opportunities and recognise and commercialise this expertise.

Tourism and Events

The Darling Downs region is well positioned to capitalise on tourism opportunities arising from increased business activity, a growing population, and proximity to Brisbane. The region's cultural heritage and natural aspects provide the competitive edge needed to develop a sustainable tourism sector which attracts a variety of visitors.

Proposed infrastructure developments such as the Toowoomba airport upgrade and improved road networks have a potential to attract more visitors to the region. For example, the recently introduced Skytrans Sydney – Toowoomba airline route will offer more transport options to potential visitors. However, issues with full occupancy of motel/caravan accommodation in resource centres are currently constraining all forms of tourism in these areas. These pressures will ease somewhat as resource sector work camps are constructed.

Specific tourism growth opportunities in the Darling Downs include:

- Food and wine tourism in the Granite Belt
- Business tourism and events such as conferences, particularly associated with the resources sector
- Gardens and parks tourism in Toowoomba
- Farm stay and cultural heritage experiences – opportunities exist for diversification into tourism initiatives including farm stay and bed and breakfast style accommodation
- Events tourism such as festivals, building on the success of the Toowoomba Carnival of Flowers, the Apple and Grape Harvest Festival, the Australian Heritage Festival and others that showcase the region.
- Eco tourism - iconic areas within the region need to be identified so more eco-tourism opportunities can to be developed (and protected) in strategic locations across the region.

The *South East Queensland Country Tourism Opportunity Plan 2009-2019*, which includes large parts of the Darling Downs, identifies tourism infrastructure and investment projects of regional significance which are expected to act as a catalyst to a range of other investment, marketing and product development opportunities.

Tourism opportunities have been constrained by planning policy and plans that have restricted developments in rural and urban areas. This is now addressed in the Queensland Government's *Planning for Prosperity* policy, which is explicit in recognising tourism in rural and urban areas.

Actions

Potential **strategies** to realise the opportunity may include:

- Facilitation of tourism (infrastructure and accommodation) investment through Tourism Queensland and the Tourism Investment Attraction Unit
- Recognition of tourism development in rural and urban areas in the Single State Planning Policy which will come into effect and replace *Planning for Prosperity*
- Promote and market the region to targeted markets and support development of new experiences and improving existing tourism product
- Supporting initiatives to boost the supply of available workers
- Improving local firms' competitiveness through cutting-edge technologies, practices and processes and commercialisation
- Consideration of the unique requirements of tourism development in the land planning system
- Recognise the importance of the natural environment in supporting the local and day visitor tourism markets as well as generating economic opportunities and improving the liveability of the region.

Fostering the tourism sector will lead to further diversification of the regional economy and provide employment.

Specific **activities** may include:

- Destination Q activities including opening up national parks to eco-tourism opportunities
- Facilitate major tourism projects, especially those identified in the *Tourism Opportunities Plan*
- Development of the drive tourism market
- Encourage workers to live and holiday in the region
- Develop tourism product in, or adjacent to, agricultural land
- Darling Downs Regional Plan to provide indication of potential locations suitable for tourism developments.

Outcomes

If this opportunity is realised, the following **benefits** may be seen:

- Increase visitors and visitor expenditure in the region
- Expansion of regional tourist businesses, leading to increased business activity, jobs growth and retention
- New investment attracted to the region.

Construction

The construction sector links to all other sectors, and there are a number of growth opportunities associated with strong levels of residential, non-residential and infrastructure demand derived from the burgeoning energy and resources sector. This demand is currently forcing up the cost of housing and reducing affordability in some parts of the Darling Downs. However, it is also creating opportunities in the construction of workers' camps close to major mining and energy projects.

Projected population growth in the region will also generate demand for housing as well as social infrastructure such as hospitals and schools, providing additional support for the construction sector. Population forecasts to 2031 suggest that an average of between 2,100 and 2,400 dwellings per annum will be required across the region over the next 20 years[13]. The future demand for dwellings has significant implications for the designation of urban footprints in the region, particularly in the Toowoomba Regional Council area where most of the population growth is expected to occur.

Local construction firms have an opportunity to expand and diversify their operations as they capitalise on rapid growth in the resources and energy sector.

Parts of the Darling Downs region (particularly Western Downs and Maranoa) are currently experiencing a rapid construction phase due to CSG developments. This is likely to continue for the next 3-5 years, depending on the number of projects that are developed. Coal developments may create a major new construction phase in the Darling Downs (potentially larger than the current CSG construction phase), possibly providing a continuity of construction opportunities beyond 2015-2017. This will have implications for future residential construction to accommodate construction workers and later coal mine workers in Chinchilla, Miles and Wandoan.

Actions

Potential **strategies** to realise the opportunity may include:

- Supporting local businesses to capture opportunities
- Improving local firms' competitiveness and resilience through innovation, cutting edge technologies, practices and processes and commercialisation
- Fostering cross-regional collaboration to meet resource sector demands and fill supply chain gaps.

Specific **activities** may include:

- Identification and promotion of resource and energy project supply chain opportunities to construction firms
- Capability development with firms to help win tenders

[13] Range based on a dwelling occupancy rate of. 2.5 to 2.8 persons per dwelling, on average

- Promote employment and supply chain opportunities in the Surat Basin to areas adjacent to the Surat Basin including the Wide Bay Burnett and the South West

Outcomes
If this opportunity is realised, the following **benefits** may be seen:
- Increased business activity, jobs growth and retention
- Regional businesses reporting increased employment and skills levels
- Increased employment in quarries and construction material transport

Education and Training

The region has capability in the provision of education and training services through a number of school and post-school education and training institutions including the University of Southern Queensland (USQ). Almost 26,000 domestic and overseas students were enrolled at USQ's three campuses and online in 2011.

USQ is one of Australia's leading providers of distance education programs and a major provider of education exports from the region - more than 75 per cent of USQ students study via distance or online.

The sector is expected to experience significant growth over the next 20 years, to support local population and industry growth. The demand for specialised TAFE and university courses is likely to increase due to expansion of the resources sector, agricultural sector, and other sectors. In 2011, just over 3,900 students were enrolled in engineering and related technologies courses at USQ, while close to 1,600 were studying natural and physical sciences.

Major investment by the resources sector provides significant opportunity for the development of highly specialised research and development capabilities with potential for the provision of a specialist research and training centre in the region. Growth of education and training sector within the region will be valuable in mitigating issues surrounding skills shortages.

Actions
Potential **strategies** to realise the opportunity may include:
- Facilitate industry input to the provision of skills training
- Investment attraction into specialised capabilities.

Fostering the education sector will lead to further diversification of the regional economy, assist with skills provision and provide diversified employment opportunities.

Specific **activities** may include:
- Promote the sector's current capacity in domestic and global markets
- Identify and promote areas of specialisation to investors, such as the water/energy/carbon/food production nexus

- Expand links between secondary and tertiary education providers and industry including agricultural and agribusiness skills
- Work with major project proponents and regional business to respond to emerging skill needs arising from the strong employment growth.

Outcomes
If this opportunity is realised, the following **benefits** may be seen:
- Increased economic contribution of the education sector
- Education and skills needs of existing and new industries are aided by the region.

Information and Communications Technology

National Broadband Network (NBN) fibre services should be available in Toowoomba by February 2013 with a large scale rollout of fixed wireless and satellite services across the Darling Downs by 2015.[14] The enhanced broadband capacity that the NBN will bring has the potential to further reduce the perception of distance from major centres in Australia and the world, with benefits for both business and community.

The NBN rollout brings an opportunity for expansion of knowledge based and information technology industries and the establishment of an information hub in Toowoomba. Fast and reliable information and communications technology infrastructure is necessary to meet the changing requirements of businesses and support innovation, improved productivity and connectivity with markets.

NBN fibre, used in conjunction with the right software, equipment and connections, makes it possible for businesses to:
- upload and download files quickly and easily
- increase access to national and international markets and opportunities to boost sales
- take advantage of rich media, such as video and images without delays
- expand opportunities to attract and retain staff by reaching a larger, skilled workforce via teleworking.[15]

Local government areas will need to consider key information and communications technology infrastructure needs in their area in preparation for the rollout and how their businesses and residents will be able to take advantage of it. Increased

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[14] The NBN encompasses three technologies: optic fibre, fixed wireless and next-generation satellite. Toowoomba has been selected as a release site for the second stage NBN project for fibre and the region has been selected as a first release site for fixed wireless. In addition, Roma will be one of the 10 towns across Australia to host an NBN satellite ground station.
[15] NBNCo, NBN and your business http://www.nbnco.com.au/getting-connected/business.html?icid=pub:connect:business:bod:txt

broadband speeds (mainly by fixed wireless and satellite) will present new opportunities and challenges for communities as they enter into a global digital economy.

An opportunity arsing from the NBN may be the development of new construction-related spatial information services and the creation of innovative techniques to take advantage of 'cloud computing' services requiring significant bandwidth. Opportunities include major infrastructure projects such as mining, road and rail facilities where various spatial data must be integrated and shared between stakeholders in various locations around the world.[16]

The NBN Fibre service, coupled with Toowoomba's strategic characteristics, presents a unique opportunity for the establishment of data centres. Toowoomba has available land, access to several power supplies to cover redundancies (grid, gas, solar and diesel power), water availability, and a cooler climate to minimise cooling costs, all necessities to attract investment in data centres.

The high speed fibre optic network will provide advantages for all local businesses to be on the front foot of this emerging technology. In addition to data centres, the opportunities in the Darling Downs may involve expansion of online businesses, call centres, E-education and E-health services. While local businesses are interested in NBN related growth opportunities, skills development, investment attraction and business capability development activities may be required to support this growth.

Actions

Potential **strategies** to realise the opportunity may include:

- Supporting local businesses to capture opportunities
- Improving local firms' competitiveness through innovation, cutting edge technologies, practices and processes and commercialisation
- Attracting business and industry investment.

Specific **activities** may include:

- Promote the sector's capacity in domestic and global markets to attract investment
- Facilitate capability and skills development of local firms.

Outcomes

If this opportunity is realised, the following **benefits** may be seen:

- Increased business opportunities, particularly for small business, leading to jobs growth and retention
- More streamlined business processes through improved connectivity
- New investment attracted to the region.

[16] Source: Spatial Information Industry Capability Study, CTG Consulting, June 2011

Economic development issues

Additional infrastructure to support growth

Rapid regional growth will place significant pressures on all levels of government to respond to industry needs for infrastructure, industrial land development and specific services such as transport and logistics. More resilient, well-planned infrastructure would reduce the frequency of supply chain disruptions and aid the rapid recovery when extreme weather events occur.

Economic infrastructure

The draft *Darling Downs Infrastructure Baseline* indentifies existing transport links in the region. Current transport infrastructure (road and rail) in the region is nearing full capacity and will need to be improved to cater for increased agricultural and mining production. From the perspective of opportunities identified in 2012, transport is arguably the most significant infrastructure constraint for the region's economy. In particular, expansion of rail infrastructure will be essential to sustain coal sector growth. Access and capacity of ports outside the region may also present a constraint for the regional growth.

One particular transport bottleneck limiting the region's potential economic growth is the Toowoomba Range crossing. Increased demand for freight and logistics services is also expected, especially between mining and agricultural sectors, main ports and major urban areas. The Warrego Highway west of Toowoomba is a key piece of infrastructure for industry and residents, and is under pressure due to much increased usage (refer Issues and Options paper).

The Surat Basin Infrastructure Corridor State Development Area was declared in response to the proposed Surat Basin Railway to connect the existing Western Railway and Moura Railway systems. This would provide a strategic link to the Port of Gladstone and enable significant export of mining and agricultural products (and potentially provide a link in the inland rail network).[17] An increase in rail capacity will provide an opportunity for a modal shift from road to rail for high volume commodities that would impact across sectors and supply chains.

There is also increased demand for air services that Toowoomba airport has limited capacity to support. The movement of passengers to jobs in the west (FIFO) and demand for business travel to and from major centres, including Sydney and Gladstone, will continue and grow with further project developments. Additional air passenger and freight infrastructure would be of benefit across a range of sectors. A proposal for a private airport near Toowoomba, together with some improvements in current infrastructure may address this challenge.

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[17] Darling Downs Infrastructure Baseline, draft – for stakeholder consultation, August 2012.

Appropriate infrastructure is also required to effectively treat and use CSG water produced in the region. The Kenya to Chinchilla Pipeline, to be developed in the short-term, will reuse CSG water and supplement water supplies to Chinchilla.

Social infrastructure

Areas of the Darling Downs impacted by energy and resource sector developments are experiencing rapid economic growth. Population growth in certain communities will be matched by increased demand on social infrastructure.

A growing demand for housing and resultant rise in accommodation costs is occurring. Improving land availability, and reducing time and costs associated with providing new parcels to the market may encourage new developments to address housing shortage and affordability for the region.

The housing shortage in Queensland's resource regions is being addressed through the $100 million Land Supply, Economic and Regional Development Initiative. As part of this initiative, the department of State Development, Infrastructure and Planning conducted workshops in 11 regional resource centres - including Dalby, Roma and Toowoomba - to identify the land availability and housing problems they currently face and consider possible solutions. The government will work with the private sector and councils to improve and streamline approval processes for residential development in resource regions.

In addition to housing, communities are experiencing pressures on various social services including health care, education and training. Establishment of worker camps for FIFO/DIDO workers will put further pressure on certain parts of social infrastructure such as health care, as does an aging population. These challenges also present an opportunity to grow the existing health and social services sector. Remote communities have the added problem of young people leaving due to lack of educational, occupational and social opportunities.

Actions

Potential **strategies** to address the issue may include:

- Facilitating and advocating for required infrastructure developments
- Attracting business and industry investment.

Specific **activities** may include:

- Facilitate the development of infrastructure through Royalties for the Regions funding and Regional Development Australia Funding
- Continue work to put in place strategies to provide the workforce for the health and community services sectors
- Prioritise regionally significant infrastructure and monitor developments
- Actions to mitigate social impacts attributed to new or expanding resource development projects
- Co-ordinate a Whole-of-Government process for Environmental Impact Statement monitoring.

Outcomes
If this issue is mitigated, the following **benefits** may be seen:

- Improved infrastructure efficiently supporting industrial activity, resulting in industry and business growth and subsequent job creation and retention, investment and business profitability.

Availability of suitably zoned and developed land for residential, commercial and community needs

There is an estimated 3,436 hectares of zoned industrial land across the Surat Basin region – 56% located in Toowoomba, 24% located in Western Downs and 20% located in the Maranoa region. Preliminary studies undertaken by the former Department of Infrastructure and Planning (2010) indicated (in a high demand scenario) that the existing supply of zoned industrial land will be exhausted by demand from the gas industry services sector alone by 2020 (*Surat Basin Economic Development Strategy*, 2011).

Much of the currently available industrial land in the Darling Downs is not serviced by water, sewer, power, and transport infrastructure. The predicted industry growth will also result in increased demand for suitably zoned land to meet commercial, residential and community needs. It remains a challenge to accurately predict demand for developed land due to lack of clarity on future developments. For example, reliance of companies on FIFO/DIDO will have implications on residential land demand. The Queensland Government is giving priority to removing unnecessary regulation, reducing red tape and streamlining approval processes to support economic development and ensure that planning systems respond effectively to land demand.

Land also needs to be identified to accommodate the additional electricity infrastructure required to meet the energy demands of the region's growing population and industrial base.

Actions
Potential **strategy** to address the issue may include:

- Facilitating and advocating for required infrastructure developments, including suitably zoned and serviced land consistent with existing State Planning Policies.

Specific **activities** may include:

- Facilitate strategic and timely development of land for industrial, commercial, residential and community needs
- Identify areas and plan for sustainable growth by establishing State Development Areas
- Undertake land audits as part of the Regional Planning process.

Outcomes
If this issue is mitigated, the following **benefits** may be seen:

- Well positioned, suitably zoned and serviced industrial land available, resulting in new investment attracted and industry and business growth.

Availability of skilled and non-skilled labour

The region's unemployment rate has been consistently lower than the state average over the past three years as a result of strong economic growth in the region. However the demand for skilled and non-skilled labour varies greatly across the region.

A number of mining and energy projects are either at the construction phase or will reach construction phase within the next few years. Labour demand is expected to continue to increase in the communities affected by resource sector growth, such as Roma, Dalby and Chinchilla. Skills shortages are impacting on the ability of these communities to respond to new opportunities and industry growth. In turn, as the resources sector attracts workers from other industries, labour shortages are expected to rise in agriculture, manufacturing, tourism, construction, local government and retail. Trades skills are reported as the most in demand.

During the construction phase, local workers may have employment opportunities, however most proponents anticipate construction staff will be sourced from outside the project area using FIFO/DIDO labour and a camp based approach to housing. Some FIFO/DIDO labour may be drawn from SEQ and northern NSW taking advantage of the strategic location of the Darling Downs.

Regional construction businesses are facing strong competition from companies based in neighbouring regions; particularly SEQ. Major projects such as the Surat Basin Railway will place heavy demands on local extractive resources and may lead to a lack of workers for future small scale construction in the region.

The construction industry tends to be cyclical in nature, providing some scope for those employed by the industry to move both within and between the subsectors of 'building' (residential and non-residential) and 'engineering' to meet various levels of demand. For example, the types of occupations that primarily exist within the 'building' construction sector are, to varying degrees, transferable to roles within the 'engineering' construction sector, particularly to assist in the development of large mining and infrastructure projects in the Surat Basin. An opportunity therefore exists for skills transfer to counteract the cyclical nature of the construction industry. It is anticipated that this employment would mostly be drawn from external regions, particularly SEQ, as the number of resources and energy projects in the Surat Basin expands.

To meet the industry needs for specialised trades locally, specific targeted training services and facilities may be needed, for example a training drilling site facility.

The increasing prevalence of FIFO/DIDO staffing arrangements and establishment of new worker camps will create significant growth opportunities for local businesses. In particular, provision of services such as cleaning, laundry, entertainment and transport services may be in high demand. Nevertheless, the local economy will retain the majority of benefits flowing from FIFO/DIDO workers only if local businesses successfully integrate into the worker camp supply chains and service their daily operational needs.

Other parts of the Darling Downs region, including rural communities in the Southern Downs, are experiencing the effects of an aging population, which will also affect the availability of skilled and non-skilled labour in the future. Strategies will need to be developed to attract and retain workers in the region.

Actions

Potential **strategy** to address the issue may include:

- Workforce development, including skills development, attraction and retention.

Labour shortages will impact on the ability of the region to capture opportunities arising from recent economic growth.

Specific **activities** may include:

- Identify industry needs for specific skills and trades and work with education and training sector to meet these needs
- Encourage industry and particularly mining companies to implement high performing workplace practices including apprentice training
- Work with major project proponents and regional business to respond to emerging skill needs arising from the strong employment growth
- Continue work to put in place strategies to provide the workforce for the health and community services sectors.

Outcomes

If this issue is mitigated, the following **benefits** may be seen:

- Regional workforce meets industry demands which will support regional economic growth
- Increased productivity of the regional workforce
- Regional businesses reporting increased local employment and skills levels.

Water availability and natural and agricultural resources management

Future economic development in the Darling Downs is constrained by water availability. It is a major issue for agricultural production, urban settlement, industry, and development of the energy and resources sector.

Availability of water resources is vital for the ongoing sustainability of communities. Water use from the Surat Basin's two main water sources – the Murray Darling Basin and the Great Artesian Basin – is severely limited. Drought is also a major limiting factor in the region, which places significant constraints on water resources for variable and uncontrollable periods of time (*Surat Basin Economic Development Strategy*, 2011).

Competition for land and for water supplies between sectors, in particular between mining and agriculture, needs to be managed in a way that promotes ecologically sustainable development. The draft Underground Water Impact Report for the Surat Cumulative Management Area (CMA) sets out the assessment of impacts resulting from the exercise of underground water rights by petroleum tenure holders in the Surat CMA and offers strategies for managing impacts. The Department of Energy and Water Supply will review the Underground Water Impact Report every three years to take account of new developments and the outcomes of monitoring.

Voluntary buy-back of water allocations in the Murray-Darling Basin and possible drought periods have the potential to reduce water availability for the irrigated agricultural sector, and increase competition between sectors when supply is restricted. The Murray-Darling Basin Plan, due to be finalised later in 2012, will set the sustainable diversion limits for the catchments within the Darling Downs region. The reuse of CSG water may also relieve some of the pressure on the agricultural sector and open up new opportunities for irrigated agribusiness in the region. However, measures to promote efficiency of water use will continue to be necessary.

Potential loss of agricultural land due to competition from resource developments could result in reduced regional capacity to grow crops with associated economic, environmental and social implications. The Queensland Government is undertaking regional agricultural land audits that document agricultural industry land developments. Queensland's Agricultural Land Audit will identify land important to current and future agricultural production across Queensland. The audit will provide information on the location, land area and types of existing productive agricultural land and areas of potential agricultural development.

Rapid growth may potentially have an adverse effect on the region's natural environment. Possible impacts include loss of natural habitats and endangerment of native species. The spread of noxious weeds can have a major negative impact on landholders as they compete with pasture species grazed by cattle, cause more intense fires and require ongoing expenditure to control. Natural resource

management plans recognise the economic impact of pests and diseases on agriculture and the landscape and effective management is required by landholders to redress these issues.

In the Darling Downs, New South Wales border region, cross-border issues can arise in relation to control classes of pest plant species. Under existing Queensland and New South Wales legislation there is no alignment in control classes and this can prove counterproductive to the other state's eradication efforts. Species under a containment program in one state can, through the actions of birds/ wind/ water, spread to the other state – re-establishing themselves in areas under an eradication management program.

There is also scope for cross-border cooperation on catchment and natural resources management which could potentially:

- increase the profile and community's understanding of cross-border natural resource management issues
- reduce adverse cross-border impacts
- assist with information sharing and increase knowledge of natural resource management issues.

Actions

Potential **strategies** to address the issue may include:

- Improving local industry's resilience through innovation, adoption of new technology and commercialisation
- Maintaining quality and availability of agricultural land and water through monitoring and acting on any negative impacts
- Improving irrigation water efficiency
- Collaborative land use strategies developed between the resource and agricultural sectors
- Cross border alignment on catchment and natural resources management and control classes of pest plant species
- Reuse of CSG water for agricultural production.

Specific **activities** may include:

- Support primary producers to adopt innovative practices for more efficient water use and cropping techniques
- Finalise and implement Surat Basin Underground Water Impact report
- Finalise agricultural land audits
- Identify pilot projects for optimising water, land and vegetation use efficiency for agriculture and energy production through particular installations or supply chains
- Cooperative conservation actions sponsored by resource interests.

Outcomes

If this issue is mitigated, the following **benefits** may be seen:

- Quality and availability of agricultural land and water in the region is maintained
- Businesses operate successfully in changing environments.

Economic resilience

As identified elsewhere in the strategy, the resilience of the Darling Downs economy will be enhanced by further diversification, productivity growth, competitiveness and appropriate natural resources management. For example the NBN roll-out offers opportunities for diversification of the existing industry base and other opportunities will emerge over the life of the strategy. The Queensland government is committed to acting in interests of the state's businesses and industry and removing regulatory bottlenecks and impediments to investment.

The long term impacts of climate change may increase the intensity and frequency of natural disasters such as floods, droughts and bushfires. The agricultural sector is particularly vulnerable to natural disasters but other sectors, including mining and tourism, may also suffer.

In 2010-11 and 2011-12, the region suffered severe flooding, which followed eight years of below average rainfall. The floods devastated business, industry and communities. Transport infrastructure including the Warrego Highway and rail infrastructure was damaged, which was a major inhibitor to economic recovery. Agriculture was significantly impacted, particularly grain, cotton and intensive livestock and mining and CSG operations seriously disrupted. The Queensland Government is developing a regulatory framework for the regulation of levees as part of an integrated program to improve flood management in response to the Flood Commission of Inquiry.

Actions

Potential **strategies** to address the issue may include:

- Improving local firms' competitiveness and resilience through innovation, adoption of new technology and commercialisation
- Assist business and industry prepare for and recover from natural disasters.

Specific **activities** may include:

- Increasing floodplain security through programs including Royalties for the Regions in addition to the Local Government Grants and Subsidies Program, the South West Queensland Flood Mitigation Fund and the Natural Disaster Resilience Program
- Improving local firms' competitiveness and resilience through innovation, cutting edge technologies, practices and processes and commercialisation
- Assess opportunities to participate in Carbon Farming Initiatives and other emerging opportunities.

Outcomes

If this issue is mitigated, the following **benefits** may be seen:

- Businesses operate successfully in changing environments
- A more diverse and resilient regional economy.

Next steps

The economic development strategy through consultations with Government agencies, local governments and industry has developed a shared understanding of the region's competitive strengths, economic development opportunities and issues for economic development. As part of this phase, the revised draft is being presented to the Regional Planning Committee (RPC).

With the feedback and contributions made through these rounds of consultation, the draft *Darling Downs Economic and Infrastructure Framework* will then be developed incorporating elements of this document and the infrastructure baseline.

The economic development strategy is a key component of this framework and will be refined and updated with the latest publicly available information sources including the second release of the ABS 2011 Census data.

Specifically, the next steps to develop the *Darling Downs Economic and Infrastructure Framework* include identifying priority infrastructure outcomes that could help capitalise on economic development opportunities and address challenges impeding economic development. These outcomes may also be based on certain scenarios coming to fruition (e.g. growth in a specific industry/area such as coal seam gas).

The aim is to provide a framework that guides innovative approaches to infrastructure planning by public and private interests, and responds effectively to future economic development opportunities and constraints. With the complexities of infrastructure planning, detailed options assessments and evaluations are also required to achieve the best value for money outcomes. The framework will not pre-empt the results of these processes.

Ultimately, this framework will support the regional plan's objective to enhance economic development opportunities and bolster investment confidence and create more jobs in regional Queensland.

Appendix 1 Temporary State Planning Policy

This draft strategy is underpinned by the Temporary State Planning Policy 2/12, which articulates the state's position on economic growth and applies to all local government areas in Queensland. This policy is to be reflected in the relevant state and local government decision making.[18]

According to the policy, the state interests in economic growth include:-

1. promoting agriculture by:
   a. preserving good quality agricultural land for its income earning potential, and as a natural resource;
   b. supporting agriculture as the predominant land use in Rural zoned areas; and
   c. not supporting land uses that have the potential for conflict with agriculture in Rural zoned areas.

2. promoting tourism by:
   a. protecting Queensland's tourism attractions and significant natural assets, for the benefit and sustainability of the tourism industry;
   b. facilitating tourism projects that complement local conditions; and
   c. removing hurdles and locational limitations for appropriate tourism development.

3. promoting the state's mineral and extractive resources industries by:
   a. preserving mineral and extractive resource industries;
   b. resolving at a regional and local level potential land use conflicts; and,
   c. supporting our mining communities with housing and community facilities.

4. promoting construction activities by:
   a. facilitating residential, commercial and industrial development in appropriately zoned areas;
   b. identifying infrastructure required to support new development;
   c. removing impediments to a steady supply of land in suitable locations, and by,
   d. ensuring an efficient, effective and accountable planning and development system.

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[18] Temporary State Planning Policy 2/12 was made by Jeff Seeney MP, Deputy Premier and Minister for State Development, Infrastructure and Planning, under Chapter 2, Part 4, Division 3 of the *Sustainable Planning Act 2009* on 24 August 2012.

Appendix 2 Definitions of regional centres

The analysis in this report uses the Australian Standard Geographical Classification (ASGC) 2011 framework. Data is extracted at the Statistical Local Area (SLA) level and aggregated where necessary to represent regional centres. The following table details the SLAs that are used for each regional centre.

Regional Centre	Statistical Local Areas
Toowoomba	Cambooya
	Gowrie
	Highfields
	Toowoomba Central
	Toowoomba North-East
	Toowoomba North-West
	Toowoomba South-East
	Toowoomba West
	Westbrook
Warwick	Southern Downs (R) - Warwick
Dalby	Western Downs (R) - Dalby
Stanthorpe	Southern Downs (R) - Stanthorpe
Chinchilla	Western Downs (R) - Chinchilla
Roma	Maranoa (R) – Roma
Goondiwindi	Goondiwindi (R) - Goondiwindi
Darling Downs, balance	Clifton
	Crow's Nest
	Greenmount
	Jondaryan
	Millmerran
	Pittsworth
	Rosalie
	Goondiwindi (R) - Inglewood
	Goondiwindi (R) - Waggamba
	Maranoa (R) - Bendemere
	Maranoa (R) - Booringa
	Maranoa (R) - Bungil
	Maranoa (R) – Warroo
	Southern Downs (R) - Allora
	Southern Downs (R) - Killarney
	Southern Downs (R) - West
	Western Downs (R) - Murilla-Wandoan
	Western Downs (R) - Tara
	Western Downs (R) - Wambo
	Balonne (S)

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Department of State Development, Infrastructure and Planning

Darling Downs
Infrastructure baseline

Draft – for stakeholder consultation
October 2012

Queensland Government

The Department of State Development, Infrastructure and Planning leads a coordinated Queensland Government approach to planning, infrastructure and development across the state.

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Introduction

Background

The Queensland Government intends to develop regional plans that foster economic opportunities, address land use issues and build communities. In collaboration with key industry and community groups, local government, and state government agencies, the Department of State Development, Infrastructure and Planning (DSDIP) is leading the preparation of the plan.

The Queensland Government is committed to creating strong and diverse regional economies and unlocking the 'four pillars' of the Queensland economy: the agriculture, construction, resources and tourism sectors. These sectors drive economic growth, employment and prosperity - through the jobs and incomes they generate; through resulting economic effects along their supply chains; and, in the demand generated for a wide range of goods and services in the state's regions. There is also a focus on streamlining regulatory barriers and creating certainty to help regions achieve their economic potential, and developing new strategies and policies to support long-term productive growth in Queensland.

Purpose

The purpose of this document is to facilitate discussion and understanding between the state government and key stakeholders in the Central Queensland region on a baseline of the regions economic infrastructure.

Infrastructure is the 'bricks and mortar' which enable a modern community and economy to function. Infrastructure is a means by which a variety of core services can be delivered and core activities can take place. Economic infrastructure supports the supply of energy and water, and the transportation of products, workers and information.

This baseline has undergone initial consultation with state government agencies, industry and local government. This version of the baseline incorporates feedback from that process. These discussions and contributions are developing a shared understanding region's current economic infrastructure situation and the related challenges that may impede the region's economic development.

The draft infrastructure baseline provides this by:

- Presenting the key infrastructure supporting the regions economies.
- Identifying infrastructure related opportunities that may improve the economic productivity or efficiency of the region
- Identifying infrastructure related challenges that may impede economic development

In the interest of supporting the timeframes for developing the regional plan no detailed studies were undertaken in the development of this baseline.

Context

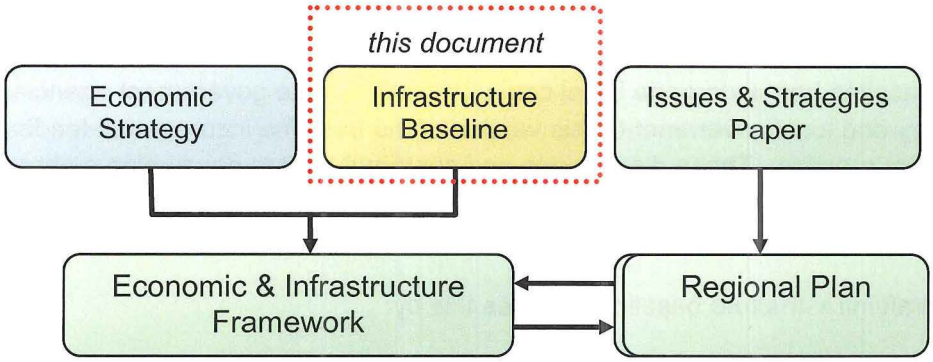
Once there is an agreed understanding of the regional economic infrastructure situation established through this draft baseline, it can be contextualised in terms of the regional economic strategy and regional issues. The other two inputs to the regional plan are the *Economic Development Strategy and the Regional Issues paper.*

- The purpose of the *Economic Development Strategy* is to develop a shared understanding of the regional competitive strengths, economic development opportunities and issues for economic development.
- The purpose of the *Regional Issues* paper is to identify issues raised by stakeholders in the region and propose a range of strategies to address these issues. These issues were initially grouped based on eight themes comprising: economic development, agriculture, resources, tourism, infrastructure, natural environment, flooding and liveability.

All of these draft documents are currently undergoing consultation.

The baseline will then be a key input for the *Economic and Infrastructure Framework.* The framework will bring the economic and infrastructure components together to identify priority infrastructure outcomes that support the region's future economic development. A draft Framework is proposed to be released for public consultation along with the draft regional plan in February 2013. See the **Next Steps** section in this report for further details.

Figure 1 Context of the infrastructure baseline.



Regional boundaries

The document uses "Darling Downs" to describe the region covered by the Darling Downs regional plan, acknowledging this includes the following local government

areas: Toowoomba, Western Downs, Southern Downs, Goondiwindi, Maranoa and Balonne.

Regional focus

Within the context of developing a regional economic and infrastructure framework, this baseline will focus on key economic infrastructure and challenges related to the region as a whole. As a result the infrastructure baseline is not focussed on:

- capital investments that benefit only specific industries (e.g. refineries)
- localised infrastructure without a 'regional' focus
- the performance or delivery of services

Each of these elements requires unique, specific and detailed consideration and cannot be adequately addressed in a regional economic and infrastructure framework. It is important, however, to acknowledge the significance of these and the challenges faced by some communities and industries in the region.

Summary

The Darling Downs region has a number of strong transport linkages, both internally, with surrounding regions and into New South Wales (NSW). These provide access routes for goods, including food, as well as travel between mines and major centres.

Over the past decade, the Surat Basin has grown in importance as a significant source of coal seam gas, with the emergence of Queensland's coal seam gas to liquefied natural gas (LNG) export market. While there are a number of existing pipelines in the region supplying the domestic market, activity has grown significantly and will continue to increase to provide key infrastructure to feed LNG facilities in Gladstone.

The region has a prominent electricity sector, with a number of power stations which are predominately located in the east of the region. The majority of these are gas powered facilities, due to the region's strong gas sector. The high voltage transmission grid is dominated by the Queensland-NSW Interconnector (QNI), which connects the transmission grids between the two states.

The public infrastructure supplying water for urban, industrial, mining and agricultural uses is primarily part of the six water schemes operating in the region. In addition to these, there are a number of dams owned and operate by local councils, and some weirs that supply local communities. Many water users also depend on groundwater for domestic, industrial and agricultural purposes.

Telecommunications infrastructure in the region plays an integral role within modern businesses enabling access to the internet, real time communication between businesses and also innovative use of technology like telemetry.

Challenges

Significant challenges for the region are presented by the infrastructure requirements and the impacts of the growing resources sector, and supporting the agricultural sector in the region.

Of particular note is the growing demand on the infrastructure that supports moving agricultural and resource product towards the coast, where sellers can access wider markets. The inward logistics supporting the resources sector is also notable. Additionally, the construction and operating workforces supporting the resources sector present a challenge for a variety of infrastructure classes, as the size of each workforce can be significant in comparison to the resident populations. While tourists make up only a small proportion of overall visitor numbers (compared to temporary workers), they also contribute to the challenges created for all infrastructure classes by increased numbers of non-permanent residents.

The need for freight (both road and rail) to pass through urbanised areas in South East Queensland and within the Darling Downs presents a significant challenge for

efficient haulage. This challenge will be intensified as Toowoomba, and the region as a whole, continue to grow.

The region's population growth, as well as the needs of the growing resources sector, will continue to present challenges to maintaining a reliable water supply for communities, as well as adequate wastewater treatment and waste disposal services.

The cumulative impacts of multiple resource sector projects starting in a short timeframe may also intensify some of these challenges.

Responding to these challenges requires careful prioritisation of infrastructure options in the context of the government's fiscal and economic objectives. Infrastructure is essential to productivity growth in the economy as a whole, but only if the most productive use is made of existing and future infrastructure.

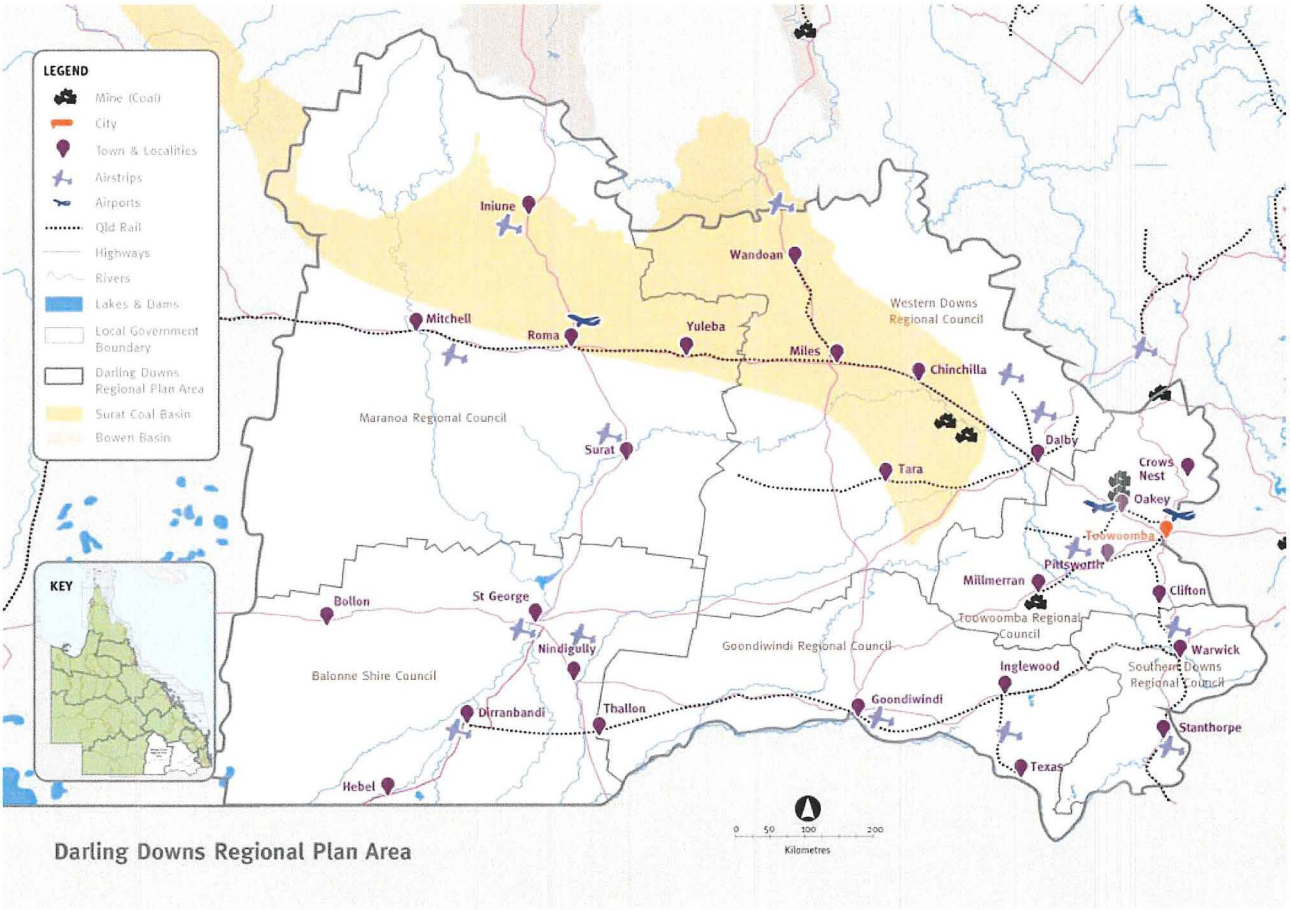
Darling Downs

The Darling Downs region has a total area of around 170,000 km^2, which is 9.8% of the total area of the State. As of 30 June 2011, the estimated resident population was 262,840 persons (5.7% of Queensland's population) and this is projected to reach 309,754 persons in 2021 and 368,114 persons in 2031.

The Darling Downs region encompasses:

- Toowoomba Regional Council
- Southern Downs Regional Council
- Goondiwindi Regional Council
- Western Downs Regional Council
- Maranoa Regional Council
- Balonne Shire Council.

Figure 2 Map of the Darling Downs region



Economies

The economies of some Local Government Areas (LGAs) in the Darling Downs region are quite similar. The more remote and less populated regions of Balonne and Goondiwindi have prominent agricultural sectors.

Maranoa and Western Downs also have notable agricultural sectors, although to a lesser degree than their southern neighbours, with the Western Downs region in particular having a substantial industry base. Additionally, both regions have developing resource sectors.

The more populated regions of Toowoomba, Southern Downs and, to a lesser extent, Western Downs have a significant industry base and, more notably, prominent service sectors. As larger population centres generally tend to be service, rather than resource, based, this is to be expected.

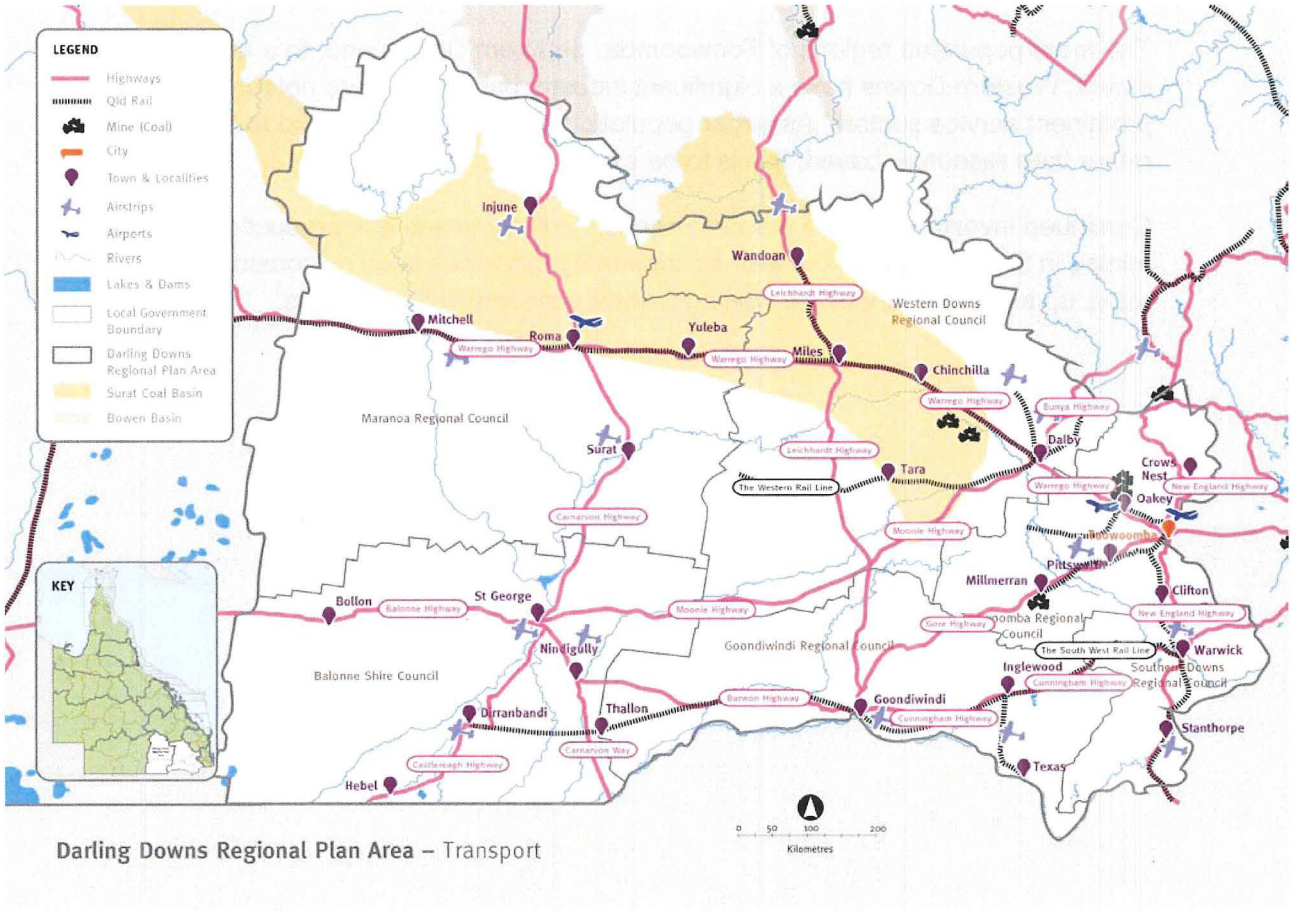
Continued investment in the resources sector is likely to see gas production and coal mining in the Surat Basin (as well as supporting industries such as construction) make up a larger share of the Darling Downs economy in future years.

Key infrastructure

Transport

The Darling Downs region has a number of strong transport linkages, both internally, with surrounding regions and into New South Wales (NSW) which are shown on the following map.

Figure 3 **Map of the regions key transport infrastructure**



Darling Downs Regional Plan Area – Transport

Road

The strategic road network is the key roads in a region that comprise an important series of connected roads. A strategic road network does not differentiate between local government and state-controlled roads and focuses instead on the strategic importance of the routes in creating a network of key roads. The majority of these roads are sealed, with two lanes. An efficient road network is vital to support the functioning of the industry labour markets and communities in Darling Downs.

Major highways and significant roads

There are a number of major highways and significant regional roads in the Darling Downs region. The following highways are part of the National and State Strategic Roads network. Significant Regional Roads are listed in Appendix 1 .

Warrego Highway (Toowoomba to Morven)

The Warrego Highway is the primary east-west arterial link in the region, providing a direct connection between the region's major population centres and an eastern connection to Brisbane. The Warrego Highway connects the eastern coastal centres to the south-western areas of the state, and is approximately 750 km in length 2/3 of which is in Darling Downs region – at approximately 500 km.

The entire highway is part of the national highway system linking Darwin and Brisbane. This highway provides a connection to potential coal and power generation facilities located between Dalby and Roma. The highway starts near Ipswich and climbs the Great Dividing Range and through Toowoomba CBD. From Toowoomba, it then crosses the Darling Downs and continues to Charleville.

From east to west, the highway passes through or close to the cities, towns and localities of Toowoomba, Oakey, Dalby, Chinchilla, Miles, Yuleba, Roma and Mitchell.

Traffic volumes have increased by an average of 6% each year between 2006 and 2010, which is more than double the state average, including significant growth in the transport of heavy commodities in recent years. The growth of the coal and coal seam gas (CSG) industries will place even greater pressure on this highway.

Gore Highway (Toowoomba-Goondiwindi)

The Gore Highway runs from Goondiwindi to Toowoomba. Together with the Goulburn Valley Highway and the Newell Highway in NSW, it is a part of the national highways' Melbourne-Brisbane link. Typical adjoining land uses are cattle grazing, orchards and grain growing fields.

From east to west, the highway passes through or close to the cities and towns and localities of Toowoomba, Pittsworth , Millmerran and Goondiwindi.

Growth in traffic volumes vary along the Gore Highway from 2006 to 2010, with the section near the intersection with Toowoomba Karara Road experiencing more than a 10% increase over the five year period.

Cunningham Highway (Ipswich-Goondiwindi)

The Cunningham Highway connects to Brisbane via the Ipswich Motorway. It begins at Dinmore heading south of Ipswich through the Scenic Rim before crossing over the mountain pass of Cunningham's Gap to Warwick and continuing until it terminates at Goondiwindi. The highway is periodically closed for short periods after landslides deposit dirt and rocks on the road, especially around the steep sections

near Cunningham's Gap. But otherwise provides an important alternative crossing of the Great Dividing Range.

From east to west, the highway passes through or close to the cities, towns and localities of Warwick, Inglewood and Goondiwindi.

The section of the Cunningham Highway between Warwick and Inglewood experienced up to 5% growth in traffic in the five years between 2006 and 2010.

New England Highway (Yarraman-Wallangarra)

The New England starts near Newcastle in NSW crosses the NSW-Qld border at Wallangarra and heads north through Warwick and Toowoomba, as a major north-south regional link continuing to Yarraman. It connects to the Pacific Highway at it southern end and the D'Aguilar Highway at its northern end.

South of Warwick it is a national highway as part of the official major route between Sydney and Brisbane. The highway is also an important interstate link between Queensland and Victoria, with connections through to Melbourne. While not a part of the national highway system, the highway north of Warwick forms part of the state strategic road network with the capability to carry B-Double size trucks.

The highway also links major urban centres and provides an important commuter function, in particular between Highfields and Toowoomba. While industrial growth is concentrated to the west along the Warrego Highway, it may be expected that future residential growth will continue to be concentrated along the north-south spine of the highway. This may cause capacity challenges as shorter distance trips compete with long distance movements.

From south to north, the highway passes through or close to the cities, towns and localities of Stanthorpe, Warwick, Clifton, Toowoomba, and Crows Nest.

The section of the New England Highway between Toowoomba and Warwick experienced an increase of 2.5% to 5% in traffic growth in the period between 2006 and 2010.

Leichhardt Highway (Goondiwindi-Wandoan)

The Leichhardt Highway is an important strategic inland freight route and local community connector, branching off the Gore Highway north of Goondiwindi and continuing north as far as Dululu beyond which it connects to the Capricorn Highway and Rockhampton. The rural highway also provides an alternate tourist route and heavy vehicle freight access from as far south as Melbourne.

From south to north, the highway passes through or close to the cities, towns and localities of Goondiwindi, Miles and Wandoan.

The Leichhardt Highway experienced relatively low growth in traffic between 2006 and 2010, with the largest growth experienced south of Miles, between 2.5% and 5% over the five years.

Carnarvon Highway (Mungindi-Rolleston)

The Carnarvon Highway is a state highway running north from Moree in NSW, crossing the Qld-NSW border at Mungindi via St George and Roma, and eventually to Rolleston in the north of the region, with connections to Emerald. The highway provides an important freight and tourism route through the central mid west region.

From south to north, the highway passes through or close to the cities, towns and localities of Thallon, Nindigully, St George, Surat, Roma and Injune.

The Carnarvon Highway experienced relatively low growth in traffic between 2006 and 2010, with the largest growth over the five years between 2.5% and 5% south of Surat.

Castlereagh Highway (St George-Hebel)

The Castlereagh Highway is a state highway in New South Wales, and extends into Queensland. It reaches the Queensland border at Hebel, and continues via Dirranbandi and Noondoo to St George, where it terminates at the Carnarvon Highway.

Usage

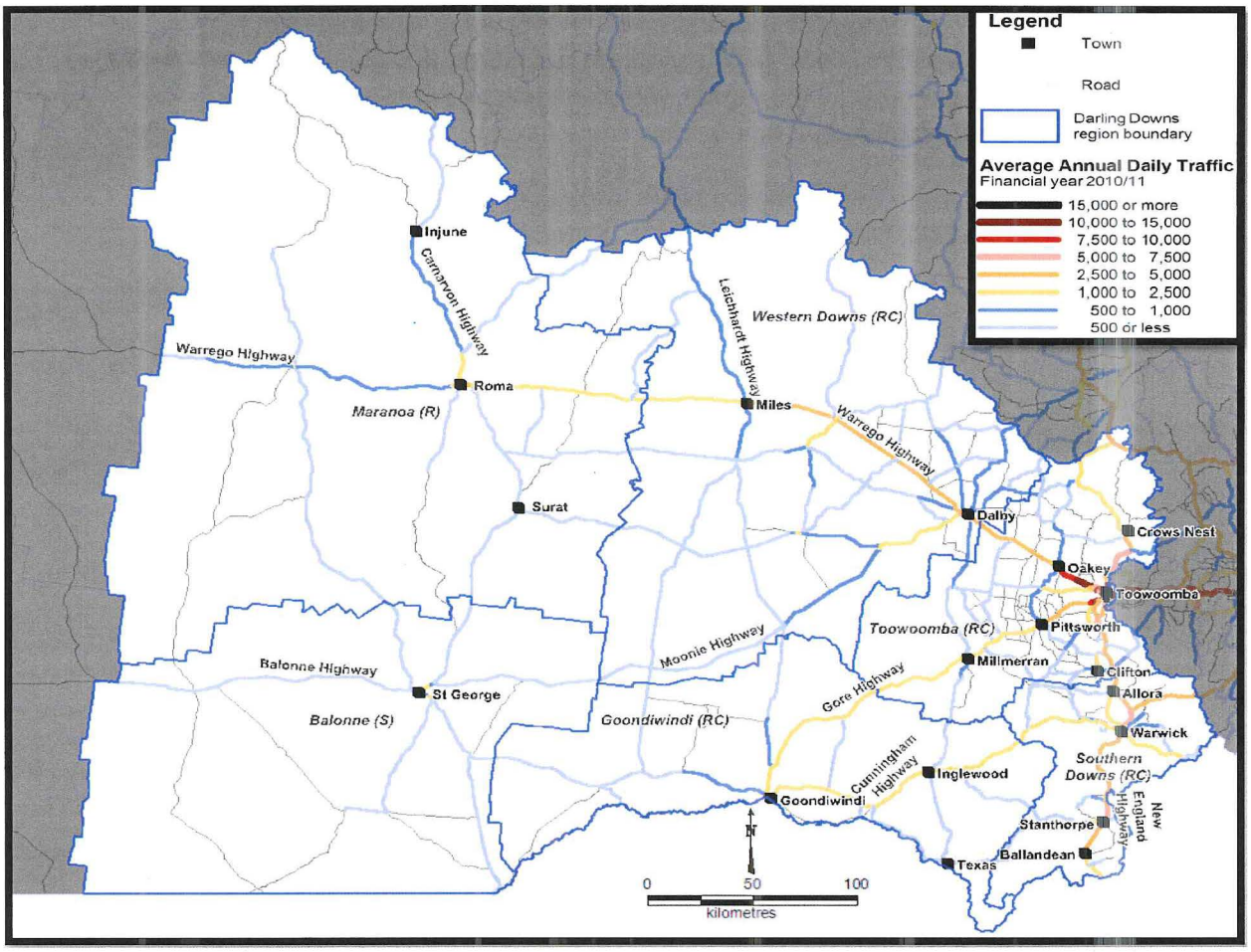
Average Annual Daily Traffic

Average annual daily traffic (AADT) is highest on roads within the vicinity of Toowoomba, which houses the largest population in the area and thus generates the highest number of traffic movements. The Warrego Highway between Toowoomba and Oakey has high AADT with an estimated vehicles per day between 7,500 and 15,000 or more. This highway travelling east of Toowoomba also carries high average annual daily traffic. Although this portion of the highway is not contained within the region's boundaries, its influence upon Toowoomba is significant.

Generally, road traffic volumes were greater in eastern parts of the region and lower in more remote areas, although the Maranoa local government area had higher daily traffic volumes coinciding with larger populations and close proximity to economic activity associated with the Surat Basin.

The majority of the major roads in the Darling Downs have encountered AADT growth, with few roads observing a decline or no change.

Figure 4 Average Annual Daily Traffic for Darling Downs



Over size movements

Over size, over mass (OSOM) movements are common in Australia, particularly the transportation of mining machinery to the various basins by road. In the Darling Downs there is a high necessity for movements on a larger scale in order to support the booming industry for energy and mining. Over recent years there has been an increase in movements and demand for more machinery with the new mines being developed in and around the region. With the expansions around the basins there has been a lot of demand to move this type of load more frequently, therefore requiring more on road support from the departments, police and industry.

Within the Darling Downs, there were the highest number of movements (820 to 1,820) in the one year period, May 2011 to May 2012 on the Warrego Highway between Toowoomba and Roma.

The road connections with the next highest number of movements (250 to 820) were:

- Gore Highway between Toowoomba and Goondiwindi
- Cunningham Highway between Inglewood and Goondiwindi

- Leichhardt Highway south of Miles to Goondiwindi
- Leichhardt Highway north of Miles to Taroom in Central Queensland.

Quality

Road ride quality

Road ride quality is a road quality assessment measurement which weights the roughness of the road against the AADT experienced along that section of road. Ride quality is measured on a scale of 1 (very poor) to 5 (very good).

The grading of state controlled roads in the Darling Downs highlights that road ride quality in the Darling Downs varies, with most major roads ranging from very good (such as Leichhardt and New England Highways) to very poor (such as Warrego Highway) quality road sections, with most other roads falling in between these extremes.

Road ride quality in Toowoomba varies, with most major roads ranging from very good (such as Warrego Highway immediately east and west of Toowoomba) to very poor quality (such as James Street and Tor Street), with most other roads falling in between these extremes. James Street, which passes through the centre of Toowoomba's urban area, is categorised as having a poor road ride quality which may be a reflection of its high AADT.

Level of Service

Level of Service (LoS) is a relative measurement of how good a road is to drive on. It is defined as a qualitative measure describing operational conditions within a traffic stream, and the perception of them by motorists and/or passengers. It describes these conditions in terms of: speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. LoS is calculated according to a formula that relies on inputs from Traffic Data, Modelled Road State, and General Terrain to produce six levels of service (A to F with A representing the best operating conditions (free-flow) and level F the worst (forced or break down flow). Appendix 2 provides descriptions for each of the six levels of service.

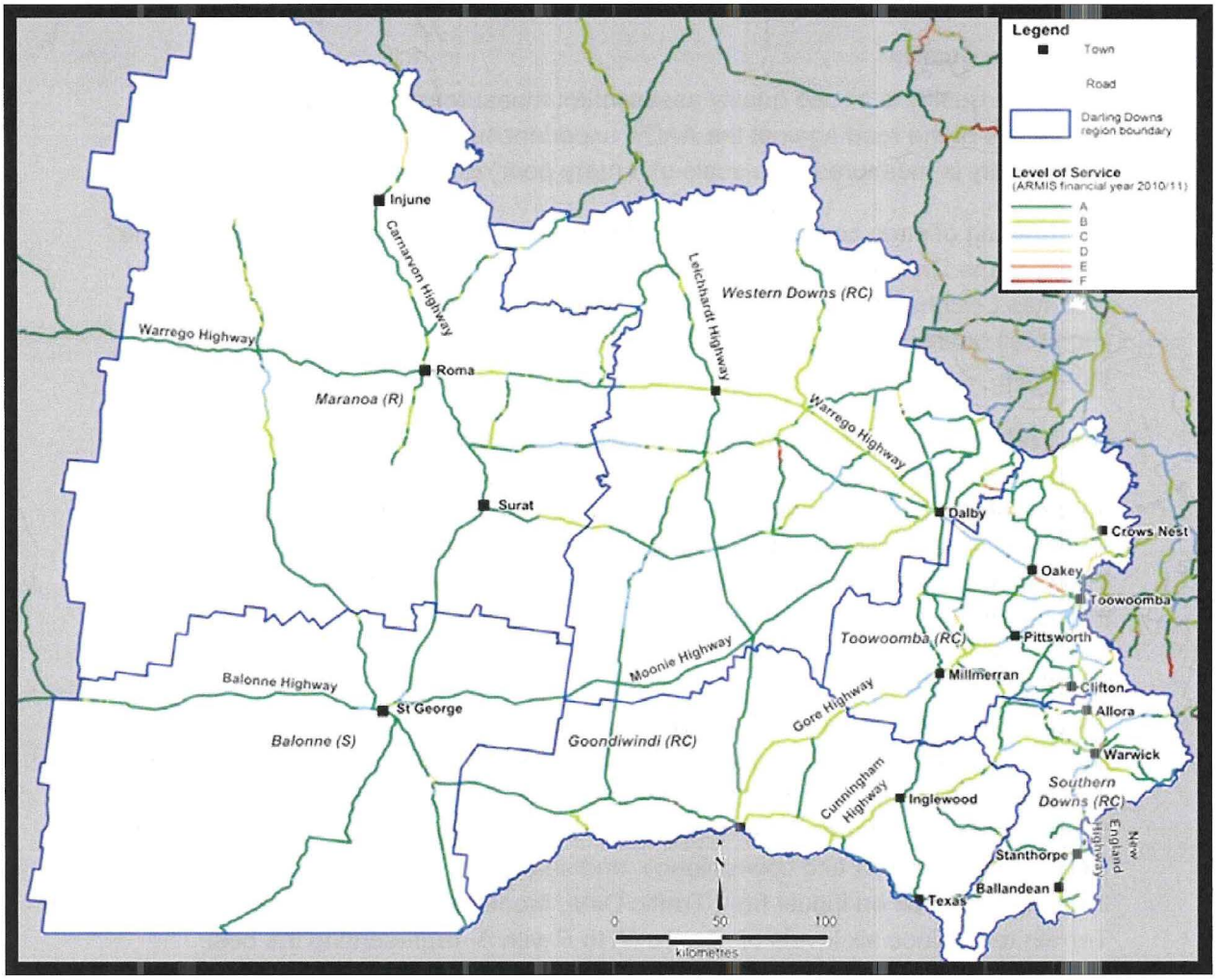
While the majority of roads in the region were of a higher level of service (A or B), there appears to be a relationship between lower level of service and crashes.

The Warrego Highway between Toowoomba and Oakey is operating at lower levels of service (D to E). This is due to the volume of traffic exceeding capacity of the road corridor, impacting on both travel time and safety. A significant number of crashes (including fatalities) have also occurred on this road link. Anzac Avenue (Gore Highway) in Toowoomba is also experiencing a lower level of service (F), where traffic growth has exceeded capacity.

Chinchilla-Tara road south of Chinchilla past Kogan Condamine Rd also experiences a lower of level of service (E to F). AADT counts are not significant compared to other regional roads, but may be of a higher volume than the road has capacity for.

This length of road also has a poor road rutting (a depression or groove worn into a road) rating, which could be an influencing factor.

Figure 5 Level of Service for Darling Downs



The road freight task

The Warrego Highway is the primary east-west Priority One freight route in the region, while the New England Highways support the north-south priority freight routes. Other Priority One freight routes in the Darling Downs include the Leichhardt, Gore, Carnarvon and Cunningham Highways.

Priority Two freight routes are the Moonie Highway, Millmerran-Inglewood Road and Dalby-Millmerran Road. Heavy Vehicles can also use a network of smaller roads in the region.

The roads with the highest use by heavy vehicles include the section of the Warrego Highway between Toowoomba and Oakey and the Cunningham Highway east of Warwick (2,000 or more vehicles). Other sections of the Warrego Highway, as well as sections of the Gore Highway and New England Highway are also used by between 500 and 1,000 heavy vehicles per day. Generally roads in the more remote

western areas of the region carry lower numbers of heavy vehicles (often fewer than 100 per day).

For Toowoomba the roads with the highest use by heavy vehicles include sections of Taylor Street and the Warrego Highway (2,000 or more per day). Greater counts of heavy vehicles exist on the major roads surrounding Toowoomba with few travelling through the town centre. The primary thoroughfare of the Warrego Highway directs the flow of heavy vehicle traffic through the Toowoomba urban area (east to west or west to east) which includes passage through residential areas.

Rail

The regional rail network includes the Western and South Western Rail lines (and branches). The Western Rail line extends from Rosewood through Toowoomba, Miles and Charleville to Quilpie. It includes It includes branch lines to Jandowae, Glenmorgan, Wandoan and Cunnamulla. The South Western Rail Line runs from Toowoomba to Thallon via Warwick and includes branch lines to Millmerran and to Wallangarra on the NSW Border.

The Western rail line

The rail line is mostly single track, with small sections of double track between Rosewood and Helidon. The rail line winds through 45 kilometres of steep topography from the Helidon in the Locker Valley through Murphy's Creek over bridges and through several tunnels to the Toowoomba escarpment – a distance of 12 kilometres as the crow flies and a drive of only 15 kilometres by road – to reach an elevation half a kilometre higher than Helidon.

The rail passes under the New England Highway/Ruthven Street at Harlaxton where it enters the Toowoomba urban area and loops north passing through mostly industrial land to the north of the city.

This line carries freight to the Port of Brisbane and also carries a limited number of long distance passengers on the Westerner service to stations out west as far as Charleville. While it is possible to travel between Brisbane and Toowoomba by rail, the travel time penalty imposed by the circuitous range crossing (an additional 2 hours compared to coach) means it is unlikely this will be used as a commuter service. Longer distance travellers may trade off longer travel times for the comfort and convenience of travelling by rail and many make the journey out west as tourists.

The Western Rail line has always been an important haulage route to the Port of Brisbane. It currently fulfils and important role supporting the movement of outputs from for the agricultural, mining and energy sector. Key commodities transported along the line include coal, grain, cotton, livestock and molasses. Currently, the majority of train paths via the Toowoomba range crossing are contracted to coal trains. However in the past, the line fulfilled a major role transporting more traditional agricultural outputs such as grain, livestock and cotton as well as container freight travelling west.

The proximity of the rail line to the Surat Basin coal deposits – especially between Dalby and Miles – may see the capacity of the rail line continue to be dominated by coal as new deposits come online or existing operations are expanded. However, potential growth in coal exports through Brisbane is constrained by several factors including rail efficiency and port capacity issues.

Dalby is the regional rail node connecting the Western Rail Line and three branch lines – Glenmorgan, Bell and Jandowae – which are mainly used for grain and livestock haulage, though tonnages have been in decline. Dalby has storage capacity for freight and rollingstock, including heritage wagons.

Between Dalby and the main depot at Roma, the rail largely follows the Warrego Highway and is primarily used for coal, grain and livestock, passing grain siding and cattle saleyards. Beyond Roma the line continues to Cunnamulla, splitting after Charleville into the Great Western line which extends out into remote western Queensland as far as Quilpie

Between Miles and Drillham there is a branch line to Wandoan. This 70km line is classed as 'seldom used', but is strategically important as it has the potential to connect the Western Rail Line to the proposed Surat Basin Railway which connects to the Moura Rail Line system at Banana. Consideration may need to be given to upgrades however dependant on its proposed use. The Surat Basin Railway will facilitate the movement of coal from the proposed coal mine at Wandoan (and potentially other Surat Basin mines) to the Port of Gladstone for export.

The South Western rail line

The South Western rail line passes through the centre of Toowoomba city, crossing several busy roads at-grade before branching to Millmerran and continuing south to Warwick. After Warwick, the South-Western line branches to Wallangara (near the NSW border) before continuing through Goondiwindi to Thallon.

This line predominantly supports the movement of agricultural commodities (primarily cotton, grain and molasses), which is transported to the Port of Brisbane. Currently, there are approximately 7-11 return freight services per week along the line. Beyond Goondiwindi there are a number of sidings for Grain and Wool but the track from Thallon to Dirranbandi was closed in September 2010.

The proposed Melbourne to Brisbane inland rail may replace the function of the South Western Rail line, however the timing for delivery of this line is dependant on future increases in total freight demand. The viability of the South-western and Southern line will need to be reviewed when the inland rail is built.

Airports

Given the long distances required to access communities and employment, air travel serves an important public transport role in the region. Of the Australian mainland states and territories, Queensland has the largest proportion of its population residing outside of the state's capital city. Movements throughout the State can be

hampered by a land transport network which is regularly cut by the annual wet season in the state's north and west. This combination of factors has resulted in the regulation and in some cases subsidisation of regular passenger air transport throughout the state. This program ensures remote and regional communities have year-round access to a range of services (business, education, medical, cultural etc.) provided in larger centres, reducing economic and social isolation in remote Queensland.

Unlike regulated and/or subsidised air transport, very little information is available on general aviation or charter aviation. Flights across the region involve both planned and ad hoc charter and private flights. These flights can include activities as diverse as regular medical services to remote and regional hospitals and clinics, to activities involving small corporate jets associated with the mineral and energy sector.

According to the Civil Aviation Safety Authority regulated, Regular Public Transport flights with 30 or more passengers can only land at certified aerodromes, while registered aerodromes can only accept General Aviation flights. There are four certified aerodromes in the region at Oakey (a military aerodrome), Roma, St. George and Toowoomba. There are a further five registered aerodromes at Chinchilla, Dirranbandi, Goondiwindi, Stanthorpe and Warwick. There are also plans under consideration to develop a new airport at Wandoan, and further develop the airports at Chinchilla and Miles. These will depend on the growth of major projects within the region.

Challenges

By 2031, the population of Darling Downs is estimated to reach 368,114 people (an increase of 105,274, or 40%) which will place greater pressures on the existing transport systems. To meet the regions' projected expansion of economic activity and population, the transport system must be managed to provide access for residents and industry; and deliver an integrated transport environment that achieves sustainable transport solutions for road, rail and air.

A number of key challenges have been identified:

Road Network capacity and constraints

The road network in Darling Downs is the principal mode of transport for passenger and freight movements in the region. It contains a number of national highways and priority freight routes linking Brisbane through to Sydney, Melbourne and Darwin. Growth pressures will affect future capacity, safety and efficiency of the road network.

Maintaining or improving travel times for both freight and passenger vehicles between major centres, and to destinations beyond the boundaries of the region, will be important.

Warrego Highway

The Warrego Highway, a national freight route linking Brisbane and Darwin, is constrained due to its route passing through a number of town centres (such as Toowoomba, Dalby, Chinchilla and Miles) and the Great Dividing Range. The existing road has high levels of congestion and a very poor safety record coupled with its route through urban Toowoomba, falling well short of specified national highway levels of service.

Future land for expansion to cater for transport network growth is not available along some parts of the current urban route. Currently, the local trip needs of urban residents combine with long distance trips to cause congestion, slowing freight movements and reducing safety, amenity and efficiency and increasing travel times for local residents. This lower level of service extends from Toowoomba to Oakey with the volume of traffic often exceeding capacity of the road corridor.

Significant roughness challenges have also been identified on sections of the Warrego Highway between Dalby and Morven due to increases in heavy vehicle traffic.

Freight impacts through urban centres

Investigations indicate Toowoomba's existing freight network will come under increasing pressure, requiring significant improvements as traffic volumes on roads in and around the city grow. The existing road has high levels of congestion and a very poor safety record coupled with its route through urban Toowoomba, falling well short of specified national highway levels of service.

Freight routes that pass through urban areas and towns in the region can present safety, noise and amenity challenges for local residents.

Condition of bridges

In the Darling Downs and South West region, there are 266 road and pedestrian bridges. Of these bridges, 82 are considered to be in poor or very poor condition (52 poor; 30 very poor). In determining future planning priorities, consideration for bridge upgrades must be made where those bridges exist on main freight routes, to ensure bridges continue to be fit for purpose. Further analysis, including identifying key bridges requiring an immediate upgrade, can be carried out if needed.

Rail capacity and constraints

The Western Rail Line

The Western rail line is currently restricted in the levels and type of freight that can be transported. The main limitation on the Western System is axle load limits (maximum 15.75t) and steep grades (maximum 1:80) over the Great Dividing Range and Little Liverpool Range.

The majority of energy projects in and around the region are in the north and west of the Darling Downs in proximity to the Western rail line. However, freight and workers

must use the region's road network to access work sites as rail and air transport options have capacity and access challenges.

Agricultural freight needs tend to be infrequent due to the seasonality of much of the sector. This has led to the sector struggling to gain rail slots, as they are being taken up by coal in the "off-season". This means that the road freight network faces increasing pressure as agricultural commodities are forced off rail and onto the road.

The rail line crossing of the Great Dividing Range at Toowoomba is the single biggest capacity constraint on freight flows to the Port of Brisbane from the region apart from the capacity constraints within the Brisbane urban rail network.

Rail crossings

The movements of trains through Toowoomba cause potential conflict with road traffic at the numerous at-grade crossings throughout the city. The Western Rail line, which is an important regional freight route, presents challenges as increased use out west due to mining and agricultural growth lead to a need for increased levels of rail traffic on the line. Currently a number of local arterial roads are impacted by rail crossings, and this may become more critical as traffic grows with the Toowoomba population.

In addition, towns with rail lines running through them (such as Dalby and Chinchilla) are effectively cut in half when large coal trains pass through them. Road overpasses or bypasses in such towns may be needed in these towns in the future to allow traffic to flow and ensure emergency services can operate without delays.

Airport constraints

The existing Toowoomba airport runway is constrained by encroachment of incompatible land uses, and is only accessible by smaller aircraft. This limits passenger transport capacity of air services. A new and larger airport capable of landing jets will be required to support efficient passenger services needed for regional development in the Toowoomba, Darling Downs and Surat Basin regions.

Greenfield sites to the south and south-west of Toowoomba have long been under consideration, however the cost and jurisdiction for such a development has yet to be resolved. Toowoomba City Council has recently received a development application report for a private airport in the Charlton Wellcamp industrial area.

Resources sector

Non-resident workforce modelling

Currently, Fly-In Fly-Out (FIFO), Drive-In Drive-Out (DIDO) and Bus-In, Bus-Out (BIBO) workforce patterns are not clear, making future demands difficult to estimate.

CSG impacts

Coal seam gas (CSG) is developing rapidly within the region. CSG will be transported by pipe for both the domestic and international market. However, most

of the construction materials associated with the CSG industry will be transported by road or rail.

In particular, the trunk pipelines (about 2000km) are transported by rail and road. Gasfield infrastructure (drilling rigs, compressor station components, workers camps) are transported by road. In order to mitigate these impacts, proponents are entering into infrastructure agreements with the Department of Transport and Main Roads and local authorities.

Recent legislative changes to the Petroleum and Gas (Production and Safety) Act will facilitate the aggregation and transport of CSG water and brine by pipe. This will encourage pipe solutions to the CSG water and brine issue rather than road/ rail solutions.

Infrastructure provision

Freight demand has often outstripped infrastructure providers' ability to provide appropriate freight infrastructure and services, particularly associated with coal and mineral products.

Network conflicts

There are conflicts between coal, freight, private rail and the existing road network as a result of resource sector activity, and this will increase as activity in the sector intensifies.

Heavy vehicles

Altered heavy vehicle routes

The establishment of new mines and the vehicular movements associated with mineral exploration may alter the routes of heavy vehicle traffic in the region over time. As projects progress (e.g. move from a construction to an operational phase), there may be increases in traffic volumes experienced in some locations and declines in others.

Heavy vehicle impacts

The region's growing economies have seen greater average daily heavy vehicle traffic. This heavy vehicle traffic is contributing to increasing challenges related to road construction, maintenance and safety.

Opportunities

Leveraging of the proximity to transport networks

External to Toowoomba, most towns in the region have developed along the existing rail and road corridors. In the Western Downs LGA the key transport spine is centred on the Warrego Highway and Western Rail Line. Dalby, Chinchilla and Miles all provide differing levels of service to the region's population and industry. Miles and Wandoan in particular have developed into transport and service hubs for both the resource and agricultural sectors. The accessible location of these towns to

transport corridors (Warrego Highway and Western Railway), proximity to emerging resource activities and availability of well serviced industrial land have all combined to mean these towns are attractive to supply chains servicing resource sector operations in both the Darling Downs and further west.

Second range crossing

An opportunity exists to deliver a second range crossing that will enable economic growth in the region through expansion in the agricultural, energy and other sectors. The second range crossing would also greatly benefit the developing Charlton Wellcamp industrial node, increase the viability of an inland rail network and have the potential to reduce significant through traffic in Toowoomba's CBD.

Rail capacity and linkages

An increase in rail capacity will provide an opportunity for a modal shift from road to rail for high volume lower value product that also provides greater transport efficiencies and road safety outcomes.

The Surat Basin railway could provide a strategic link to the Port of Gladstone and enable significant export of mining and potentially providing a link in the inland freight rail network.

Agricultural sectors ability for rail usage

Underutilised grain handling facilities exist on the rail network that could be used to get grain back on rail and off road should the challenge for this sector struggling to gain rail slots taken up by coal be addressed.

Public transport planning

There is an opportunity to review the current public transport network through evidence-based planning, to identify corridors that could benefit from improved public transport services and target markets to encourage public transport usage. Investment in public transport infrastructure is an opportunity to provide better value for money road infrastructure investment.

Proposed inland freight facility at Charlton

An inland port (transport, freight and logistics centre) is proposed to be developed on a large parcel of land adjacent to the western rail corridor within the Charlton industrial precinct. This transport hub would both assist with the management of freight from the region as well as encourage investment in heavy industry that will be attracted to the area due to its direct rail access. Additional facilities across the region may be considered to service and support the agriculture, manufacturing and resources sectors.

Pipelines

The Darling Downs region contains a number of pipelines and petroleum facilities. These pipelines are a means of collecting gas from individual wells and transporting

this gas to a field processing unit or central processing unit where it is processed and compressed before being put into larger transmission pipelines. Transmission pipelines are licensed under a petroleum pipeline licence, separately from the smaller gathering pipelines which are authorised under a petroleum lease.

Coal seam gas production from the Bowen Basin around Wandoan and Injune commenced in the late 1990's to supply the domestic market.

Commercial production from the Surat Basin commenced in 2006 to supply the Swanbank E gas-fired power station near Ipswich. Since then there has been commercial production from a number of areas from Dalby to Chinchilla supplying several gas-fired power stations in the region.

Investment in a number of significant projects to export liquefied natural gas sourced from coal seam gas fields in the region has triggered an increase in development in recent years. As a result there is currently a lot of infrastructure being constructed (e.g. pipelines, compressor stations) in the area. The infrastructure will include gathering lines to take gas from individual wells to field compressor stations and central processing plants, which will then feed into a number of key export transmission pipelines that will supply the Gladstone LNG facilities. Other infrastructure in the area will include water pipelines and water treatment facilities.

A table of the existing pipeline licenses and the principal holder of each licence can be found in Appendix 3 3.

Challenges

Administrative processes

Acquiring necessary approvals for the construction and operation of the infrastructure, including tenure permits, environmental permits, native title clearance and negotiating access with land holders can present challenges for proponents.

If proponents are unable to obtain the necessary approvals, agreements and licences to construct and operate key pipelines the ability to supply gas to local domestic markets and export markets may be jeopardised.

Market competition and pricing

International gas prices and the potential of Queensland's gas resources have an impact on whether LNG will invest in further LNG trains in Queensland.

Gas supply and price pressures in the domestic gas market also pose a challenge due to competition for gas between export and domestic users.

The increase in demand for export gas may cause a shortage of gas and/ or a rise in the domestic gas price.

Opportunities

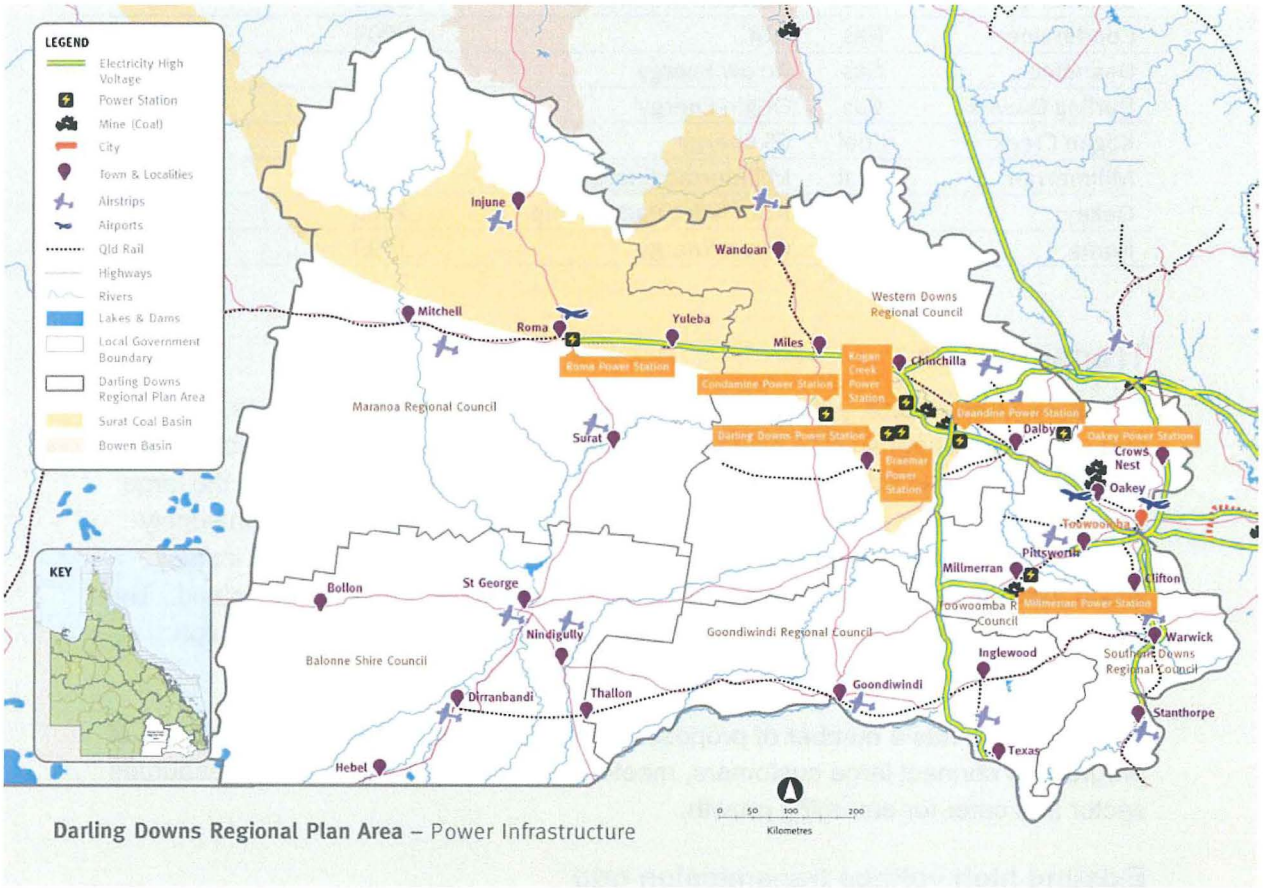
CSG industry

Queensland has the potential to further develop its petroleum and gas sector through the exploration of other resource opportunities. As some basins in Queensland are only in the initial stages of exploration, their resource potential is as yet unknown (e.g. the Galilee and Georgina Basins). The extent of Queensland's petroleum resources will help determine the scale and longevity of the industry.

Electricity

This baseline for electricity infrastructure will focus on the high voltage transmission grid in Darling Downs owned and operated by Powerlink Queensland and key infrastructure relating to electricity generation. It is also important to acknowledge the distribution network which connects customers to the transmission network and energy generators.

Figure 6 **Map of the regions key energy infrastructure**



Generation

Queensland has a projected generating capacity of 12,209 megawatts (MW) for summer 2012-13, with the Darling Downs region providing approximately 30% of this. Table 1 lists the major electricity generators (greater than 30 MW) in the region.

Queensland is also part of the National Electricity Market (NEM), which is a wholesale electricity market operating on the interconnected power system between Queensland, New South Wales, South Australia, ACT and Victoria. In the NEM, exchange between generators and customers is facilitated through a pool where output from generators is aggregated and scheduled to meet demand.

Not all generating plants are connected to the NEM. Some generators (eg. gas fired) are located on mine sites and supply electricity directly to the mine.

Table 1 Major electricity generators in the region

Name	Type	Owner	Year Commissioned	Capacity (MW)
Braemar	Gas	Braemar Power Project	2006	450
Braemar 2	Gas	NewGen Braemar 2	2009	495
Condamine	Gas	QGC	2009	160
Daandine	Gas	Arrow Energy	2007	33.5
Darling Downs	Gas	Origin Energy	2010	663
Kogan Creek	Coal	CS Energy	2007	750
Millmerran	Coal	Millmerran Energy	2003	840
Oakey	Gas	AGL Hydro Partnership	2000	312
Roma	Gas	Origin Energy	1999	74

Transmission

Powerlink Queensland, a government owned corporation, develops, owns, operates, and maintains Queensland's high voltage electricity transmission grid which is part of the NEM. This grid transports electricity in bulk from power generators to the large industrial customers in resource areas and also to the regional distribution supply networks (owned by Ergon Energy Corporation Limited and ENERGEX Limited) which then supply around two million electricity customers across Queensland. The transmission of electricity from the generator to the customer occurs via a high voltage transmission grid and a system of substations.

Powerlink also has a number of proposed transmission projects in varying stages of progress to connect large customers, meet the growing demand from the resources sector and cater for emerging growth.

Existing high voltage transmission grid

The high voltage transmission grid for the Darling Downs region is dominated by the Queensland-NSW Interconnector (QNI), a 330kV transmission line connecting the transmission grids of Queensland and New South Wales. The 275kV transmission grid, running roughly east-west, connects the majority of the regions generating

plants with the rest of Queensland's transmission grid. Together with the 132kV transmission lines in the region, this grid connects key economic areas and regional centres.

The transmission grid (including high voltage substations) delivers the electricity from the generators in the region to the distribution network operated by Ergon Energy (which is connected to the NEM).

Challenges

Electricity requirements/system capacity

The high voltage transmission grid for the Darling Downs region is dominated by the Queensland-NSW Interconnector (QNI), a 330kV transmission line connecting the transmission grids of Queensland and New South Wales. The 275kV transmission grid, running roughly east-west, connects the majority of the regions generating plants with the rest of Queensland's transmission grid. Together with the 132kV transmission lines in the region, this grid connects key economic areas and regional centres.

The transmission grid (including high voltage substations) delivers the electricity from the generators in the region to the distribution network operated by Ergon Energy (which is connected to the NEM).

Consumer behavior

Added pressure is occurring from changing consumer practices, such as the use of air conditioners and other high energy use items. Long-term planning is required to meet the future energy needs of the population and industry to facilitate economic growth.

Energy efficiency and electricity prices

It is important that the region supports growth by increasing energy efficiency per capita. There are a number of energy efficiency programs currently in place with the focus on easing the upward pressure on electricity prices by slowing the current growth in electricity use and peak demand .e.g. Queensland Energy Management Plan (QEMP).

The efficient use of energy can help avoid the equivalent of 1000 MW of necessary electricity generation and network infrastructure which will save substantial infrastructure investment. It will also assist Queensland households, businesses and industries respond to the energy challenges of the future through energy efficiency, energy conservation and peak demand management.

Opportunities

Electricity generation

The regions resource commodities and existing transmission network provide an opportunity for further generation of electricity that may assist with meeting rising

energy demands of the region and surrounds. There may also be opportunities for localised gas-fired generating plants to supply electricity directly to certain customers.

Telecommunications

Telecommunications infrastructure plays an integral role in a modern economy. It enables access to the internet, real time communication between businesses and also innovative use of technology like telemetry. In a community context telecommunications infrastructure also plays a significant role in bridging physical distances for remote communities improving safety and enabling a variety of services to be delivered like distance education, health services, banking etc.

Constitutionally, the Australian Government is responsible for telecommunications services. The Queensland Government however advocates the benefits of telecommunications infrastructure for the regions economy.

Toowoomba was one of the earlier National Broadband Network (NBN) sites and progress has also since been made along the Warrego Highway toward Dalby and the Gore Highway towards Millmerran. However the NBN rollout schedule for the next 3 years only indicates areas in Toowoomba are planned to commence. Further to this though there is a green field development in Roma which is being enabled.

Roma will also host a national broadband network (NBN) satellite ground station, with construction anticipated in early 2013.

Challenges

Mobile and Broadband access

Infrastructure providing access to mobile services and high speed internet in the region will increasingly become important for the region as businesses innovative through the use of technology.

Opportunities

Co-investment

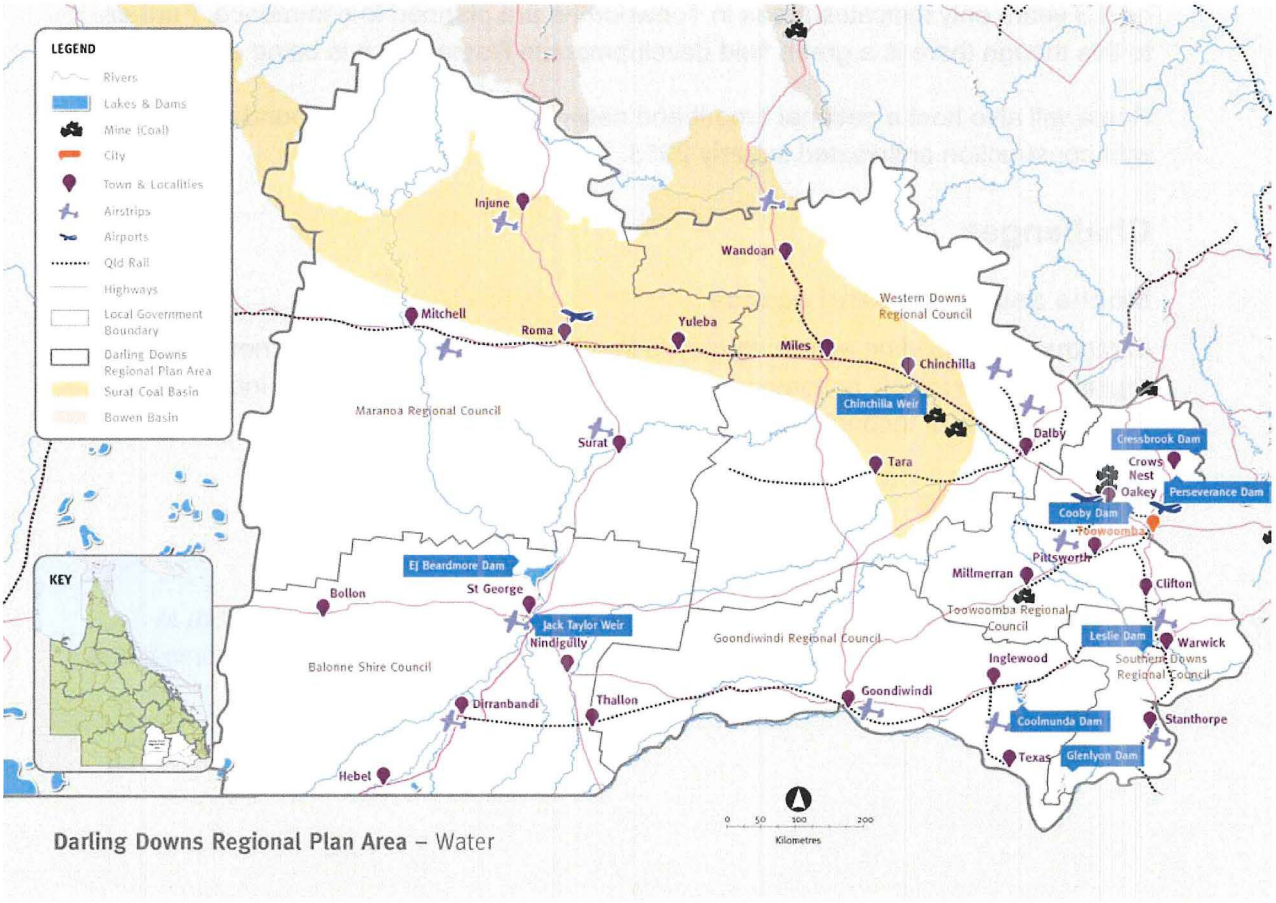
Opportunities may exist for co-investment in telecommunication infrastructure to expand the reach of existing networks or bring forward proposed telecommunications infrastructure.

Water

There is major public and private investment in water supply infrastructure for urban, industrial and agricultural use in the region. The main water sources are publicly owned dams and weirs, stream harvesting and overland flow harvesting and groundwater. Publicly owned dams and weirs are listed in Appendix 4 Groundwater bores are mainly privately owned except for those supplying urban communities.

Floodplain storages are privately owned, and represent a significant component of the region's water supply infrastructure, having an aggregate capacity greater than that of publicly owned dams and weirs. Included in these storages is the considerable storage capacity at Cubby Station on the Culgoa River near Dirranbandi. Approximately 80% of water use in the region is for agriculture, mainly irrigation.

Figure 7 Map of the regions major dams



The various water supply schemes across the region are understood to be fully committed: that is, the full volume of water entitlements available within the schemes has been sold.

Dams owned and operated by local councils

The exception to infrastructure associated with the water schemes is principally in the form of dams owned and operated by local councils, which are used mainly to supply potable water for urban communities and associated industrial activity. These are: Connolly Dam, Cooby Creek Dam, Cressbrook Dam, Perseverance Creek Dam and Storm King Dam.

Small capacity weirs

The remaining infrastructure, mostly weirs, is generally of a small capacity and used for supplying relatively small volumes of water for agricultural purposes and, in some cases, to local communities. Although these weirs are of limited capacity individually, collectively they support a significant amount of agricultural activity across the whole region, and are therefore an important source of supply to the communities associated with these agricultural areas.

Other sources of water supply

The majority of agricultural businesses across the region are also likely to have at least one source of water in addition to any access they may have to the infrastructure previously discussed. Examples include private dams, storages for water harvesting from watercourses and/or overland flow, groundwater bores and, more recently, CSG water. These additional water sources will also supply significant volumes of water collectively, and thereby provide important support to local and regional economic activity.

A significant number of the region's towns also have access to groundwater resources either as their sole source of supply or as a component of a larger system. In many locations these resources are often only poorly understood, with little information available to quantify the volume of water reliably available from minor aquifers. However, for the larger aquifers, particularly those forming part of the Great Artesian Basin, these resources are generally more reliable than surface water resources as they are less affected by drought. Many individual properties also have rainwater tanks which may be used to supply potable water, or at least offset the use of potable water for purposes such as clothes washing or garden watering. Appendix 5 lists the source of town water supplies across the region.

Water supply from outside the region

Some water supply infrastructure along the state border with New South Wales serves users on both sides of the border. However, there is no infrastructure in the Darling Downs region that either wholly or partly supplies water to other regions within Queensland.

Table 2 **Water supply infrastructure outside, but supplying, the region**

Name	Watercourse	Owner / Operator	Use
Wivenhoe Dam to Cressbrook Creek Dam Pipeline	Brisbane River (Wivenhoe Dam)	Seqwater	Town water supply for Toowoomba

Challenges

Security and reliability of supply sources for existing communities

The principal challenge within the Darling Downs region relating to water supply concerns the security and reliability of supply sources for existing communities, in particular for communities which are experiencing or are expected to experience considerable population growth related to the CSG industry.

Communities known to have such challenges include:

- Stanthorpe
- Dalby
- Roma

Many smaller communities also have water supply security challenges, particularly during drought periods. Some local governments have resorted to transporting water by tanker in order to maintain essential supplies to these towns. This is not practical to meet ongoing demand growth, however, and can also be problematic if several communities are in the same situation in a local area at the same time.

Development of a Regional Water Supply Strategy has not yet commenced in the Darling Downs, although some early investigations and data collection has taken place as part of other projects. As such, Level of Service modelling to identify and better understand the degree of supply security for the region's key communities has not yet been carried out. However, it is known that many towns across this region suffered supply problems during the Millennium Drought (approx. 2000 to 2009). Without augmentation of supply sources, growing demand for water will exacerbate these problems during future drought periods.

Population growth associated with the CSG industry

The challenge of population growth associated with the CSG industry is a significant one for this region. Large numbers of employees from these companies can substantially alter the demand for water and wastewater management in existing communities, as well as creating new demand locations at camps. This challenge can be compounded by the additional population growth brought about by employees for businesses which support the industry also moving to the area.

The pattern of demand can also be very variable. Large numbers of CSG workers may move to an area while CSG operations are established, only to be relocated after only a few years. As a result, demand can grow rapidly and then shrink equally as rapidly, especially at more remote camps and towns. Larger 'central' towns may

be expected to see equally rapid but more consistent population growth as hubs for the industry, with support businesses also concentrating in these locations.

To further complicate this challenge, the variable and changing pattern of development of the CSG industry in the region makes realistic forecasting of the timing, scale and location of such population changes difficult.

Impact of flooding

The impact of flooding on water supply infrastructure, and the potential for infrastructure to exacerbate the impact of flooding, is a further challenge. In-stream infrastructure necessarily disrupts the flow of water through a section of catchment, which can potentially act to mitigate flood effects in some locations whilst worsening them elsewhere. Any development in the region must take account of the flood risk due to the natural characteristics of the catchment, the effect of any existing infrastructure and the effect of any potential future infrastructure the State, local government and industry may wish to develop.

Murray-Darling Basin Plan reductions

The draft Murray Darling Basin Plan currently requires a significant reduction in water use from surface water and groundwater in the Darling Downs region (primarily targeting the Lower Balonne surface water area and the Upper Condamine Alluvium groundwater area).

Opportunities

Growth in the CSG industry

The continuing expansion of the coal seam gas (CSG) industry, particularly in the Surat Basin, is resulting in increasing quantities of CSG water being generated. Opportunities exist to aggregate and distribute treated CSG water, with the water being supplied to appropriate end users. Aggregation and distribution pipelines could later be supplied from alternative water supply.

Social and local

The Darling Downs has a diverse range of essential social and local infrastructure servicing local needs and contributing to the liveability of the region's communities. This includes education, health, emergency services, sporting, recreation and community facilities, roads, energy, telecommunications and sewerage infrastructure. The largest hospital in Darling Downs is located in Toowoomba with other prominent hospitals in Roma and St George.

The regional economic focus of the Economic and Infrastructure Framework means this infrastructure baseline can not address the diverse range of social and local infrastructure that exists throughout Darling Downs. It is important however to acknowledge the significance of social and local infrastructure in the region and the challenges faced by some communities in the region.

Social infrastructure requirements should be informed a variety of factors including the needs assessments undertaken through the development of local government community plans, the planning for service delivery in communities and in the case of significant projects through their Social Impact Management Plans (SIMP).

Challenges

Non-resident workforces

For significant projects many non-resident workers are housed in temporary accommodation villages. This presents particular challenges determining service levels and infrastructure requirements for resource towns. While there may be a significant impact from the total population (including non-residents) on a lot of infrastructure, such as roads and health, there are different needs residents and non-residents for services such as education.

Cumulative impacts

The cumulative impacts of multiple concurrent and overlapping proposals for new and expanded resource development can also complicate the determination and provision of adequate levels of infrastructure.

Non-resident workforce fluctuations

The fluctuations in the workforce size associated with different stages of a significant project, such as variation from construction to operation, requires the development of flexible models of service provision that can accommodate peaks but do not invest in services and infrastructure that are not required in the long term.

Opportunities

Maximising community benefits

The opportunities from significant projects could be maximised to provide additional or different kinds of social infrastructure to support residents and non-resident population (e.g. skills training). Longer term opportunities also exist where the legacy infrastructure of significant projects could support the growth of other industries (e.g. tourism).

Attracting community residents

Supporting the attractiveness and long term sustainability of resource towns with social and local infrastructure and services is a critical element in attracting those workers who wish to relocate with their families to resource communities. This provides the resource industry with convenient access to specialised local workforce and builds social capital in these communities.

Next steps

The infrastructure baseline through consultations with Government agencies, local governments and industry has developed a shared understanding of the infrastructure supporting the region's economic development including related opportunities and challenges to future economic development. As part of this phase, the revised draft is being presented to the Regional Planning Committee (RPC).

With the feedback and contributions made through these rounds of consultation, a draft Economic and Infrastructure Framework will then be developed incorporating elements of this document and the economic development strategy.

The next steps to develop the Economic and Infrastructure Framework include identifying priority infrastructure outcomes that could help capitalise on economic development opportunities and address challenges impeding economic development. These outcomes may also be based on certain scenarios coming to fruition (e.g. growth in a specific industry/area).

Through these outcomes the framework aims to inform infrastructure planning and programming undertaken by the public and private sectors. This approach provides flexibility in planning for the regions infrastructure, and also means the framework remains relevant for longer than an infrastructure program or list of projects may.

With the complexities of infrastructure planning, detailed options assessments and evaluations are also required to achieve the best value for money outcomes. The framework will not pre-empt the results of these or budgetary/financial processes.

Ultimately, this framework will support the regional plan's objective to enhance economic development opportunities and bolster investment confidence and create more jobs in regional Queensland.

Appendix 1 – Major highways and significant roads

Road Name	Description
Moonie Highway (Dalby-St George)	The Moonie Highway connects the Warrego Highway at Dalby and Leichardt Highway at Moonie to St George from where longer connections are possible – to the west on the Balonne Highway to Cunnamulla, and south via the Carnarvon or Castlereagh Highways in to NSW and beyond.
Barwon Highway (Goondiwindi-Nindigully)	The Barwon Highway links longer north-south connections. It leaves Goondiwindi and travels west along the same alignment as the rail line until it passes the small town of Talwood. It then veers north until it reaches the Carnarvon Highway at Nindigully, 44 kilometres south of St George, where it terminates.
Bunya Highway (Dalby-Bell)	The Bunya Highway runs in a north-easterly direction from Dalby, past Bell before entering South Burnett to Goomeri in the Wide Bay Burnett Region. The highway connects the Warrego and Burnett Highways. It passes near the Bunya Mountains National Park, which is popular with tourists. The road continues east of Goomeri with connections to Wide Bay via Gympie.
Balonne Highway (St George-Ballon)	The Balonne Highway is the westward continuation of the Moonie Highway from the town of St George to Cunnamulla in the South West Queensland region, where it terminates. For the most part it follows the course of the Balonne River
Roma-Condamine Road	Roma-Condamine Road provides an east west link between the Leichardt Highway at Condamine and the Carnarvon Highway south-east of Roma
Kogan-Condamine Road	Kogan-Condamine Road forms an east west link between Kogan and Condamine
Dalby- Kogan Road	Dalby-Kogan Road links Dalby to Kogan with links west as far as the Leichardt Highway near Roma
Daandine-Nandi Road	Daandine-Nandi Road is a short section of road west of Dalby that links Dalby-Kogan Rd with the Moonie Highway

Road Name	Description
Roma Taroom Road	Roma Taroom Road stretches between Roma and Taroom linking the Carnarvon Highway and the Leichardt highway
Dalby-Cooyar Road	Dalby-Cooyar Road runs east from Dalby toward the England Highwa
Oakey-Cooyar Road (part)	Oakey-Cooyar Road links the Dalby-Cooyar Road to The New England Highway east of Cooyar
Dalby-Jandowae Road	Dalby-Jandowae Road connects Dalby to Jandowae to the North
Jandowae Connection Road	Jandowae Connection Road connects Jandowae to the South Burnett Region via Chinchilla-Wondai Rd
Chinchilla-Wondai Road	Chinchilla-Wondai Road connects the Warrego highway at Chinchilla to the South Burnett Region at Wondai
Gatton-Clifton Road	Gatton-Clifton Road is an alternative range crossing between Gatton in the Lockyer Valley and Clifton a town on the New England Highway half way between the urban centres of Toowoomba and Warwick
Warwick-Killarney Road	Warwick-Killarney Road connects Warwick to Killarney near the NSW border
Dalby-Cecil Plains Road	Dalby-Cecil Plains Road is a north-south road connecting the Warrego Highway at Dalby to Cecil Plains
Millmerran-Cecil Plains Road	Millmerran-Cecil Plains Road is a north-south road connecting Cecil Plains to the Gore Highway at Millmerran
Millmerran-Inglewood Road	Millmerran-Inglewood Road is a North-south rd connecting the Gore Highway at Millmerran to Cunningham Highway at Inglewood
Inglewood Texas Road	Inglewood Texas Road is a North-south rd connecting the Cunningham Highway at Inglewood to Texas near the NSW border

Appendix 2 – Level of Service descriptions

Level of Service (LoS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. It describes these conditions in terms of: speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience and safety. LoS is calculated according to a formula that relies on inputs from Traffic Data, Modelled Road State, and General Terrain to produce six levels of service (A to F with A representing the best operating conditions (free-flow) and level F the worst (forced or break down flow).

Table 3 Level of Service descriptions

Level of Service	Description
A	Level of Service A is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
B	Level of Service B is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream , although the general level of comfort and convenience is a little less than with level of service A.
C	Level of Service C is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
D	Level of Service D is close to the limit of stable flow and is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
E	Level of Service E occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.
F	Level of Service F is in the zone of forced flow. With it, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow break-down occurs, and queuing and delays result.

Appendix 3 – Petroleum licenses

Table 4 Existing petroleum pipeline licenses

PPL #	Principal Holder	Use	Purpose
1	MOONIE PIPELINE COMPANY PTY LTD	Gas	Domestic
2	APT PETROLEUM PIPELINES PTY LIMITED	Oil	Domestic
3	OIL INVESTMENTS PTY LIMITED	Gas	Domestic
4	AGL GAS STORAGE PTY LTD	Gas	Domestic
6	SANTOS LIMITED	Gas	Domestic
7	ELGAS LIMITED	Gas	Domestic
11	AUSTRALIA PACIFIC LNG PTY LIMITED	Gas	Domestic
20	OIL INVESTMENTS PTY LIMITED	Gas	Domestic
22	ANGARI PTY LIMITED	Gas	Domestic
24	EPIC ENERGY QUEENSLAND PTY LIMITED	Gas	Domestic
30	JEMENA QUEENSLAND GAS PIPELINE (1) PTY LTD	Gas	Domestic
55	ORIGIN ENERGY ELECTRICITY LIMITED	Gas	Domestic
58	AGL UPSTREAM GAS (MOS) PTY LIMITED	Gas	Domestic
63	OIL INVESTMENTS PTY LIMITED	Gas	Domestic
74	APT PETROLEUM PIPELINES PTY LIMITED	Oil	Domestic
76	SANTOS TOGA PTY LTD	Oil	Domestic
87	AGL GAS STORAGE PTY LTD	Gas	Domestic
90	OIL COMPANY OF AUSTRALIA (MOURA) TRANSMISSIONS PTY LIMITED	Gas	Domestic
91	QGC (INFRASTRUCTURE) PTY LTD	Gas	Domestic / LNG Project Pipeline
92	SANTOS TOGA PTY LTD	Gas	Domestic
93	AGL GAS STORAGE PTY LTD	Gas	Domestic
102	BRAEMAR POWER PROJECT PTY LTD	Gas	Power Station Pipeline
103	BRAEMAR POWER PROJECT PTY LTD	Gas	Power Station Pipeline
104	AUSTRALIAN CBM PTY LTD	Gas	Domestic
107	QGC PTY LIMITED	Gas	Domestic / LNG Project Pipeline
108	QGC (INFRASTRUCTURE) PTY LTD	Gas	Domestic / LNG Project Pipeline
118	SANTOS GLNG PTY LTD	Gas	Domestic / LNG Project Pipeline
120	KOGAN NORTH ASSET PTY LIMITED	Gas	Domestic
123	APA PIPELINES INVESTMENTS (BWP) PTY LIMITED	Gas	Domestic
124	HUNTER GAS PIPELINE PTY LTD	Gas	Domestic
125	QGC (INFRASTRUCTURE) PTY LTD	Gas	Power Station Pipeline
131	GAS PIPELINES VICTORIA PTY LTD	Gas	Domestic
132	ARROW BRAEMAR 2 PTY LTD	Gas	Power Station Pipeline
133	ORIGIN ENERGY WALLOONS TRANSMISSIONS PTY LIMITED	Gas	Domestic
134	ORIGIN ENERGY WALLUMBILLA TRANSMISSIONS PTY LIMITED	Gas	Domestic

PPL #	Principal Holder	Use	Purpose
136	ARROW BRAEMAR 2 PTY LTD	Gas	Power Station Pipeline
143	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED	Gas	LNG Project Pipeline
144	SURAT GLADSTONE PIPELINE PTY LTD	Gas	Proposed Fisherman's Landing LNG Project
147	FAIRVIEW PIPELINE PTY LTD	Gas	Domestic / LNG Project Pipeline
148	FAIRVIEW PIPELINE PTY LTD	Gas	Domestic / LNG Project Pipeline
153	QCLNG PIPELINE PTY LTD	Gas	LNG Project Pipeline
154	QCLNG PIPELINE PTY LTD	Gas	LNG Project Pipeline
163	AUSTRALIA PACIFIC LNG GLADSTONE PIPELINE PTY LIMITED	Gas	LNG Project Pipeline
166	SANTOS GLNG PTY LTD	Gas	LNG Project Pipeline
171	AUSTRALIA PACIFIC LNG CSG TRANSMISSIONS PTY LIMITED	Gas	LNG Project Pipeline

Table 5 Existing petroleum facility licenses

PFL #	Principal Holder	Use	Purpose
5	LINC ENERGY LTD	UCG	Underground Coal Gasification Pilot Project
6	CARBON ENERGY (OPERATIONS) PTY LTD	UCG	Underground Coal Gasification Pilot Project
19	QGC PTY LIMITED	Gas	Compression Station (LNG Project)
22	QGC (INFRASTRUCTURE) PTY LTD	Gas	Compression Station (LNG Project)

Appendix 4 – Water supply infrastructure within the Darling Downs region

Name	Watercourse	Owner / Operator	Use	Water Supply Scheme
Connolly Dam	Rosenthall Creek	Southern Downs Regional Council	Town water supply for Warwick	None
Leslie Dam	Sandy Creek	SunWater	Town water supply for Warwick and agricultural users	Upper Condamine
Allora Weir	Dalrymple Creek	Southern Downs Regional Council	Town water supply for Allora	None
Talgai Weir	Condamine River	SunWater	Agricultural users	Upper Condamine
Yarramalong Weir	Condamine River	SunWater	Agricultural users	Upper Condamine
Lemon Tree Weir	Condamine River	SunWater	Agricultural users	Upper Condamine
Melrose Weir	Condamine River (North Branch)	SunWater	Agricultural users	Upper Condamine
Wando Weir	Condamine River (North Branch)	SunWater	Agricultural users	Upper Condamine
Nangwee Weir	Condamine River (North Branch)	SunWater	Agricultural users	Upper Condamine
Cecil Plains Weir	Condamine River	SunWater	Town water supply for Cecil Plains and agricultural users	Upper Condamine
Tipton Weir	Condamine River		Agricultural users	None
Cooby Creek Dam	Cooby Creek	Toowoomba Regional Council	Town water supply for Toowoomba	None
Perseverance Dam	Perseverance Creek (Brisbane River)	Toowoomba Regional Council	Town water supply for Toowoomba	None
Ted Pulcallus Weir	Cooyar Creek	Toowoomba Regional Council	Town water supply for Yarraman	None
Loudon Weir	Condamine River	Western Downs Regional Council	Town water supply for Dalby	None
Cattle Creek Weir	Cattle Creek	Western Downs Regional Council	Agricultural users	None
Warra Town Weir	Condamine River	Western Downs Regional Council	Town water supply for Warra	None
Chinchilla Town Weir	Charleys Creek	Western Downs Regional Council	Town water supply for Chinchilla	None

Name	Watercourse	Owner / Operator	Use	Water Supply Scheme
Chinchilla Weir	Condamine River	SunWater	Town water supply for Chinchilla and agricultural users	Chinchilla Weir
Brigalow Creek Weir	Brigalow Creek		Agricultural users	None
Dogwood Creek Weir	Dogwood Creek	Western Downs Regional Council	Town water supply for Miles	None
Back Creek Weir	Back Creek		Agricultural users	None
Wallumbilla Weir	Wallumbilla Creek		Town water supply for Wallumbilla	None
Bungeworgorai Weir	Bungeworgorai Creek		Agricultural users	None
Surat Weir	Balonne River	Maranoa Regional Council	Town water supply for Surat	None
Neil Turner Weir	Maranoa River	SunWater	Town water supply for Mitchell and agricultural users	Maranoa River
E J Beardmore Dam	Balonne River	SunWater	Town water supply for St George and agricultural users	St George
Buckinbah Weir	Thuraggi Watercourse	SunWater	Agricultural users	St George
Moolabah Weir	Thuraggi Watercourse	SunWater	Agricultural users	St George
Jack Taylor Weir	Balonne River	SunWater	Town water supply for St George and agricultural users	St George
Regulator No. 1 –Culgoa River and Balonne Minor weirs	Culgoa River	Border Rivers Commission	River management	None
Regulator No. 2 – Balonne Minor River – Hastings Weir	Balonne Minor River	Border Rivers Commission	River Management	None
Dirranbandi Weir	Balonne Minor River		Town water supply for Dirranbandi	None
Regulator No. 3 –Donnegri River and Balonne Minor weirs	Donnegri River	Border Rivers Commission	River management	None
Regulators No. 4 and 5 – Ballandool River and Bokhara River weirs	Bokhara River	Border Rivers Commission	River management	None

Name	Watercourse	Owner / Operator	Use	Water Supply Scheme
Hebel Weir	Bokhara River		Town water supply for Hebel	None
Glen Niven Weir	Four Mile Creek		Agricultural users	None
Storm King Dam	Quart Pot Creek	Southern Downs Regional Council	Town water supply for Stanthorpe	None
Beehive Dam	Spring fed	Southern Downs Regional Council	Town water supply for Wallangarra	None
Glenlyon Dam	Pike Creek	Dumaresq-Barwon Border River Commission	Town water supplies and agricultural users	Border Rivers
Bonshaw Weir	Dumaresq River	Dumaresq-Barwon Border River Commission	Agricultural users	Border Rivers
Cunningham Weir	Dumaresq River	Dumaresq-Barwon Border River Commission	**Disused**	Border Rivers
Glenarbon Weir	Dumaresq River	Dumaresq-Barwon Border River Commission	Agricultural users	Border Rivers
Coolmunda Dam	Macintyre Brook	SunWater	Town water supply for Inglewood and agricultural users	Macintyre Brook
Greenup Weir	Macintyre Brook	SunWater	Agricultural users	Macintyre Brook
Inglewood Weir	Macintyre Brook	Goondiwindi Regional Council	Town water supply for Inglewood	None
Whetstone Weir	Macintyre Brook	SunWater	Agricultural users	Macintyre Brook
Ben Dor Weir	Macintyre Brook	SunWater	Agricultural users	Macintyre Brook
Boggabilla Weir	Macintyre River	Dumaresq-Barwon Border River Commission	Town water supply for Boggabilla and agricultural users	Border Rivers
Goondiwindi Weir	Macintyre River	Dumaresq-Barwon Border River Commission	Town water supply for Goondiwindi	Border Rivers
Coomonga Creek Weir	Coomonga Creek	Dumaresq-Barwon Border River Commission	Agricultural users	Border Rivers
Boomi Weir	Macintyre River	Dumaresq-Barwon Border River Commission	Agricultural users	Border Rivers
Talwood Weir	Weir River		Agricultural users	None
Mungindi Weir	Barwon River	Dumaresq-Barwon Border River Commission	Town water supply for Mungindi and agricultural users	Border Rivers

Name	Watercourse	Owner / Operator	Use	Water Supply Scheme
Nindigully Weir	Moonie river		Town water supply for Nindigully and agricultural users	None
Thallon Weir	Moonie river		Town water supply for Thallon and agricultural users	None

Appendix 5 – Sources for town water supply in the Darling Downs region

Towns where groundwater is sole or principal source for drinking water supplies

- Allora – UCA
- Amby
- Bollon - GAB
- Cambooya – MRV
- Clifton – Main Range Volcanics (MRV)
- Dalby – Upper Condamine Alluvium (UCA)
- Dalveen
- Greenmount – MRV
- Haden - MRV
- Hebel
- Injune - GAB
- Jackson
- Kaimkillenbun – UCA
- Leyburn
- Maclagan – MRV
- Millmerran – UCA and GAB
- Mitchell - GAB
- Muckadilla
- Mungallala – GAB
- Nindigully - GAB
- Pittsworth – UCA and GAB
- Pratten
- Quinalow – MRV
- Roma - GAB
- Thallon – GAB
- Wandoan - GAB
- Yuleba – GAB

Towns where surface water is sole or principal source for drinking water supplies

- Bungunya
- Chinchilla
- Condamine
- Crows Nest
- Drillham
- Dulacca
- Flinton
- Glenmorgan
- Goombungee
- Goondiwindi
- Inglewood
- Jandowae
- Karara
- Killarney
- Kogan
- Macalister
- Maryvale
- Meandarra
- Miles
- Stanthorpe
- Wallangarra
- Warwick
- Yangan (transmission from Warwick)
- Yelarbon

Towns using both groundwater and surface water

- Bell – SW and MRV
- Brigalow
- Cecil Plains
- Dirranbandi – SW and GAB
- Dulacca
- Jandowae
- Kogan
- Oakey - UCA
- St George (dual reticulation with drinking water supplied from GAB and SW used for toilets, AC and irrigation. SW use is greater than GW)
- Surat – SW and GAB
- Talwood
- Tara – SW and GAB
- Texas
- Toobeah
- Toobeah
- Toowoomba – SW & MRV
- Warra – SW and UCA

Abbreviations

CSG	Coal seam gas
LNG	Liquefied natural gas
FIFO	Fly in fly out
DIDO	Drive in drive out
BIBO	Bus in bus out
SIMP	Social Impact Management Plan
RPC	Regional Planning Committee
LGA	Local Government Area

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