



Western Downs Workforce Gap Analysis Toowoomba and Surat Basin Enterprise

August 2021

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Executive summary

The Western Downs' economic structure has always needed to adapt in line with the changing economic times. Workers often enter and exit the labour market as local demand changes, with a considerable cycle in the natural resources sector and seasonal workforce requirements of the agriculture industry.

Attracting and retaining skilled labour has often been a challenge even prior to COVID-19 in the Western Downs region. This challenge is potentially being accentuated with the **reduced flow of skilled labour** entering the country, as a result of international border closures.

COVID-19 recovery spending and increased business investment has expanded the region's development pipeline across a range of industries, with **labour market supply being a critical input to the success of this pipeline**.

As international borders are expected to remain closed until at least mid-2022, it is timely to identify the key drivers of current workforce constraints and the risks these constraints pose to the region over the next decade.

As such, Deloitte Access Economics was engaged by TSBE to provide detailed analysis on current and future workforce supply for the Western Downs region to support the future pipeline of projects.

REGIONAL DEVELOPMENT

The Western Downs region is undergoing development, as shown by the value of breadth of the scheduled project pipeline, with a large number of projects ranging in capital value from \$80,000 to \$1.5 billion.

Almost 60% of upcoming projects will support ongoing economic activity in the agriculture, mining and renewable energy sectors, with almost all projects expected to require the construction industry during development.

Included in the pipeline are a number of 'game-changing' projects in renewable energies and intensive agriculture industries, which will help the Western Downs regional economy transform in a way which is aligned with strongly growing sectors.

Skills are a crucial input to the successful delivery of this project pipeline and regional growth over the next decade.

WORKFORCE CONSTRAINTS

Regions are best positioned to understand their own workforce needs, given an understanding of their economic capabilities and assets. As such, **insights from local employers are essential in understanding local labour market constraints**.

A key workforce constraint felt among local businesses is the **limited supply of professionals and specialised labour** in the region. These specialised positions are required to progress and manage local projects (e.g. engineers), provide strategic direction to businesses, support key operations and deliver essential services to the region (e.g. registered nurses).

Local businesses in the region are also experiencing **supply constraints among low skilled workers** (e.g. crop farm workers and labouring roles). This supply constraint was felt by local employers prior to COVID-19, but supply has been further constrained by international border closures.

In addition to border closures, local employers have identified the following key barriers to attracting and retaining workers in the region:

- **Reduced access to affordable housing** – over the last 12-months rental vacancy rates have tightened, which has increased the price of rents and made it more difficult for workers to find a suitable home.
- **Travel or relocation required to acquire highly demanded skills** – many residents have to travel long distances or relocate to acquire highly demanded skills, which are not offered at local TAFE and university campuses.
- **Limited access to key support services** – limited access to support services such as childcare, health care and retail/ entertainment offerings can deter families from moving to or remaining in the region.
- **Perceptions of a regional lifestyle** – worker perceptions of the region, or regional living in general, can discourage skilled workers from living and working in the region.

CURRENT LOCAL SKILLS GAPS

The 'local skills gap' is measured as the difference between the number of local workers (Western Downs employment by place of residence) and number of local jobs (Western Downs employment by place of work + needs from the new pipeline of work).

20% of the jobs within the region are currently filled by skilled workers outside of the region. This provides an estimate of the current local skills gap.

The industries with the **largest skills gaps are Mining (65% of local employment), Electricity, Gas, Water and Waste Services (56%) and Construction (45%)** industries. These industries usually source a large number of temporary workers to support their fluctuating project pipeline. As such, this results in many of the jobs within the Western Downs in these industries being filled by workers outside of the region.

Due to the nature of work and the large geography of Australia, **local skills gaps of this definition are common in regions.** As such, a gap is not unusual, but growth in a local skills gap in a region where supply is already an issue could compromise local businesses' ability to access the skills they need to grow.

The objective is to attract workers to live, work and play in the region, which will minimise this gap to a point where the delivery of the investment pipeline and essential services are not at risk.

FUTURE LOCAL SKILLS GAPS

Projections suggest that by 2030, around **28% of jobs in the region will need to be filled by skilled workers outside of the region.**

The **construction industry will see the largest increase in the size of the local skills gap**– rising from 45% to 59%. This is driven by the significant number of projects in the pipeline that require construction workers as part of delivery.

Although starting off a small base, there is also expected to be **a significant increase in the workforce gap within Health Care and Social Assistance** – Increasing from 6% to 13% over the next decade.

Over the next decade there is expected to be significant growth in the local skills gap for Managers, Labourers and Community and Personal Service Workers.

ADDRESSING SKILL SHORTAGES

Local employers are currently experiencing **supply constraints that puts the delivery of key projects and attraction of future investment at risk.** Over time, this gap is expected to get wider, further exacerbating these challenges.

The presence of a supply gap is common in regions. The goal is not necessarily to eliminate the gap, as the supply of workers outside of the Western Downs boundary is a good source of skilled workers, but to be aware of it as a risk.

From consulting with local employers, there seems to be two clear ways in which the region can support attraction and retention of skilled labour in the region to minimise this risk:

- **Training and upskilling locally** - Skills development is integral to economic recovery and supporting growth over the next decade. Key drivers have been identified as:
 - Strong connection between industry needs and what is offered at local TAFE and university campuses
 - Businesses investing in upskilling and reskilling workers
- **Coordinated push to attract and retain workers** – the unique workforce constraints of the region cannot be addressed in isolation; a coordinated push is required to collectively minimise the barriers local employers face in recruiting and retaining workers in the region. Key drivers have been identified as:
 - Affordable and quality housing
 - Access to essential and consumer services
 - Competitive wages

Jobs strategies are much more than just labour market policies; rather, they recognise that good jobs are produced at the nexus of appropriately skilled workers and expanding businesses that have a place in a future economy.

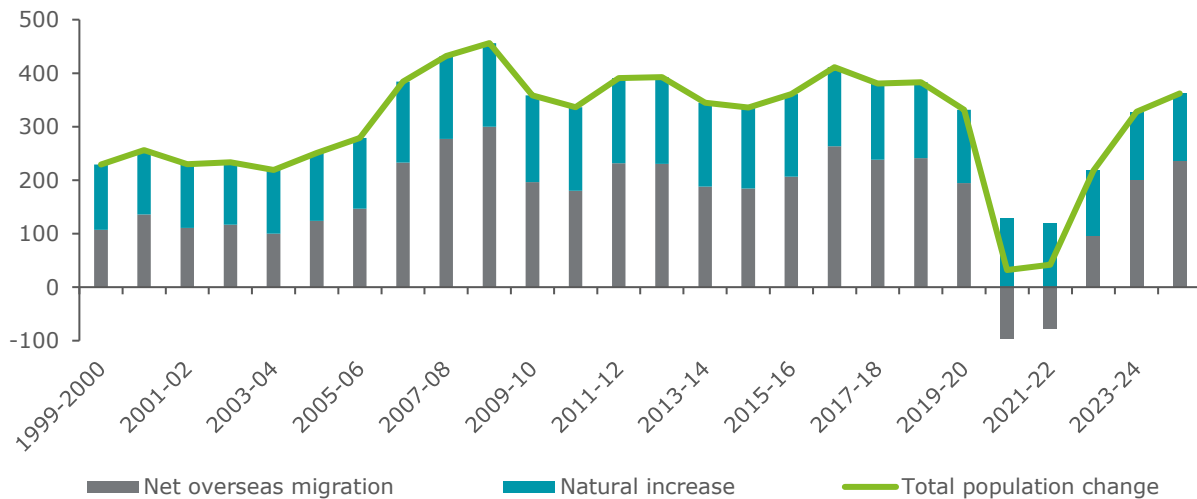
1 Overview

1.1 Impacts of COVID-19 on regional economies

In the first half of 2021 Australia was in a sharp recovery phase from the COVID induced recession in 2020. Despite a deep economic downturn in 2020, Australia had already exceeded pre-COVID levels of GDP and employment, with government support important in enabling a rapid economic recovery. More recently, extended lockdowns in New South Wales and Victoria have seen the national economy turn down again, though the economic impact is more muted in Queensland which has largely stayed open.

The 2021 economic recovery was occurring under unusual circumstances – where our international borders remain closed and are expected to largely remain so until at least mid-2022. That has seen a marked slowdown in population growth, see Chart 1.1.

Chart 1.1 Components of population change, Australia, '000



Source: ABS, Deloitte Access Economics

The result is that Australia’s economic growth potential is currently limited by a constraint on our most value productive asset – people.

A combination of very strong demand and a shortage of people is starting to show up in many businesses across the country. The number of unemployed people per job vacancy reached a record low – and for every job opening, there were only two unemployed people, down from a peak of nearly 7 in May 2020.

The shortfall is becoming acute in many regional areas, particularly in areas where there was constrained supply before this COVID period.

The Western Downs is one such regional economy where attracting and retaining skilled labour has often been a challenge, and that challenge may be accentuated in the current economic environment.

1.2 The Western Downs region

The Western Downs is bordered by the Banana Shire and North Burnett, the South Burnett and Toowoomba and Goondiwindi, Balonne and the Maranoa – just 208km west of Brisbane.

The region is located in the agricultural heartland of Southern Queensland and covers 38,000 square kilometres–providing ample space for broad acre farming particularly for grain and cotton. Western Downs also has a prosperous livestock industry, which is dominated by cattle. In recent years, the Western Downs has seen a strong increase in intensive agriculture with a growing number of animals on feed.

The Western Downs region is recognised as the Energy Capital of Australia due to its rich endowments of thermal coal and coal seam gas, and recent advancements in renewable energy technology.

Positioned at the centre of a national transport network, the region's strategic location provides accessibility and continued movement of freight within and through the Western Downs. Continuing upgrades to critical infrastructure such as the Warrego Highway, the Toowoomba Bypass and Brisbane West Wellcamp Airport, work to improve the region's access to international markets.¹

The region is home to around 35,000 locals and has a strong history of low unemployment. Employment is expected to continue to grow in the region as COVID-19 recovery spending and business investment provides a cash injection into the development pipeline.

1.3 About this report

The Toowoomba and Surat Basin Enterprise (TSBE) is committed to facilitating the sustainable growth and development of the region and works with stakeholders across the Western Downs to support the local business community.

Agriculture, intensive agriculture, energy and manufacturing are industries which continue to boast a significant number of projects in the pipeline for the Western Downs area. With \$2.4 billion in 'projects underway' and a strong line-up of 'proposed projects' and 'approved and waiting projects', the Western Downs is primed to continue a strong growth trend.² Labour market supply is critical to the success of this pipeline, as well as further investment in the region.

To formulate an effective economic policy response at the regional level, there is a need to understand – and design jobs strategies that reflect – the structure of economic activity and the factors that are associated with success over time.

[Deloitte Access Economics was engaged by TSBE to provide detailed analysis on current and future workforce supply for the Western Downs region to support the future pipeline of projects.](#)

This report outlines the key characteristics of the Western Downs economy, the upcoming development pipeline and a detailed workforce analysis on where supply constraints may inhibit the region's ability to deliver key projects and essential services:

- CHAPTER 2 | discusses the characteristics of the regional economy and the current workforce constraints experienced by local employers.
- CHAPTER 3 | provides an overview of the development pipeline and introduces a few 'game-changing' projects.
- CHAPTER 4 | presents an overview of the current and future skills gaps in the Western Downs workforce.
- CHAPTER 5 | discusses key considerations in addressing skill shortages.

¹ Western Downs Regional Council Annual Report 2019-20.

² TSBE Western Downs Development Status report

2 The Western Downs region

2.1 The Western Downs economy

The Western Downs region is a high growth area, driven largely by its mining, construction, agriculture and utilities sectors. In fact, the region has exhibited a higher average annual output growth rate than Queensland, with an average of 6.2% per annum from 2001 to 2020, compared to Queensland's 3.3% growth.³

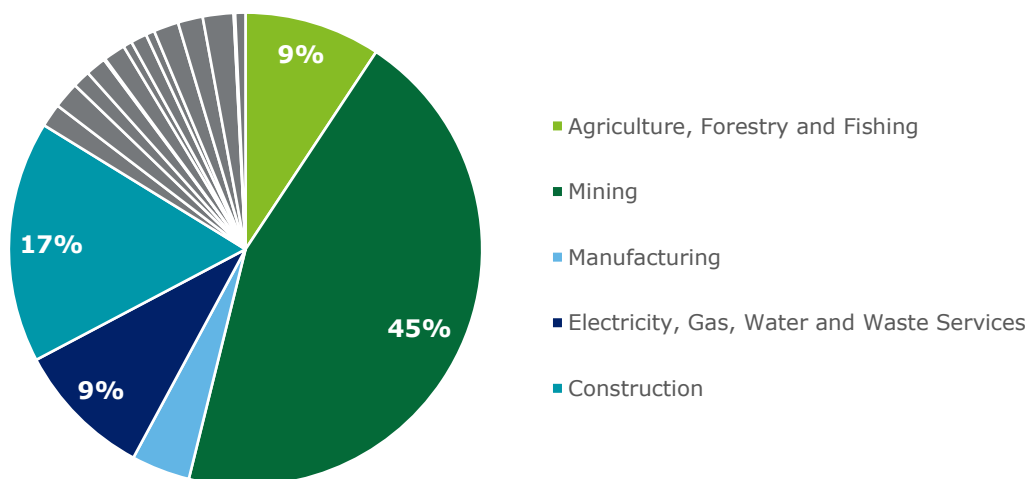
The mining industry in the Western Downs region has been a significant driver of this growth and has made up an increasing proportion of regional output over the years. In 2019-20, the mining industry made up 45% of the local economy, which has grown significantly from 2014-15, where it made up just over 18%. This significant structural change was driven by an expansion of coal mining and gas extraction in the region. The booming mining industry also provides significant work for construction, which makes up 17% of the local economy.

Notably, there is also an emerging and quickly growing renewable energy sector within the region. This activity, as well as other electricity generation, is captured by the electricity, gas, water and waste services industry. This industry contributes 9% to the local economy, and has been rapidly growing over the years, albeit not at the pace of the mining industry.

The region is home to broad acre farming, particularly for grain and cotton, a livestock industry, dominated by cattle and a growing intensive agriculture sector with an increasing number of animals on feed. Agriculture, forestry and fishing is another key industry for the region, contributing 9% to the local economy. However, agriculture's contribution to the economy has fallen over the years, as in 2014-15 agriculture contributed 20%.⁴

The Western Downs region's key industries are far more pronounced in the region compared to the rest of Regional Queensland. In Regional Queensland, mining contributes around 28% to total value add, in comparison to 45% in the Western Down region. Similarly, construction contributes 8% to Regional Queensland total value add, but contributes 17% to the Western Downs.⁵

Figure 2.1 Western Downs GRP shares by Industry, 2019-20



Source: Economy.id Industry Sector Analysis, 2021
 Note: only top 5 industries labelled. Rounded.

2.1.2 Population

The Western Downs region has had a history of steady population growth over the last decade; however, more recently, residents have been exiting the region at a faster rate than new residents coming into (or born in) the region. As shown in Chart 2.1, the Western Downs region is expected to see a dip in population growth as a result

³ Economy.id Gross Domestic Product 2021

⁴ Economy.id Industry Sector Analysis 2021

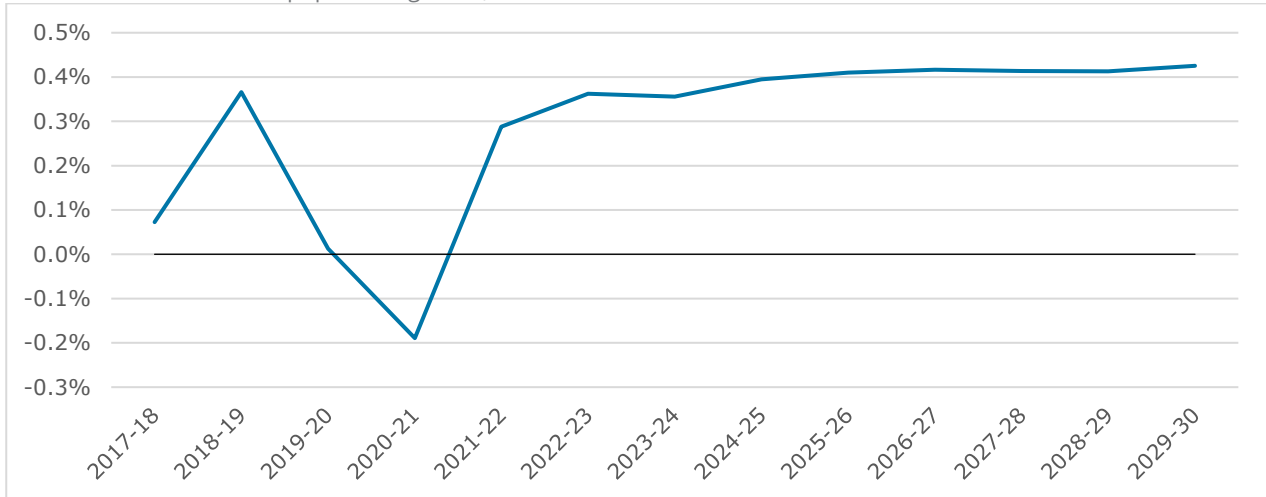
⁵ Economy.id Value Add 2021

of closed borders (in line with national population growth). This dip is expected to be relatively short-lived, with annual population growth forecast to stabilise at around 0.4% out to 2030.

The rebound in population growth seen at around 2022 is driven by a renewed inflow of international migrants nationally. For the Western Downs there is also expected to be strong growth in the proportion of the population that is of retirement age (over 65); in fact the proportion of the population that is over 65 is expected to increase from 16% in 2019-20 to around 20% in 2029-30.

The working population (aged 15-64 years) is not expected to return to pre-COVID levels until early 2027. In line with this, the proportion of the population that is aged 0-14 years, does not return to pre-COVID levels in the forecast period, suggesting that more families are moving out of the region than moving in.

Chart 2.1: Western Downs population growth, 2018-2030



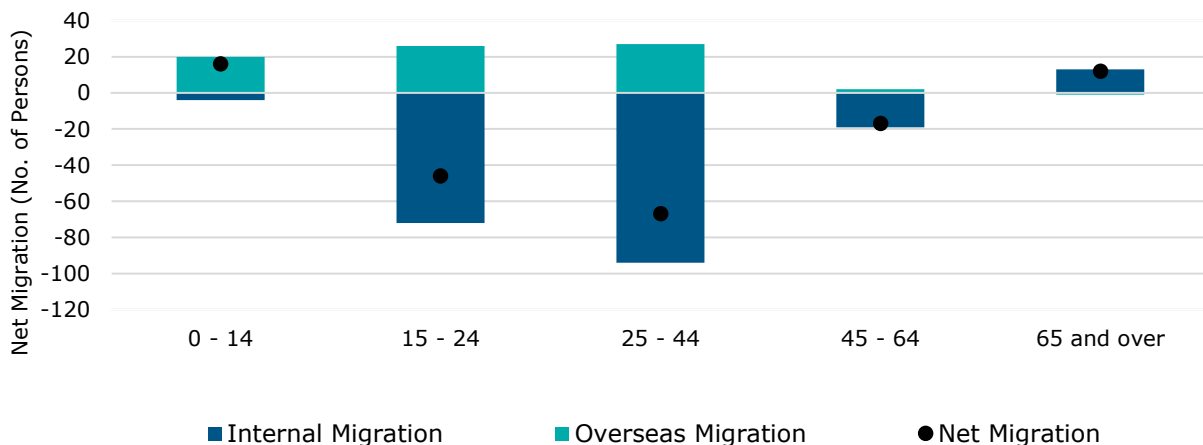
Source: Deloitte Access Economics

The most recent regional migration data suggests that the decrease among the working age is largely attributable to those moving domestically. As shown in Chart 2.2, the largest drop in internal migration was seen in the 15-24 and 25-44 age groups. The movement, particularly in the 15-24 age group suggests that while some live and study locally, others may move out of the region to pursue higher education opportunities.

The chart also shows the importance of international migration into the region, as these population inflows replenish some of population losses seen between 15-44 years. The increase in 0-14-year olds also suggests that international migrants also bring their families to the region with them.

Attracting and retaining residents, particularly those of working and studying age, will be a key challenge for the region over the next decade as the future growth and liveability of the region is dependent on the supply of skills to support this growth and the delivery of essential services.

Chart 2.2: Western Downs Net migration by age groups, as at 30 June 2019



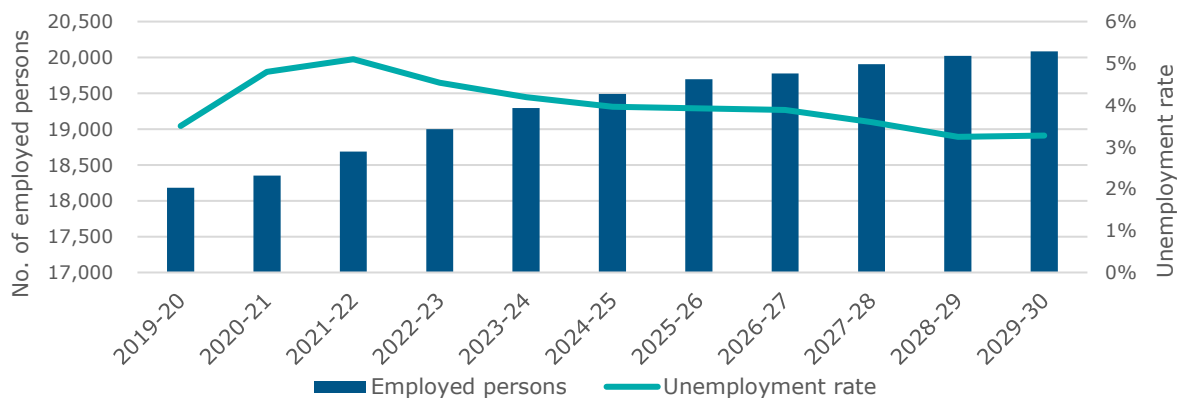
Source: ABS Regional Statistics by LGA 2019

2.2 Workforce characteristics

Prior to the effects of the COVID-19 pandemic, the Western Downs had a low unemployment rate of only 3.2% as of March 2020, whilst the state unemployment rate was almost double that at 6.1%.⁶ Throughout the rest of 2020 the local unemployment rate rose but remained well below the state average.⁷

Expected workforce recovery from the initial effects of the pandemic are shown in Chart 2.3, where unemployment is expected to drop to 3.3% by the end of the decade. In line with this drop, is the steady increase of employed persons within the region, which is expected to increase at an average rate of 1.4% from 2019-20.

Chart 2.3: Employed persons and unemployment rate, Western Downs



Source: Deloitte Access Economics

The Western Downs region has a higher proportion of full-time employment than Queensland, with around 68% of employed persons working full time, compared to just over 62% in Queensland.⁸

In the Western Downs region, Agriculture, Forestry and Fishing (18%), Construction (12%) and Mining (7%) are the largest employing industries in the region. Despite the incredible growth in the mining sector between 2014-15 and 2019-20, this sector has fallen in terms of employment, which is likely a function of the mining sector being more capital intensive relative to other sectors and the increased uptake of remote operations in the mining sector.⁹

The broad group 'Managers' are the most common occupational group in the Western Downs region (20%), primarily within the Agriculture, Forestry and Fishing industry. This is largely a result of the high number of farmers and farm managers. The Agriculture industry also provides employment for 30% of labourers, the largest group among industries. Professionals make up 11% of the Western Downs region's labour force, 39% of which work in Education and Training and 20% work in Health Care and Social Assistance industries.

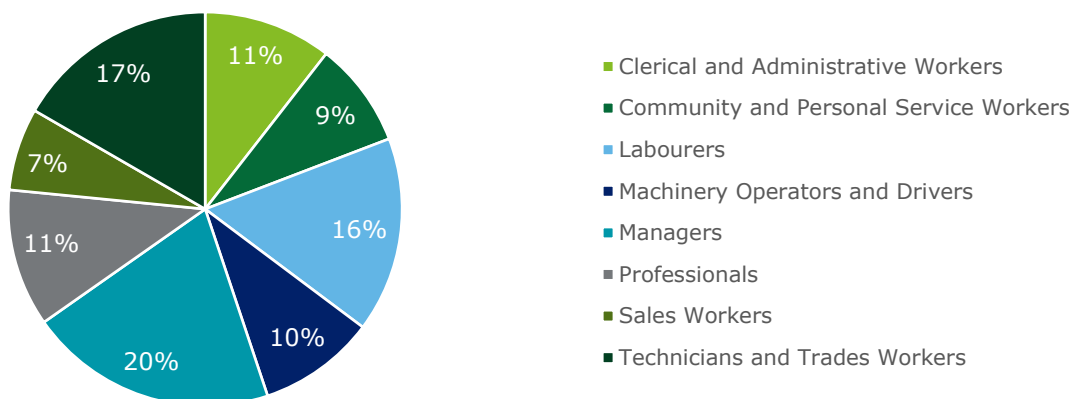
⁶ ABS Labour Force Data

⁷ Support measures such as Jobkeeper and Jobseeker, distorted the comparability of the unemployment rate with previous periods, as those on Jobkeeper who were not working were counted as 'employed' and those who were on Jobseeker and 'not looking for work' (not in labour force) were not shown in the unemployment rate.

⁸ Economy.id Local Workers – Key Statistics 2021

⁹ Economy.id Employment by Industry (FTE) Analysis 2021

Figure 2.2 Occupation composition, Western Downs, 2020



Source: Deloitte Access Economics; employment by place of residence

2.3 Local insights to workforce constraints

Regions are best positioned to understand their own workforce needs, given an understanding of their economic capabilities and assets. As such, to build an understanding on the current workforce constraints in the region Deloitte Access Economics hosted two workshops with over 20 key industry stakeholders to gather valuable insights. The following section reflects community consultation. Refer to Appendix A for an overview of the approach.

2.3.1 Overview of local workforce constraints

The Western Downs region has a history of low unemployment, which supports the liveability and prosperity of the region. However, with low unemployment, comes workforce constraints when there is expansive investment in the region that requires a skilled workforce. Skills are a crucial input into regional development and a constrained workforce can therefore constrain such development.

A key workforce constraint felt among local businesses is the limited supply of professionals and specialised labour in the region. These specialised positions are required to progress and manage local projects (e.g. engineers), provide strategic direction to businesses, support key operations and deliver essential services to the region (e.g. registered nurses).

The high concentration of these specialised jobs are located in cities, meaning that filling these positions usually requires a skilled worker to relocate to the region. This can be difficult for a number of reasons relating to the appeal of the region to the individual/ family, wages and relocation costs, career progression opportunities and availability of support services (e.g. childcare).

These barriers are also observed by businesses when attracting low skilled workers to the region. Local businesses in the region are also experiencing supply constraints among low skilled workers (e.g. crop farm workers and labouring roles). This supply constraint was felt by local employers prior to COVID-19, but supply has been further constrained by the closure of international borders since early 2020.

Unskilled labour is fundamental to both the temporary construction jobs as well as ongoing work within the region. With limited numbers of migrants coming in while borders are closed and the current construction boom nationally, local employers expected it will continue to be challenging to access the workers they need.

2.3.2 Access to affordable housing

Locals within the region have observed a tightening of the local housing market, particularly in the supply of affordable rentals. This has also been observed in local vacancy rates. In the 12 months to December 2020, rental vacancy rates dropped from 3.5% to just 0.9%.¹⁰

The tightening of supply has led to increases in rents. Rents for houses in Western Downs rose by an average of 8.6% between March 2020 and March 2021, whilst townhouse rents rose by an average of 8.7% over the same

¹⁰ REIQ Queensland Market Monitor March 2020 and March 2021 editions.

period. Brisbane; however, saw an average increase of 4.9% in house rents, and an average of 2.4% for townhouse rents over this same period.¹¹

Despite this increase, the median rent in the region is still below that of close cities such as Brisbane and Toowoomba.¹² However, the recent increase does impact the relative attractiveness of the region, particularly if a suitable rental is hard to come by.

The large pipeline of committed and planned projects suggests that there will continue to be demand for housing, particularly rentals among temporary workers that are required during the construction phase of these projects. The region has accommodation villages designed to house temporary workers; however, some workers have a preference to rent outside of these villages, which puts pressure on the availability of rentals and pushes up rents.

2.3.3 Access to local education and training

Like most regional areas, the local education and training campuses have a limited offering of courses to support the development of skills in the workforce. As such, some local residents have to travel or move out of the region to study the course they want. Typically, this is either to Toowoomba or Brisbane TAFE and university campuses. Completing a course can take a considerable amount of time, meaning that students often apply for jobs in the area they are studying rather than returning to Western Downs with these skills.

The distance from education and training campuses in the region also makes it difficult for some businesses to invest in upskilling their workers, as workers are required to travel away from the region to complete this training. However, an employer from Dalby said that because the township is close to Toowoomba, they don't experience this constraint as badly as businesses near Chinchilla.

2.3.4 Access to support services

Another significant barrier to attracting and retaining workers has been identified as the limited support services offered in some areas of the region. These support services include childcare services, health care services and retail/ entertainment offerings. Local employers believe that a lack of services can deter families from moving to or remaining in the region.

The lack of support services is partly a function of demand, which fluctuates with the influx of workers as the development pipeline ramps up or softens as activity winds down. During a construction boom as the region is currently experiencing, low skilled workers are often attracted to higher wages of other industries, which can further compromise the ability of the region to deliver these services.

2.3.5 Lifestyle of regional living

Local employers also believe that it is difficult for some workers to identify with the regional lifestyle, particularly if they are used to densely populated towns/cities. Some of this comes down to perceptions that can be overcome, but some workers or their family members prefer the lifestyle of a city. Employers have identified that some temporary workers become permanent after living in the region for a few months and enjoying the lifestyle, whereas others remain temporary, working out their limited contracts or become drive-in-drive-out workers to the region.

¹¹ REIQ Queensland Market Monitor March 2020 and March 2021 editions.

¹² Residential Tenancies Authority (RTA) Median rents quarterly data, December 2020 Quarter

3 Development pipeline

3.1 Development of the region

The Western Downs region is a centre for significant development from all types of industries. From consolidating information from the TSBE Western Downs Development Status report, Deloitte Access Economics Investment Monitor and Western Downs Regional Council major development approvals, Deloitte Access Economics estimates that the current project pipeline has around 200 projects proposed, awaiting commencement and currently underway.

The types of projects vary from redesigning streetscapes to industrial mining within the area. Similarly, the value these projects are expected to funnel into the region range from \$80,000 to \$1.5 billion. Furthermore, these projects are expected to add greater value to the region in terms of liveability and access to services. For example, several upgrades to schools and hospitals are planned, construction of new health facilities, revitalisation of gardens and upgrades of cultural hubs. This serves to address some of the issues the region faces with retaining workers, as a result of the limited access to services and the perceived issues with liveability.

Outside of injecting investment into the region, these projects also work to further develop the region and create a significant amount of jobs.

Table 3.1: Major upcoming development projects in the region

Project Name	Construction Cost (\$m)	Estimated jobs	Job type examples
The Wandoan South Solar Project	1,500	200 jobs per stage, several permanent once completed	Labourers; Technicians and Trades Workers; Professionals
Collingwood Project	642	1,000 jobs during construction, 400 during operation	Labourers; Technicians and trades workers; Professionals; Machinery operators and drivers
Hookwood Solar Farm	600	100 jobs during construction, 5-10 during operation	Labourers; Technicians and Trades Workers; Professionals
The Range Project	599	2,472 jobs per annum	Labourers; Technicians and trades workers; Professionals; Machinery operators and drivers
Ironbark Gas Facility	550	n/a	Labourers; Technicians and trades workers; Professionals; Machinery operators and drivers
The Western Downs Solar Project	500	300 during construction, 2-4 during operation	Labourers; Technicians and Trades Workers; Professionals
Dulacca Renewable Energy Project	450	150 jobs during construction, 35 during operation	Labourers; Technicians and Trades Workers; Professionals
Western Downs Green Power Hub	400	400 jobs during construction, 7-10 during operation	Labourers; Technicians and Trades Workers; Professionals
Beelbee Solar Farm	395	450 jobs during construction, 6 jobs during operation	Labourers; Technicians and Trades Workers; Professionals
Goog-a-binge	300	350 jobs during construction	Labourers; Technicians and trades workers; Professionals; Machinery operators and drivers
Dulacca Wind / Solar Farm	240	n/a	Labourers; Technicians and Trades Workers; Professionals
Cameby Downs Expansion	225	Up to 20 extra jobs	Labourers; Technicians and trades workers; Professionals; Machinery operators and drivers
Chinchilla Solar Farm	200	150 jobs during construction	Labourers; Technicians and Trades Workers; Professionals
Warhook Solar Farm	150	n/a	Labourers; Technicians and Trades Workers; Professionals

Source: Deloitte Access Economics

3.1.2 Fuelling industry growth

Of the projects in the current pipeline, over a quarter of projects will contribute ongoing work in the Agriculture, Forestry and Fishing sector, over 20% to the Electricity, Gas, Water and Waste Services sector and 17% to the Mining sector.

The construction industry profits greatly from the project pipeline, as each project will provide work for the construction workforce. Larger projects such as mining and renewable energy projects are estimated to provide upwards of 400 jobs during construction, which often spans over multiple years. Thus, the current pipeline is expected to fuel healthy growth in this sector.

The mining sector has historically been a significant driver in the Western Downs region and the current pipeline of projects indicates that this will continue to be the case. A number of thermal coal and natural gas projects are currently lined up to become operational, or be extended in the coming years. Each of these have considerable construction value attached.

In recognition of changing energy demand globally, Western Downs is also looking to diversify its economic base by investing in the establishment of a local renewable energy industry. Currently the home of several major solar farms, the Western Downs is set to be a renewable energy hub with a significant number of wind and solar farms in the current pipeline of projects. Some of these projects are expected to be small, producing around 20MW of electricity, whilst others are estimated to provide several hundred MW of energy. In fact, one of the projects in the current pipeline is set to be one of the largest solar farms in Australia, contributing significant quantities of energy to the area as well as setting the region up to be a renewable energy hub.

Finally, agriculture has been an integral part of this regional area for many years, and investment in this sector continues to grow. A focus in the project pipeline is on intensive agriculture, which looks primarily at intensive animal industries in the region. These projects will involve a significant, ongoing workforce for the area, providing jobs for low skilled labourers, to high skilled managers.

3.1.3 ‘Game-changing’ investments

The Western Downs region has seen exceptional investment in recent years as a hub for agriculture, mining and renewable energies. The region has long been well renowned for its rich agricultural land, and that land has been attracting investments that will fuel the region’s growth well into the future. The renewable energies and intensive agriculture industries will reinvent Western Downs strengths in line with broader structural trends.

FUELLING A CLEAN ENERGY TRANSFORMATION	
Dulacca Renewable Energy Project	Western Downs Green Power Hub
<p>Wind farms and battery storage facilities are two emerging areas within renewable energies that can be ‘game-changing’ for the region. Not only can these two types of renewable infrastructure help strengthen Western Downs’ title as energy capital of Queensland, it also brings innovation and new growth trajectories into how renewable energies can be generated and stored.</p> <p>Located between Dulacca and Drillham, the Dulacca Renewable Energy project is an approved wind farm and energy storage facility. The development has been led by RES Australia and has an estimated investment of \$450 million. With the construction of 43 wind turbines, the project is expected to provide 240MW of renewable energy to the region and create 150 jobs during construction, with a further 35 during its 30-year operation.¹³</p>	<p>South-East of Chinchilla, Neoen’s Western Downs Green Power Hub is expected to be one of Australia’s largest solar farms. The hub is a 460 MW solar project, and is expected to provide electricity for 235,000 homes. The solar farm project will also include a 150MW battery storage.</p> <p>In terms of economic value, the investment value for this project is approximately \$570 million and will provide approximately 400 jobs during construction and employ seven to ten permanent staff during operation.¹⁴</p> <p>As one of the country’s largest solar farms, this ‘game-changing’ investment will help cement the Western Downs region as a renewable energy hub.</p>

¹³ Dulacca Renewable Energy Project 2021

¹⁴ Western Downs Green Power Hub 2021

INCORPORATING INNOVATION INTO TRADITIONAL STRENGTHS

Jimbour Beef and Bacon Livestock Processing Facility Upgrade

Termed as the 'goldilocks zone' for intensive agriculture, the Western Downs region has been attracting significant investment in this area. This form of investment works to strengthen and build upon the traditional trends in the region, by continuing the region's agricultural focus and providing a new growth path for the industry. The Jimbour Beef and Bacon Livestock processing facility upgrade will involve a three-stage upgrade to the abattoir, which will increase capacity to 1,200 pigs or 300 cattle per day. The project is expected to cost \$5 million, and will more than triple the existing workforce of 17 workers, with the addition of 35 full-time jobs.¹⁵

¹⁵ Queensland Government Media Statements 2019. Western Downs meat processor all beefed up for jobs and growth.

4 Future workforce

4.1 Overview of approach

All figures within this chapter (unless sourced otherwise), are from the modelling undertaken by Deloitte Access Economics to estimate the Western Downs Workforce Gap. Refer to Appendix A for an overview of the approach.

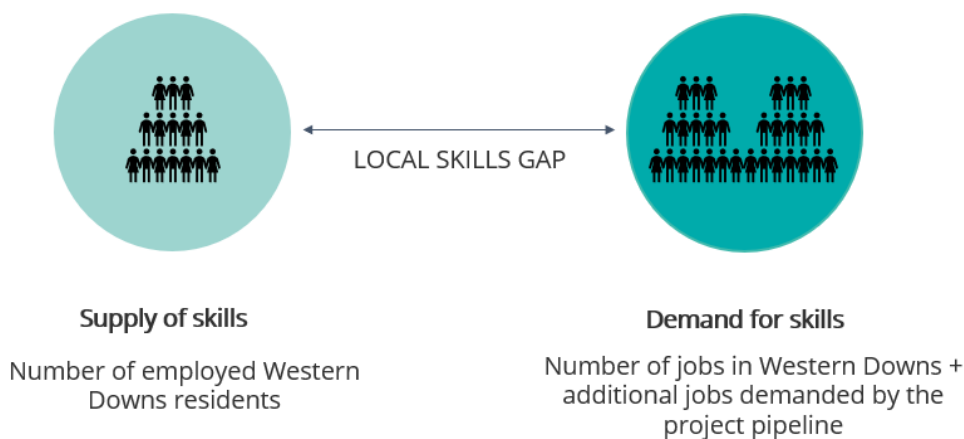
To understand whether the current workforce supply constraints will pose risks to the successful delivery of the project pipeline and local support services, Deloitte undertook a detailed analysis on the current and future workforce in the Western Downs region.

Deloitte Access Economics' integrated model allows us to connect environmental, demographic and economic drivers to test a variety of growth alternatives. The model utilises inputs from the Australian Bureau of Statistics, Bureau of Infrastructure and Transport Research Economics (BITRE), local and State government data, TSBE data as well as our own data holdings to provide detailed population, labour force and employment estimates.

In the context of this report, the supply of local skills is defined as the estimated number of employed Western Downs residents. Demand for local skills is defined as the number of jobs in the region, plus additional jobs created through the future pipeline of work. This measure of demand recognises that there is a baseline level of jobs that supports the development pipeline but aims to capture the upper estimate of potential jobs that will result from the current pipeline.

Combining these two measures, we estimate the local skills gap, which we define as the difference between the local supply of skills (estimated number of employed residents) and the local demand for skills (estimated number of jobs in Western Downs). See Figure 4.1.

Figure 4.1: Measuring the local skills gap



The size of the local skills gaps can be affected by people living outside the Western Downs boundary but regularly travel to access work inside the region. It is estimated that in 2020, around 20% of jobs in the region were filled by workers outside of the region. Of all these workers, the majority are expected to travel from Toowoomba and Brisbane (see Table 4.1).

Table 4.1: Proportion of local jobs filled by workers from other regions, 2016 census

Regions	Proportion of local jobs filled by workers outside of Western Downs
Toowoomba	5.2%
Brisbane	2.5%
Sunshine Coast	1.8%
Gold Coast	1.3%
Moreton Bay	1.3%
Rest of Queensland	5.7%

Source: ABS 2016 Census

Overall, the Western Downs region does have a number of workers who commute into the area, as evidenced by a jobs-to-worker ratio of 1.3.¹⁶ Mining has a ratio of 2.9, while Electricity, Gas, Water and Waste services has a ratio of 2.3. This indicates that a significant number of local jobs in these sectors are being filled by people who live outside the region.

Almost every industry in the region has a jobs-to-worker ratio above 1, except for Agriculture, Forestry and Fishing. This means that Agriculture is the only industry where there are more local residents working in this industry, than there are agriculture jobs located within the region – that is, the surplus workers travel to jobs outside of Western Downs LGA. This is due to a vast agriculture land that surrounds the border of the region. There are a number of large farms that sit just outside the boundary of the Western Downs region that attracts local workers, including Toowoomba. Agricultural land in the Toowoomba region occupies 75 per cent of the region, which means that the agriculture sector will continue to play a large role in the region and compete for workers with the Western Downs region.¹⁷

Due to the nature of work and the large geography of Australia, local skills gaps of this definition are common in regions. As such, a gap is not unusual, but growth in a local skills gap in a region where supply is already an issue could compromise local businesses’ ability to access the skills they need to grow.

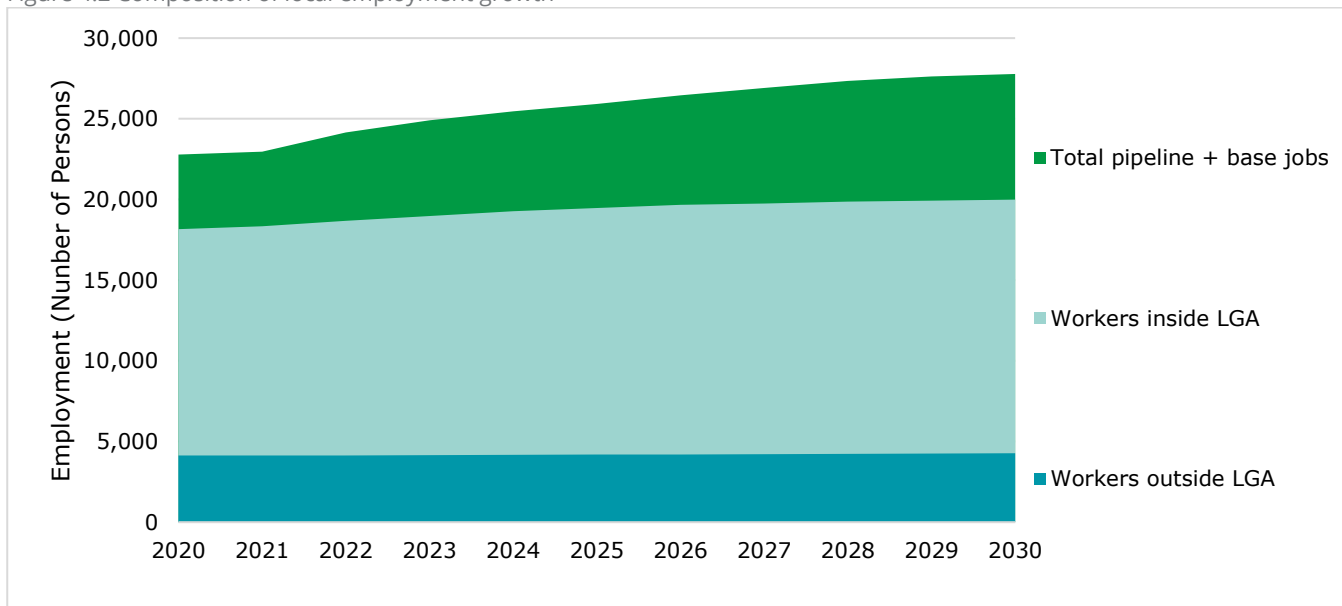
The objective is to attract workers to live, work and play in the region, which will minimise this gap to a point where the delivery of the pipeline and essential services are not at risk.

4.2 How the local workforce will change over the next decade

Under the assumption that the current pipeline of projects is successfully delivered, Western Downs will see a significant number of projects in the coming years. This will mean that there will also be a surge in jobs available within the region, to service these projects. Overall, the jobs available in region are expected to grow from 22,780 currently, to 27,780 in 2030. This is an overall 22% growth in employment over the 10 years.

With such a low unemployment rate, it is expected that Western Downs will see a significant proportion of jobs filled by workers outside of the region, currently around 4,140 workers. This dependence on workers outside the region is expected to continue over time, with around 4,280 workers from outside of the region expected to fill jobs in 2030.

Figure 4.2 Composition of local employment growth



Source: Deloitte Access Economics estimates.

¹⁶ Economy.id 2021. Western Downs jobs-to-worker ratio is calculated by total jobs divided by total employed residents

¹⁷ Department of Agriculture 2021. About my region – Toowoomba Queensland.

Our analysis shows that the gaps currently present within the Western Downs economy will widen over time, in-line with significant growth in industries that are currently experiencing large skills gaps.

Overall, the gap in Western Downs employment at 2020 is approximately 4,610, and this is expected to grow to around 7,790 by 2030. This means that currently, 20% of total jobs within Western Downs are filled by residents from outside of Western Downs, and this is expected to grow substantially to 28% by 2030.

4.3 Industry analysis

Over the forecast period, the largest change in workforce is expected to be in the Agriculture, Forestry and Fishing and Construction industries. Currently, Agriculture makes up over 18% of total employment, being the largest employer in the region. This is expected to fall to just under 15% by 2030, placing it as the second highest employer as Construction grows significantly over the decade. The Construction industry currently employs around 16% of the total workforce, and this is expected to grow to almost 20% in 2030. This change in industry composition does not mean that Agriculture is experiencing negative growth, rather it indicates that employment is growing at a slower rate than employment growth in the Construction industry.

Notably, essential services will also see increases in share of employment over time, as Health Care and Social Assistance, Accommodation and Food Services, and Education and Training industries will all grow between 2020 and 2030 (see Table 4.2). This is consistent with the expected population growth over the same period.

Table 4.2 Industry composition of employment, 2020 and 2030

Industry	2020	2030
Agriculture, Forestry and Fishing	18.2%	14.8%
Construction	15.7%	19.7%
Health Care and Social Assistance	8.5%	8.9%
Retail Trade	7.2%	6.8%
Mining	7.2%	7.1%
Education and Training	6.6%	7.0%
Manufacturing	5.9%	4.6%
Public Administration and Safety	5.0%	5.0%
Accommodation and Food Services	3.7%	4.5%
Transport, Postal and Warehousing	3.6%	3.6%
Other Industries	18.3%	18.0%

Source: Deloitte Access Economics estimates. Employment by place of work

4.3.2 Current gaps

The industries with the largest local skills gaps are the Mining (65% of local jobs), Electricity, Gas, Water and Waste Services (56% of local jobs) and Construction (45% of local jobs) industries (see Table 4.3). The largest of these in terms of people is Construction, with a gap of around 1,600 workers, followed by Mining with a gap of around 1,080 workers. Both industries traditionally demand large proportions of temporary workers from outside the region to support the fluctuations in demand due to the project pipeline.

Although not as large of an employer as the other industries, it is notable that there is a local skills gap of 64% within the Western Downs' Rental, Hiring and Real Estate industry. Driving this gap is likely attributable to the equipment rental and hiring section of this industry, which may require workers from neighbouring regions to support local operations.

All local industries currently have a skills gap, except for Agriculture, Forestry and Fishing. This industry has a surplus of around 360 workers, meaning that there are 360 more jobs than Western Downs workers. This is largely a location issue, where a number of large farms sit outside of the Western Downs border. Further, there is also significant competition for agricultural workers in the Toowoomba region, resulting in large numbers of Western Downs residents working within the Toowoomba region instead.

Table 4.3 Western Downs industry gap analysis results, 2020

	Supply	Demand	Gap at 2020
Accommodation and Food Services	789	844	- 55
Administrative and Support Services	284	495	- 211
Agriculture, Forestry and Fishing	4,510	4,149	361
Arts and Recreation Services	64	75	- 11
Construction	1,981	3,585	- 1,604
Education and Training	1,365	1,513	- 148
Electricity, Gas, Water and Waste Services	344	787	- 444
Financial and Insurance Services	191	254	- 63
Health Care and Social Assistance	1,834	1,944	- 110
Information Media and Telecommunications	57	58	- 1
Manufacturing	1,170	1,334	- 164
Other Services	588	682	- 94
Professional, Scientific and Technical Services	609	762	- 152
Public Administration and Safety	986	1,144	- 158
Rental, Hiring and Real Estate Services	175	486	- 311
Retail Trade	1,429	1,644	- 214
Transport, Postal and Warehousing	744	811	- 67
Wholesale Trade	477	568	- 91
Mining	567	1,640	- 1,072
Total	18,166	22,775	- 4,610

Source: Deloitte Access Economics estimates

4.3.3 Future gaps

By 2030, the Western Downs region is expected to experience workforce gaps across all industries, with the construction industry expected to experience the largest increase of the local skills gap – rising from 45% to around 60%. This is driven by the significant number of projects that require construction workers as part of delivery.

In terms of proportion of total demanded workforce, the largest gaps remain consistent with those identified in 2020. Each of the Mining, Rental, Hiring and Real Estate and Electricity, Gas, Water and Waste Service industries are estimated to have gaps of over 60% of total demanded workforce (see Table 4.4). The largest of these is Mining, with a gap of 73% of total demanded workforce in 2030.

When assessing the magnitude of skills gaps it is also important to consider the impact that some of the small gaps may have on the liveability of the region. Health Care and Social Assistance, Education and Training, and Retail Trade all have local skills gaps, ranging from 10% to 14%. However, even small gaps in these essential services can act as incredible barriers to attracting workforce to the region. Among these key industries, the local skills gap sees the most growth in the Health Care and Social Assistance industry, rising from around 6% to 14% over the decade.

Table 4.4 Western Downs industry gap analysis results, 2030

	Supply	Demand	Gap at 2030
Accommodation and Food Services	1,161	1,242	- 81
Administrative and Support Services	373	648	- 276
Agriculture, Forestry and Fishing	4,056	4,119	- 63
Arts and Recreation Services	126	148	- 21
Construction	2,233	5,461	- 3,228
Education and Training	1,762	1,958	- 196
Electricity, Gas, Water and Waste Services	318	862	- 543
Financial and Insurance Services	204	271	- 67
Health Care and Social Assistance	2,140	2,474	- 334
Information Media and Telecommunications	74	77	- 3
Manufacturing	1,126	1,284	- 158
Other Services	686	796	- 110
Professional, Scientific and Technical Services	800	1,001	- 201
Public Administration and Safety	1,163	1,376	- 213
Rental, Hiring and Real Estate Services	195	558	- 363
Retail Trade	1,619	1,889	- 269
Transport, Postal and Warehousing	903	987	- 85
Wholesale Trade	523	651	- 128
Mining	528	1,976	- 1,448
Total	19,991	27,779	- 7,788

Source: Deloitte Access Economics estimates

4.4 Occupational analysis

Over the forecast period, the largest change in the local workforce is expected to be in the broad occupation groups 'Managers' and 'Professionals', where the composition of Managers decreases by 2% over the decade and Professionals increases by 2%. This does not mean that there will be less managers in the region in 2030 than there are now, it just means that growth in other occupations are outstripping growth in Managers.

It is expected that in 2030, 13% of the local workforce will be employed in occupations within the 'Professionals' group. This group is broad and includes accountants, engineers, teachers, solicitors, doctors etc. Most occupations within this group require highly skilled labour (e.g. a tertiary qualification). It is also notable that 'Community and Personal Service Workers' also increases their proportion of the workforce over the forecast period. Occupations within this group includes Aged and Disabled Carers, Child Carers, Enrolled and Mothercraft Nurses and Police.

Table 4.5 Occupation composition of employment, 2020 and 2030

Occupation group	2020	2030
Managers	20%	18%
Technicians and Trades Workers	17%	16%
Labourers	16%	16%
Professionals	11%	13%
Clerical and Administrative Workers	11%	11%
Community and Personal Service Workers	9%	10%
Machinery Operators and Drivers	10%	9%
Sales Workers	7%	7%

Source: Deloitte Access Economics estimates. Employment by place of residence

4.4.2 Current gaps

A large proportion of the local skills gap comes from occupations that fit within the Machinery Operators and Drivers and Technicians and Trades Workers categories. For Technicians and Trades Workers, this gap is around 1,690 people (36% of local jobs), whilst for machinery operators and drivers, the gap is approximate 880 people (33% of local jobs). These two occupations consist of skilled workers largely within Agriculture, Utilities, Construction and Mining industries, all of which are large employers and current facing supply constraints.

Although there are smaller gaps among professional occupations, it was expected that some of these occupations will be extremely difficult to fill as they require a high level of education and experience.

Table 4.6 Western Downs occupation gap analysis results, 2020

	Supply	Demand	Gap
Clerical and Administrative Workers	1,914	2,449	- 535
Community and Personal Service Workers	1,573	1,722	- 149
Labourers	2,913	3,398	- 485
Machinery Operators and Drivers	1,749	2,630	- 880
Managers	3,706	3,883	- 177
Professionals	2,052	2,397	- 345
Sales Workers	1,231	1,581	- 350
Technicians and Trades Workers	3,027	4,714	- 1,687
Total	18,166	22,775	- 4,610

Source: Deloitte Access Economics estimates

4.4.3 Future gaps

Over the decade the largest local skills gap is expected to remain among Machinery Operator and Drivers (around 1,240 workers), and Technicians and Trades Workers (around 2,87 workers). However, the gaps among Labourers, Managers and Community and Personal Service occupations experience the greatest growth.

- The gap in Managers is projected to more than triple between 2020 and 2030, increasing from around 180 to 560. This growth is especially significant due to the difficulty in fulfilling highly skilled positions within this occupation group.
- The gap in Labourers is expected to more than double, growing from 485 to around 1230 over the next 10 years. This will largely be fuelled by the significant growth in the construction industry as a result of the development pipeline. It is likely that a significant number of these jobs can be filled by temporary workers from outside of the region.
- For Community and Personal Service Workers, the gap in this occupation is expected to grow from around 150 in 2020 to 320 in 2030.

Table 4.7 Western Downs occupation gap analysis results, 2030

	Supply	Demand	Gap
Clerical and Administrative Workers	2,190	2,817	- 626
Community and Personal Service Workers	1,952	2,269	- 317
Labourers	3,107	4,339	- 1,232
Machinery Operators and Drivers	1,890	3,129	- 1,239
Managers	3,655	4,217	- 562
Professionals	2,518	3,037	- 520
Sales Workers	1,405	1,823	- 419
Technicians and Trades Workers	3,274	6,147	- 2,873
Total	19,991	27,779	- 7,788

Source: Deloitte Access Economics estimates

4.4.4 Critical occupations for the successful delivery of the development pipeline

Western Downs has been attracting significant investment across a variety of sectors to drive development in the region. Some occupations within the construction industry are expected to experience the largest growth in their skills gap out to 2030, many of which are crucial to the successful delivery of key infrastructure projects. The most significant growth in skills gaps over the next decade is expected to be seen in:

- **Fencers and Concreters** both are expected to see a significant growth in their skills gap – growing from around 65 to 200 for Concreters and from around 50 –150 for Fencers.
- **Electricians** are expected to see over a 90% increase in the skills gap over the decade, resulting in a total gap of around 690 by 2030.
- The skills gaps for **Carpenters and Joiners**, as well as **Plumbers** is expected to double over the decade.
- **Construction Managers** are also expected to see the size of their skills gap double in size between 2020 and 2030.

- **Electrical Engineers** would see a large increase in the size of their skills gap – Increasing from 57 to around 80 over the next 10 years. These positions are extremely challenging for the region to fill.

Considering the region is already grappling with attracting workers within these occupations, it is important that the underlying drivers of the supply constraints (see Section 2.3) are minimised to ensure that sourcing workers does not get any more challenging for local employers.

Table 4.8 Local skills gap for critical occupation for the project pipeline, 2030

4-digit occupation	Supply	Demand	Gap
Electricians	496	1,185	-689
Carpenters and Joiners	315	799	-484
Plumbers	287	704	-416
Construction Managers	183	450	-267
Building and plumbing Labourers	145	402	-257
Concreters	94	294	-200
Painting Trades Workers	116	295	-179
Fencers	71	224	-152
Plasterers	61	156	-94
Electrical Engineers	39	120	-81

Source: Deloitte Access Economics estimates

4.4.5 Critical occupations to support the liveability of the region

Supporting the liveability of the region is integral to the attraction of workforce to Western Downs. Without adequate health workers, educators and retail workers, this can create significant barriers to potential long-term residents moving to the region. As such, it is important to consider how the current gaps in these occupations are expected to grow over the next ten years.

- Consistent with the national shortage in this occupation, the local skills gap for **Aged and Disabled Carers**, is expected to more than double between 2020 and 2030 – Growing from 15 to 53.
- **Registered Nurses** may see a doubling in the size of the skills gap over the decade – growing from around 25 – 74 workers.
- **Retail Managers** are already in high demand with a gap of 67 in 2020, which may grow to 76 in 2030.
- **Child Carers** are currently in short supply, and this gap is expected to increase from 15 to 36 over the forecast period. These occupations are important to not only attracting workers to the region, but also for workforce retention, as this will be a deciding factor for workers to move to Western Downs with their families.

Already in high demand, health care occupations may see significant growth in demand towards 2030 as the population increases and ages. This highlights that the health sector will need to attract significant new employment to the area to keep up with Western Downs growth and the health challenges associated with an ageing population.

Table 4.9 Local skills gap for support services occupations, 2030

4-digit occupation	Supply	Demand	Gap
Sales Assistants (General)	838	991	-153
Primary School Teachers	428	476	-47
Retail Managers	330	406	-76
Registered Nurses	475	549	-74
Aged and Disabled Carers	295	348	-53
Child Carers	234	270	-36
Nursing Support and Personal Care Workers	147	173	-26
Enrolled and Mothercraft Nurses	123	145	-22
General Practitioners and Resident Medical Officers	102	117	-16
Ambulance Officers and Paramedics	66	78	-12

Source: Deloitte Access Economics estimates

5 Addressing skill shortages

5.1 Overview

Local employers are currently experiencing supply constraints that puts the delivery of key projects and attraction of future investment at risk. Over time, this gap is expected to get wider, further exacerbating these challenges.

The skills gap is expected to increase from 20% to 28%, meaning that jobs in the region are expected to grow faster than the local working population. The largest increase is expected to be seen in the construction industry, which is currently ramping up as part of economic recovery inside and outside the region.

The presence of a supply gap is common in regions. The goal is not necessarily to eliminate the gap, as the supply of workers outside of the Western Downs boundary is a good source of skilled workers, but to be aware of it as a critical risk (where workers are more likely to be competed away to other sectors or regions). When the skills gap is large for particular jobs/industries, it can force businesses to pay a premium wage to attract workers to the region to work.

From consulting with local employers, there seems to be two clear ways in which the region can support attraction and retention of skilled labour in the region:

- **Training and upskilling locally** - Skills development is integral to economic recovery and supporting growth over the next decade. Key drivers have been identified as:
 - Strong connection between industry needs and what is offered at local education and training institutions (e.g. TAFE)
 - Businesses investing in upskilling and reskilling workers
- **Coordinated push to attract and retain workers** - the unique workforce constraints of the region cannot be addressed in isolation; a coordinated push is required to collectively minimise the barriers local employers face in recruiting and retaining workers in the region. Key drivers have been identified as:
 - Affordable and quality housing
 - Access to essential and consumer services
 - Competitive wages

5.1.1 Training and upskilling locally

One of the most significant inhibitors to workers staying in the region is that they either move away to study, which means that there is a risk they may not return to work in the region with the newly acquired skills; or they have to travel so far to get their necessary training they decide against upskilling. Mitigating these risks is both a task for educational and training sector and employers:

- The **educational and training sector** has a role in providing a quality pipeline of educated workers to enter or re-enter the workforce that meet the demands of businesses. This includes factoring local employer's advice into decision making around courses to better align local education and training offerings with local workforce needs.
- **Employers** also play a key role in directing their workers to the upskilling opportunities required for them to help them progress to more senior roles within an organisation, which are of high demand in the region.

Within these interconnected roles, policy makers have the overarching role to influence employment, upskilling and retraining outcomes by providing policy direction and support, so that workers, businesses and training institutions can best play their role in ensuring adequate skills to support economic growth.

In looking at the critical occupations to the region, a number of locals can be upskilled or trained at Dalby campuses; however, a number of the university qualifications and apprenticeship training modules are offered in Brisbane and Toowoomba campuses (see Table 5.1). It is likely not feasible to offer all of these courses locally; however, the size of the local skills gap and distance to training should be considered when reviewing training options.

Table 5.1: Example courses for critical occupations

4-digit occupation	Gap	Relevant course example where available	Nearest campus
Pipeline occupations			
Electricians	-689	<ul style="list-style-type: none"> Apprenticeship/ traineeship Certificate III in Electrotechnology Electrician 	Toowoomba, TAFE
Carpenters and Joiners	-484	<ul style="list-style-type: none"> Apprenticeship/ traineeship Certificate III in Carpentry 	Acacia Ridge, TAFE
Plumbers	-416	<ul style="list-style-type: none"> Apprenticeship/ traineeship Certificate III in Plumbing Certificate IV in Plumbing and Services 	Toowoomba, TAFE Online, TAFE
Construction Managers	-267	<ul style="list-style-type: none"> Diploma of Building and Construction (Management) Certificate IV in Civil Construction Supervision 	Eagle Farm, TAFE Toowoomba, TAFE
Building and plumbing Labourers	-257	<ul style="list-style-type: none"> Certificate II in Drainage Certificate III in Civil Construction 	Acacia Ridge, TAFE Ipswich, TAFE (traineeship)
Concreters	-200	<ul style="list-style-type: none"> Certificate III in Civil Construction 	Ipswich, TAFE (traineeship)
Painting Trades Workers	-179	<ul style="list-style-type: none"> Certificate III in Shopfitting 	Acacia Ridge, TAFE (apprenticeship)
Fencers	-152	<ul style="list-style-type: none"> On the job training 	
Plasterers	-94	<ul style="list-style-type: none"> Certificate III in Construction Waterproofing 	Nambour, TAFE
Electrical Engineers	-81	<ul style="list-style-type: none"> Bachelor of Engineering 	Toowoomba, UQS (external options)
Liveability services occupations			
Sales Assistants (General)	-153	<ul style="list-style-type: none"> On the job training 	
Primary School Teachers	-47	<ul style="list-style-type: none"> Bachelor of Education (Primary) 	Brisbane (online options)
Retail Managers	-76	<ul style="list-style-type: none"> Certificate IV in Small Business Management 	Mt Gravatt, TAFE
Registered Nurses	-74	<ul style="list-style-type: none"> Bachelor of Nursing 	Toowoomba, USQ (External options)
Aged and Disabled Carers	-53	<ul style="list-style-type: none"> Certificate III in Individual Support Diploma of Community Service 	Dalby, TAFE Toowoomba, TAFE
Child Carers	-36	<ul style="list-style-type: none"> Diploma of Community Service Diploma of School Age Education and Care 	Toowoomba, TAFE Online, TAFE
Nursing Support and Personal Care Workers	-26	<ul style="list-style-type: none"> Diploma of Nursing 	Dalby, TAFE (online options)
Enrolled and Mothercraft Nurses	-22	<ul style="list-style-type: none"> Diploma of Nursing 	Dalby, TAFE (online options)
General Practitioners and Resident Medical Officers	-16	<ul style="list-style-type: none"> Bachelor of Medicine 	Brisbane
Ambulance Officers and Paramedics	-12	<ul style="list-style-type: none"> Bachelor of Paramedicine 	Ipswich, USQ Brisbane

Source: Deloitte Access Economics estimates. TAFE or University course information as per their websites.

5.1.2 Attracting and retaining skilled workers

Consultation with local employers highlighted that the current workforce constraints cannot be viewed in isolation. Rather, overcoming or minimising these barriers requires strategic coordination between state and local government, local businesses and the community.

The significant ramping up of projects on the development pipeline will continue to drive demand for workers in the region for the next decade.

The supply side requires attracting workers and consumers, typically through coordinated investments in amenity and skills provision. Investment must have a degree of coordination; otherwise targeted action may not be successful in reducing workforce constraints. For example, improved access to affordable housing may not be enough for a family to relocate to the region, as they still can't access childcare for their children and other key liveability services.

Appendix A Overview of approach

A.1. Data collection and stakeholder engagement

The information presented in the report was based on the collection of the best available data, desktop research to inform our understanding of the region and its workforce and the local knowledge from a diverse list of stakeholders.

Between 1-3 representatives from the following organisations were invited to participate in two focus group workshops. List of organisations presented in Table A1.

- **Workshop 1:** The aim of Workshop 1 was to discuss current workforce constraints and explore potential skills gaps for future projects. Findings from Workshop 1 were presented in section 2.3.
- **Workshop 2:** was designed to test our modelling results with stakeholders for validation and capture any nuances around the figures. Findings from Workshop 2 were integrated in Chapter 4 and 5.

Table A1: Stakeholders invited to participate in the Workshops

List of stakeholder organisations	
Chinchilla Chamber of Commerce	Western Downs Regional Council
Cubico Sustainable Investments	White industries
Yancoal	Mort & Co
CS Energy	CECPL
WD Civil	Southern QLD Rural Health
AGL	Queensland Health
Stanbroke	MFE
Crowe Horwath	Dom Distribution
Western Downs Civil	Origin energy

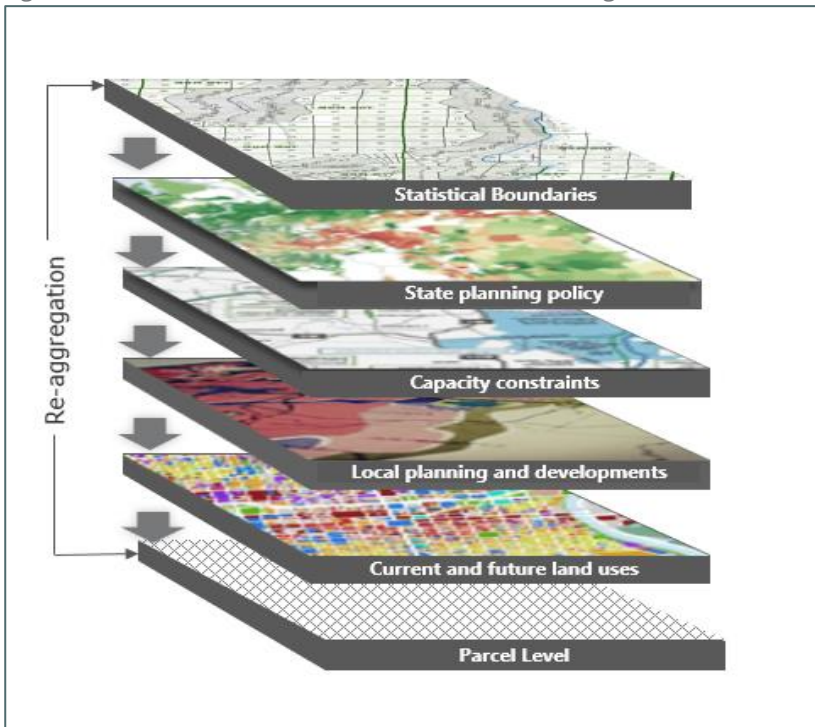
A.2. Data analysis

To undertake this analysis, we Deloitte Access Economics drew on expertise in macroeconomic forecasting, detailed knowledge of the Western Downs Region, and capabilities in small area land use and demographic modelling.

Workforce supply and demand modelling

Deloitte Access Economics' integrated suite of models dynamically links small area land use to controlled macro-economic context scenarios to provide granular, hyper local forecasts of community and industry employment and gross value-added product outcomes. The models are informed by detailed in-house datasets that are updated regularly and not publicly available at such granular levels. An illustrative example of the model is presented in Figure A2. Other data inputs include data from the Australian Bureau of Statistics, BITRE, local and State government data.

Figure A2: Overview of Deloitte Access Economics integrated macro-economic forecasting and land use model



Source: Deloitte Access Economics.

This model was used to produce estimates of population, labour force and employment by industry sector and occupation for the Western Downs region.

Deloitte Access Economics’ dynamic models have proven track-records in producing robust workforce estimates to provide an evidence base for regional analysis. Our models’ considerations and attributes includes, but is not limited to:

- detailed spatial accuracy;
- information on developments and projects underway, approved and proposed;
- local trends in employment growth by industry sector;
- macro-economic trends that impact on socio-demographic variables at a local level;
- long-term trends in national, state and regional job growth;
- changes in the skill mix within each industry over time;
- significant residential and economic development initiatives that impact on infrastructure provision, business and industry opportunities as well as business and industry location within the region;

Workforce gap analysis

Using the estimates from the integrated model, we defined the local supply of skills as ‘the estimated number of employed Western Downs residents’ and the demand for local skills as ‘the number of jobs in the region, plus additional jobs created through the future pipeline of work’. This measure of demand recognises that there is a baseline level of jobs that supports the development pipeline but aims to capture the upper estimate of potential jobs that will result from the current pipeline.

The ‘future pipeline of work’ was estimated using a combination of information from the TSBE Western Downs Development Status report, Deloitte Access Economics Investment Monitor and Western Downs Regional Council major development approvals.

Combining these two measures, we estimated the local skills gap, which we define as the difference between the local supply of skills (estimated number of employed residents) and the local demand for skills (estimated number of jobs in Western Downs).

Limitation of our work

General use restriction

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