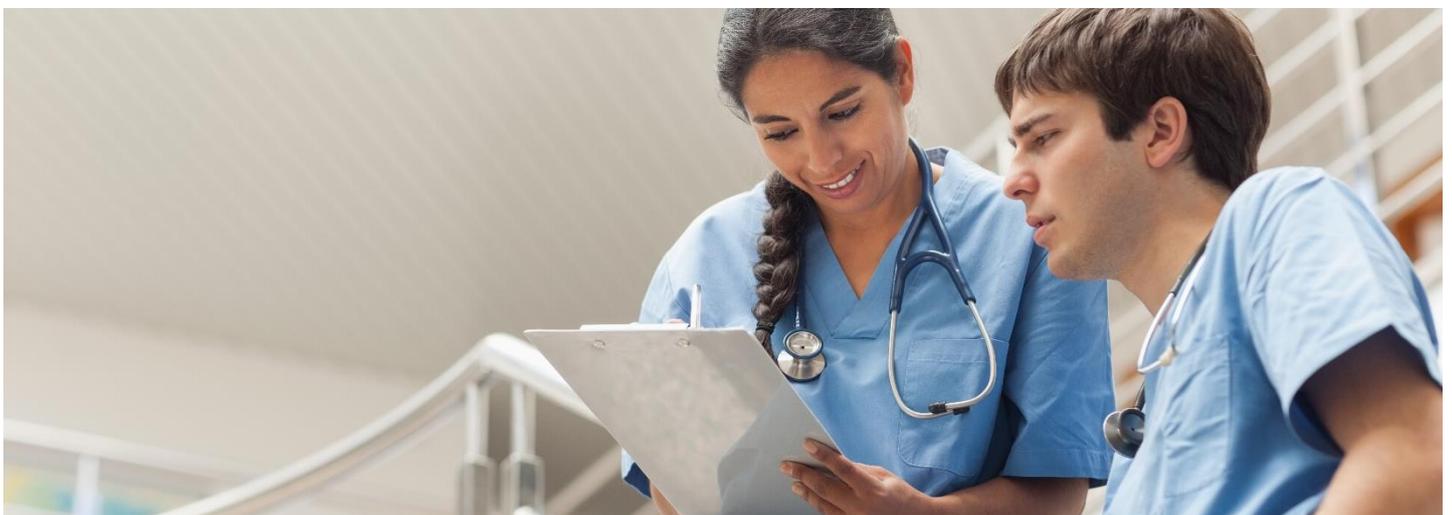


# REGIONAL ECONOMIC IMPACTS OF PUBLIC HOSPITAL INVESTMENT

RESEARCH AND CASE STUDIES: SUMMARY

Prepared jointly by Regional Australia Institute  
and NSW Health Infrastructure

July 2019



REGIONAL  
AUSTRALIA  
INSTITUTE



Health  
Infrastructure

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Independent and informed by both research and ongoing dialogue with the community, the Regional Australia Institute (RAI) develops policy and advocates for change to build a stronger economy and better quality of life in regional Australia – for the benefit of all Australians. The RAI was established with support from the Australian Government.

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## ACKNOWLEDGEMENTS

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## REFERENCE

This paper can be referenced as:

The Regional Australia Institute (2019), *Regional Economic Impacts of Public Hospital Investment*, Canberra, The Regional Australia Institute.

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## EXECUTIVE SUMMARY

In NSW, local health districts provide vital public hospital and health services to around 2.8 million people living in regional and rural areas. Of the \$2.89bn capital works program in 2019-20, more than \$1bn is allocated for capital infrastructure investment in rural and regional NSW.

The value of hospitals to their communities extends far beyond healthcare. In 2016, NSW Health Infrastructure (HI) commenced a partnership with Regional Australia Institute (RAI) to conduct research and case studies on the direct and indirect economic benefits of health capital investment in regional NSW.

The research project is based on a three-step approach:

1. Quantitative modelling of economic and employment impacts of capital investments and ongoing operational costs;
2. Development of baseline quantitative foundation indicators to track economic impacts post health capital investment; and
3. Case studies reflecting local relationships and characteristics of local health industry networks and capabilities.

RAI has completed three case studies on Tamworth, Wagga Wagga and Dubbo in regard to the recent significant capital investment in the three hospitals. The case studies involved input from the Hunter New England Local Health District, Murrumbidgee Local Health District and the Western NSW Local Health District.

The findings of the case studies provide an evidence base about the economic impact of the NSW Government's investment in regional and rural hospitals. The common themes and findings are summarised below.

### ECONOMIC IMPACTS

- There are multiplier effects of hospital redevelopment on regional economic output and jobs during construction and operational phase.
- Local participation and training

	Tamworth	Wagga Wagga	Dubbo
Construction workforce – local workers	43%	68%	40%
Indigenous participation	5%	6.43%	Exceeded contractual commitments for expenditure

- Hospital redevelopments generate further local development activities as illustrated by:
  - The formation of a Tamworth Health precinct;
  - The observed and prospective uplift in business activities as measured by business counts and turnover within Wagga Wagga; and
  - The observed increase in businesses operating within the healthcare and social assistance industry and the prospective potential to expand the health precinct in Dubbo.

## HEALTHCARE SECTOR WORKFORCE IMPACTS

- The healthcare sector makes a noticeable contribution to the local economy, accounting for 10% of their respective workforces in Tamworth and Wagga, and 9.5% in Dubbo. Further, healthcare workers account for a high proportion of high wage jobs.
- In the Wagga Wagga case study, there is a noticeably large increase of 31% in healthcare jobs between 2011 and 2016, compared with a 12% gain between 2006 and 2011. This was similar in Dubbo which experienced an increase of 15% in healthcare jobs between 2011 and 2016, compared to 7% between 2006 and 2011. Tamworth also showed increased healthcare jobs growth in 2011-16 (16%) compared with 2006-11 (14%).
- The hospital redevelopments have helped to improve the ability to attract and retain medical and clinical staff.

## COMMUNITY AND LOCAL IMPACTS

- There are significant favourable impacts on the communities;
- The hospital redevelopments have contributed towards Tamworth, Wagga Wagga and Dubbo being viewed as an increasingly appealing place to live and work; and
- There is increasing community 'stickiness' due to the improved capacity, breadth and depth of health services within the region.

## ROLE OF HEALTHCARE IN POPULATION MOVEMENT

- Migration decisions have multiple drivers. It is difficult to be definitive about the extent to which a particular attribute of health is impacting on people's decision to move or leave an area; and
- In the Regional Wellbeing Survey for 2016, in terms of perception of the quality of local health services, Wagga Wagga fares well in comparison with other parts of rural and regional NSW and Australia. This is likely a reflection of the hospital redevelopment. Similarly, there is a perception that the quality of health services in Dubbo is good. This could further improve with the hospital redevelopment helping to attract more specialists to Dubbo.

## INDICATORS TO MONITOR

- RAI have collected baseline information and conducted trend analysis over historically observed indicators. There are a number of indicators worth tracking in regard to the ongoing impact that the hospitals and their redevelopment will have on the Tamworth, Wagga Wagga and Dubbo communities. Long-term trends will be especially important for assessing the impact of public health infrastructure investment on in and out migration and community liveability.

## CONCLUSIONS

The research has provided an evidence base about the economic impacts of hospital redevelopment.

The case study findings support:

- There is a strong connection between public and private investment in healthcare;
- Investment in public health infrastructure leads to flow on growth in health jobs (both in hospitals and other allied health services, and in public and private sectors); and

- Healthcare is a significant growth employment area across all skill and wage levels in Tamworth, Wagga Wagga and Dubbo and plays a key role in overall employment in both regional centres.

The connections between the redeveloped hospitals and their surrounding businesses demonstrate the presence of two regional health precincts that are maturing in depth and breadth of services which, in turn, can attract further private investment. Dubbo Hospital is currently still being redeveloped and thus impacts from it cannot be fully identified but the region has demonstrated similar connections with increasing business numbers and a greater variety of medical services being available to the community.

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## INTRODUCTION

Regional NSW produces one-third of the total NSW gross state product. The Healthcare and Social Assistance Industry is the largest employment sector in regional NSW, representing 15.6% of the region's workforce in May 2019 compared to 12.5% in 2014.

Local health districts provide vital public hospital and health services to around 2.8 million people living in regional and rural NSW. Of the \$2.89bn capital works program in 2019-20, more than \$1bn is allocated for capital infrastructure investment in rural and regional NSW.

In 2016, Health Infrastructure sponsored the Regional Australia Institute (RAI) to undertake a research project to develop evidence of the economic contribution of regional hospitals to their communities.

This report provides a summary of the key findings and outcomes of the research projects and two case studies. A detailed report was also prepared for each case study.

## RESEARCH OBJECTIVES

The research objectives are to:

- Identify and assess the socioeconomic impacts of health infrastructure investments in regional NSW; and
- Develop an evidence base to support capital project investment decisions and benefit reporting.

## SCOPE

The scope of the research project is based on a three-tiered approach:

1. Quantitative modelling of anticipated economic and employment impacts of capital investments and ongoing operational costs.
2. Development of baseline quantitative foundation indicators and subsequent bottom up assessment
  - Establish baseline profiles of key attributes for selected Local Government Areas (LGAs) with provision made for periodic updates to enable future tracking and assessment of capital investments.
3. Case studies to gain an in-depth understanding of community impacts covering:
  - Local relationships and characteristics of local health industry networks and capabilities;
  - The degree to which health infrastructure is a catalyst for regional economic development; and
  - An exploration of the links between public services and growth in the private health industry.

## METHODOLOGY AND APPROACH

### MULTIPLIER ANALYSIS

An Input-Output (I-O) or multiplier model is used to provide a range of industry sector ‘multipliers’ that capture the initial impact and induced effects associated with infrastructure projects.<sup>1</sup> A high level assessment of the economic impact of the two investment projects has been conducted using the Australian Urban Research Infrastructure Network’s (AURIN) Economic Impact Analysis Tool (EIAT). The two projects selected for assessment are Tamworth and Wagga Wagga. There are two components to the expected impact:

- The impact from construction and related activities generated by the capital investment (Construction Phase); and
- The ongoing impact resulting from the recurrent operation of the infrastructure asset (Operational Phase).

The metrics used to determine the impact are:

- Economic impact – An estimation of both the direct and indirect economic activity generated, as measured by Gross Regional Product (GRP); and
- Employment impact – An estimation of both the direct and indirect jobs supported, as measured by Full Time Equivalent (FTE) positions.

### LOCAL HEALTH DISTRICT INPUT AND CONSULTATION

The research and case studies were informed by valuable input obtained through consultation with the respective local health district of each capital investment project:

- Tamworth case study: Hunter New England Local Health District;
- Wagga Wagga case study: Murrumbidgee Local Health District; and
- Dubbo case study: Western NSW Local Health District.

### CASE STUDIES

To provide a deeper, qualitative and local perspective on the impact of each hospital redevelopment, a range of people with a particular interest in and knowledge of the hospital and the local health sector in general were interviewed. A structured question list was prepared for the Tamworth interviews and drawing on the experiences of Tamworth, similar questions were used in the Wagga Wagga and Dubbo interviews.

The outcomes of the case studies are detailed in subsequent sections.

### OTHER RESEARCH AND HYPOTHESES

In conjunction with the economic assessment and case studies, further assessments were made covering topics such as migration patterns, role of health businesses in local economy.

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<sup>1</sup> Multiplier or input-output analysis is concerned with simply measuring economic activity. It is not a substitute for benefit cost analysis (BCA), which estimates the economic, social and environmental costs and benefits of a project or program in monetary terms.

## DATA COLLECTION

Variables assessed in the two case studies comprised:

- Hospital redevelopment capital cost
- Hospital staffing and operating cost
- Local participation in construction and training
- Regional population
- Health sector employment and annual income
- Health industry business counts, by employment size and annual turnover.

The main data sources include HI, relevant Local Health Districts, construction contractors and the Australian Bureau of Statistics.

Other references include RAI's [In]Sight Competitiveness Index and the University of Canberra's Regional Wellbeing Survey.

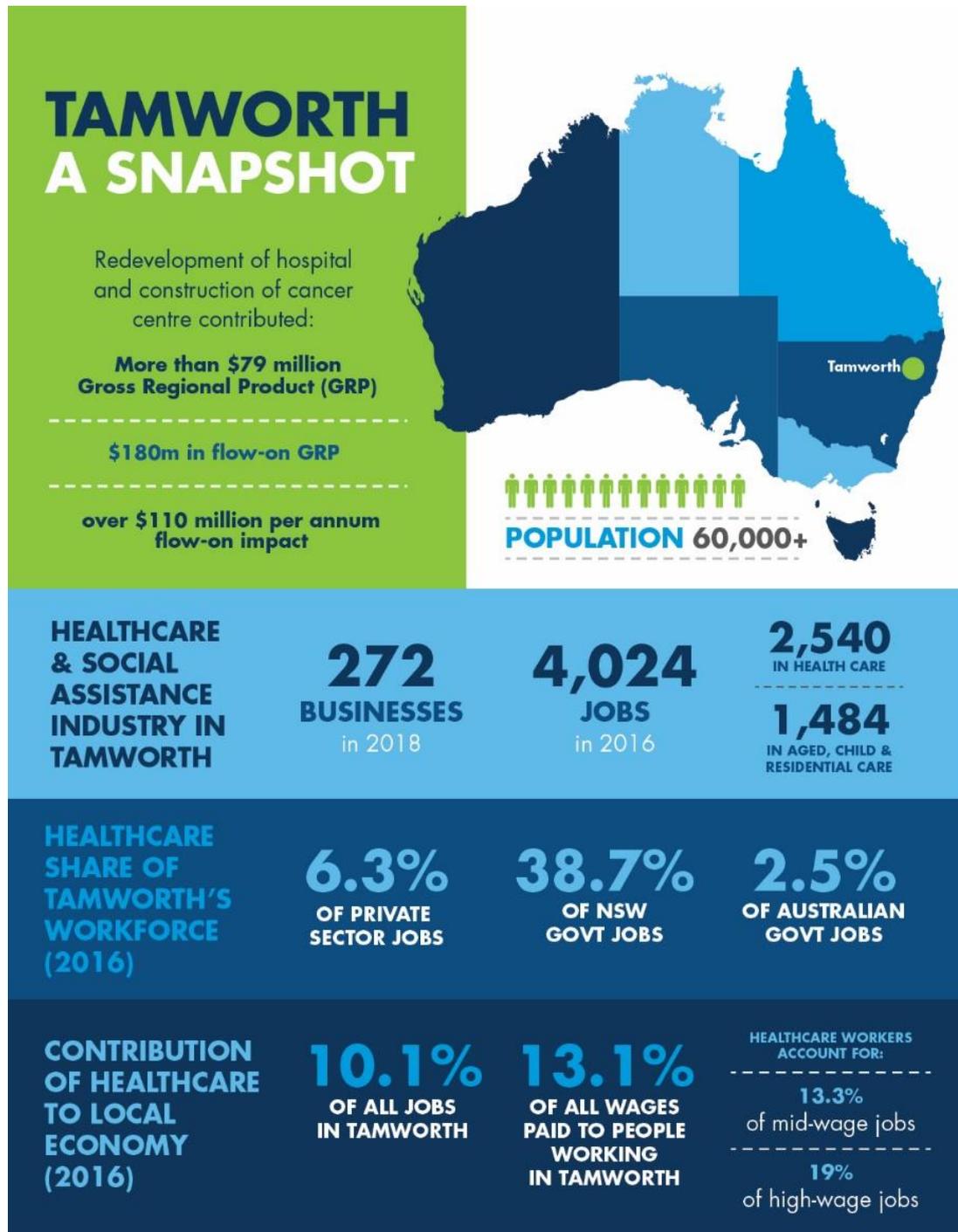
## OVERVIEW OF FINDINGS

The three case studies of Tamworth, Wagga Wagga and Dubbo illustrate that there is a strong connection between public and private investment in healthcare. An exploration of health employment data pre- and post-development shows that investment in public health infrastructure leads to flow on growth in health jobs, across public and private sectors and healthcare settings (with growth in employment observed in both hospitals and other service settings). For Dubbo, the redevelopment is still ongoing, but similar flow on growth in health jobs have already been experienced.

Moreover, compared with all other areas of employment, healthcare is a significant employer across skill and wage levels. With strong connections to surrounding businesses, the redeveloped hospitals are the core to these regional health precincts, both of which are maturing in depth and breadth of services, and may consequently attract further private investment in the future.

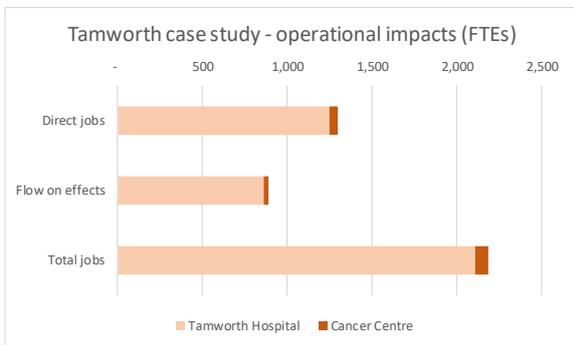
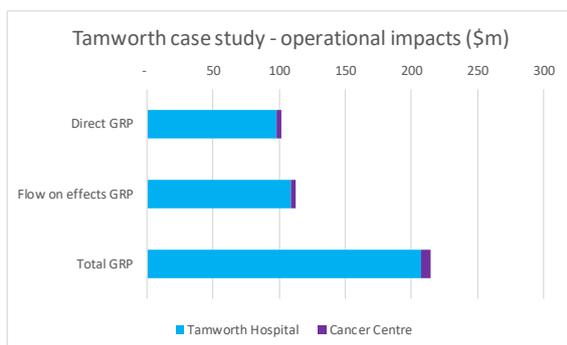
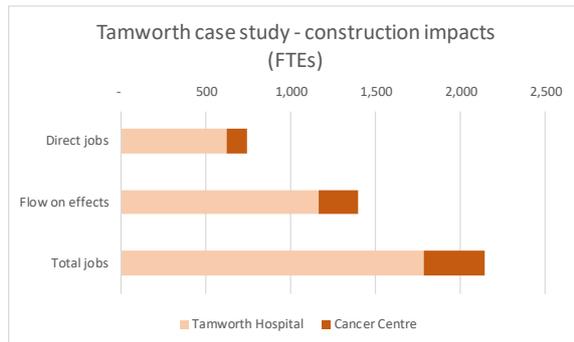
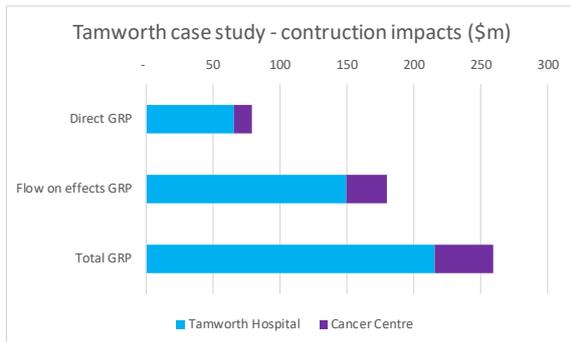
## CASE STUDY 1: TAMWORTH

The capital budget for the Tamworth Hospital Redevelopment Project was \$211m. The redevelopment has provided increased capacity and new facilities to enable the best patient care with the new Acute Services Building operational in July 2015. The redevelopment complements the \$41.7m New England North West Regional Cancer Centre which was completed in December 2012.



## TAMWORTH CASE STUDY ANALYSIS AND FINDINGS

### MULTIPLIER ECONOMIC IMPACTS



### LOCAL PARTICIPATION AND TRAINING

- Proportion of construction workers who were locals (who have a primary residence address within 100 km of the construction site): 43%
- Indigenous participation (proportion of total labour hours): > 5%
- Training and traineeships (proportion of total labour hour): > 20%

### TREND ANALYSIS

- Healthcare employment in Tamworth increased by a total of 354 jobs between 2011 and 2016, representing a 16% increase over the five years. The increase in the preceding five years (2006-2011) was 14% (274 jobs).
- In June 2018, there were 272 businesses operating in the Healthcare and Social Assistance industry. In terms of business counts, the trend from 2016 to 2017 was of a gradual increase in the number of businesses from 277 to 280 before decreasing slightly in 2018. This is a key indicator to watch in the future.

### LOCAL COMMUNITY IMPACTS

To gain a perspective on the local community impact, interviews were conducted with key stakeholders and leaders of the Tamworth community including council, health sector participants, the University of New England, as well as key Hospital executives. The key themes and benefits that emerged from the interviews were:

### 1. Improved healthcare capability and access:

- The redevelopment of the Tamworth Hospital and the construction of the Regional Cancer Centre has significantly improved the capability, breadth and depth of health services within the region. The developments have provided state of the art facilities, improving the region's capability to deliver high quality healthcare in a local setting.
- Post construction, the Tamworth Hospital has experienced an improvement in staff retention rates – an important driver of the facility's capability to provide health services to the community.
- The new development has enabled the hospital to change and streamline some of its operating procedures.
- The Regional Cancer Centre has provided access to a new cancer treatment service to the residents of Tamworth and surrounding regions. This has reduced the travel time and costs for patients who would have otherwise had to travel to Sydney, Newcastle or Brisbane.

### 2. Tamworth as a more attractive region to live and work:

- The new 'high-spec' hospital facilities have assisted in attracting and retaining medical specialists to live in the Tamworth region. Prior to the redevelopment, many specialists operated on a Fly-in, Fly-out (FIFO) basis.
- The redeveloped hospital and new cancer centre have acted as an 'attractor' for people to relocate to Tamworth, according to some interviews. In particular, interviewees noted that there has been an influx of exceptionally well qualified professionals to the region, many bringing their families with them.

### 3. Formation of a Tamworth health precinct:

- The Health industry is one of the eight pillars within Tamworth City Council's Economic Development Strategy – *Tamworth Tomorrow*. The Council's strategy recognises the links between the Health and Education pillars, noting that both industries play a role in the economic development of the town.
- The precinct surrounding the hospital is maturing in terms of depth and breadth of services, and is seeing considerable private investment, such as in allied health services.
- The hospital and the cancer centre developments have been a catalyst for changing the dynamics of North Tamworth. The area surrounding the campus are seen as attractive places to construct units, as well as aged care facilities. Council is looking at releasing remaining land parcels around the hospital and university for investment by residential aged care providers.

## INDICATORS TO MONITOR

Hypothesis	Areas of impact	Indicators	Source
Larger business cluster	Whether the hospital redevelopment continues to catalyse further private sector business growth in health	The extent and nature of the number of private businesses in the North Tamworth health precinct	ABS Counts of Australian Businesses
More health employment	Whether health sector employment increases with the improved health services across Tamworth	Data on public and private sector jobs	ABS Census of Population and Housing

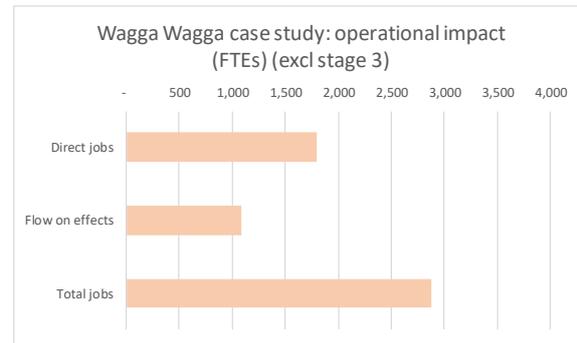
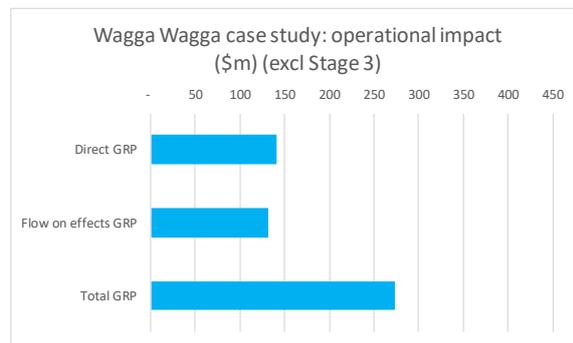
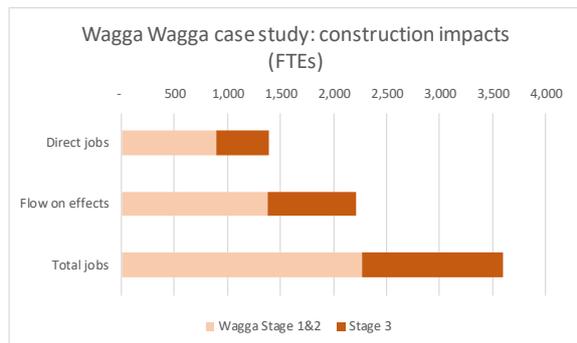
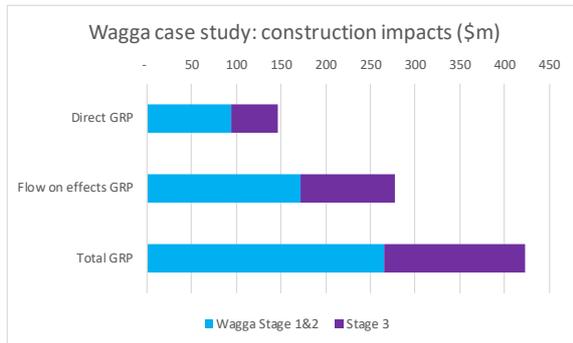
## CASE STUDY 2: WAGGA WAGGA

The Wagga Wagga Base Hospital Redevelopment is being delivered in three stages. The project budget for Stage 1 and 2 redevelopment is \$282 million and has been completed. The redevelopment and expansion has delivered first-class facilities, increasing the hospital's capacity and capability to help staff to continue to deliver a high standard of care. Stage 3, with a project budget of \$170m, will bring to fruition the overall Wagga Wagga Base Hospital Redevelopment for the delivery of contemporary and integrated health services. Additional car parking facilities (\$30m) will also be developed. Wagga Wagga is the largest health redevelopment completed in regional NSW to-date.



## WAGGA WAGGA CASE STUDY ANALYSIS AND FINDINGS

### MULTIPLIER ECONOMIC IMPACTS



### LOCAL PARTICIPATION AND TRAINING

- Proportion of construction workers who were locals (who have a primary residence address within 100 km of the construction site): 68% (72% when including people who relocated to Wagga Wagga for the duration of the project).
- Indigenous participation (proportion of total labour hours): 6.43%
- Apprentice hours: 58,676 – exceeding target
- Estimated total trade value procured from businesses in Wagga Wagga and the immediately surrounding regions: \$47.8m (42%)

### TREND ANALYSIS

- There was a noticeably large increase of 31% in healthcare jobs across public and private health sector between 2011 and 2016, compared with 12% during 2006 and 2011 pre hospital redevelopment.
- In terms of health industry business counts by turnover size, the number of businesses increased steadily from 2016 to 2018. Particularly between 2017 and 2018, the group of health businesses with turnover between \$0.5m and \$2m per annum has increased sharply.
- In terms of housing impacts, the strong market for units in Wagga Wagga may in part reflect the hospital's presence and the demand from hospital staff.
- Updated data from the Regional Wellbeing Survey for 2016 illustrates that in terms of perception of the quality of local health services, Wagga Wagga fares quite well in comparison with other parts of regional NSW and Australia.

## LOCAL COMMUNITY IMPACTS

Interviews were conducted with key hospital professionals/executives and community stakeholders.

Prominent themes and local benefits that emerged from the interviews were:

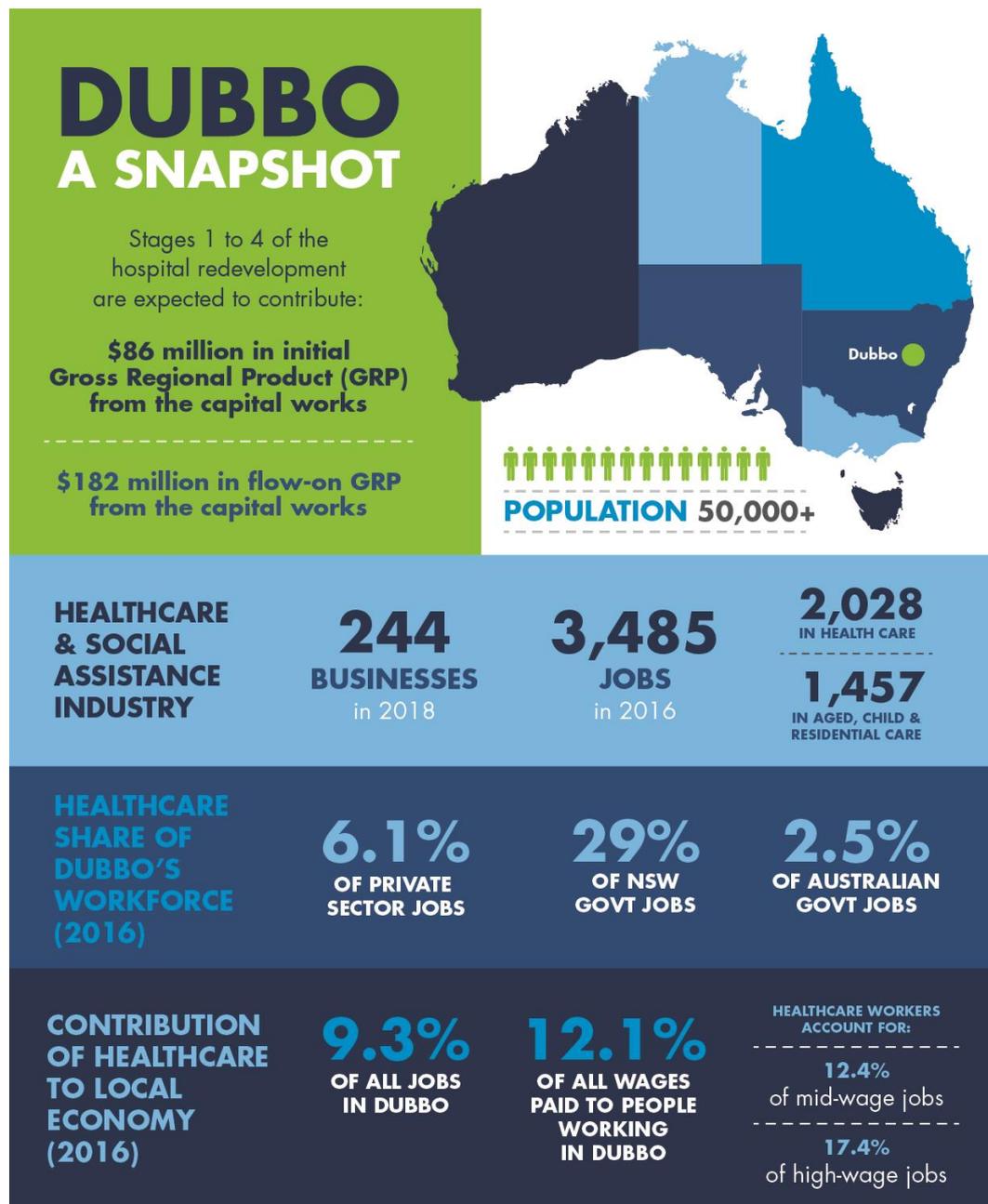
1. **Employment impacts and job growth – public and private sector:**
  - The redevelopment seems to have become a beacon for junior medical staff and psychiatric hospital staff. Many medical students have applied to stay in the Wagga region to complete their internship, which has not been the case in other regional locations.
  - Since the redevelopment of the hospital, there have been increases to employment in the private health sector. This demonstrates how public investment in health services is closely connected to private health sector jobs growth.
2. **Wagga Wagga as an increasingly appealing place to live and work:**
  - Local residents see the redeveloped Wagga Wagga Base Hospital as the centrepiece of a ‘world-class’ healthcare hub, bringing a sense of ‘pride’ in what the hospital will bring to Wagga Wagga in the future.
  - The redevelopments have heightened local perceptions of the city’s enhanced liveability, increased employment opportunities and potential for future growth.
  - The attractiveness of WWBH as a training setting for junior doctors has raised prospects that with the increased volume of students, there will be a greater likelihood that they will choose to live and work in Wagga Wagga post completion of their studies.
3. **Observed and prospective uplift in business activity within Wagga Wagga:**
  - Anecdotal evidence suggests that the redevelopment projects have had positive business impacts, particularly on local construction and construction related firms.
  - It is anticipated that there will be an increase in ancillary services located near the new healthcare facilities over time.
  - The redevelopments are expected to help drive accommodation demand within Wagga Wagga. There has been a 47% increase in the number of listings on Airbnb across the first half of 2017, and the Wagga Wagga Rules Club’s decision to construct a hotel was partly driven by the club’s proximity to the redeveloped WWBH.

## INDICATORS TO MONITOR

Hypothesis	Areas of impact	Indicators	Source
Larger treatment catchment	Whether the hospital redevelopment after completion of Stage 3 will show broadening of the number and range of patients referred to the hospital for treatment from local area and from surrounding regions	Type and spread of patients (by postcode) and activities	Local Health District
Increased hospital employment	Reassess the hospital employment after Stage 3 as to whether the redevelopment has increased attraction and retention of hospital staff	Hospital staffing level	Local Health District
Less outmigration	Whilst it is difficult to pinpoint the scale of health-driven outmigration, it is worth tracking whether the presence of new health facilities has any correlation with outmigration	Outmigration by age	Regional Wellbeing Study

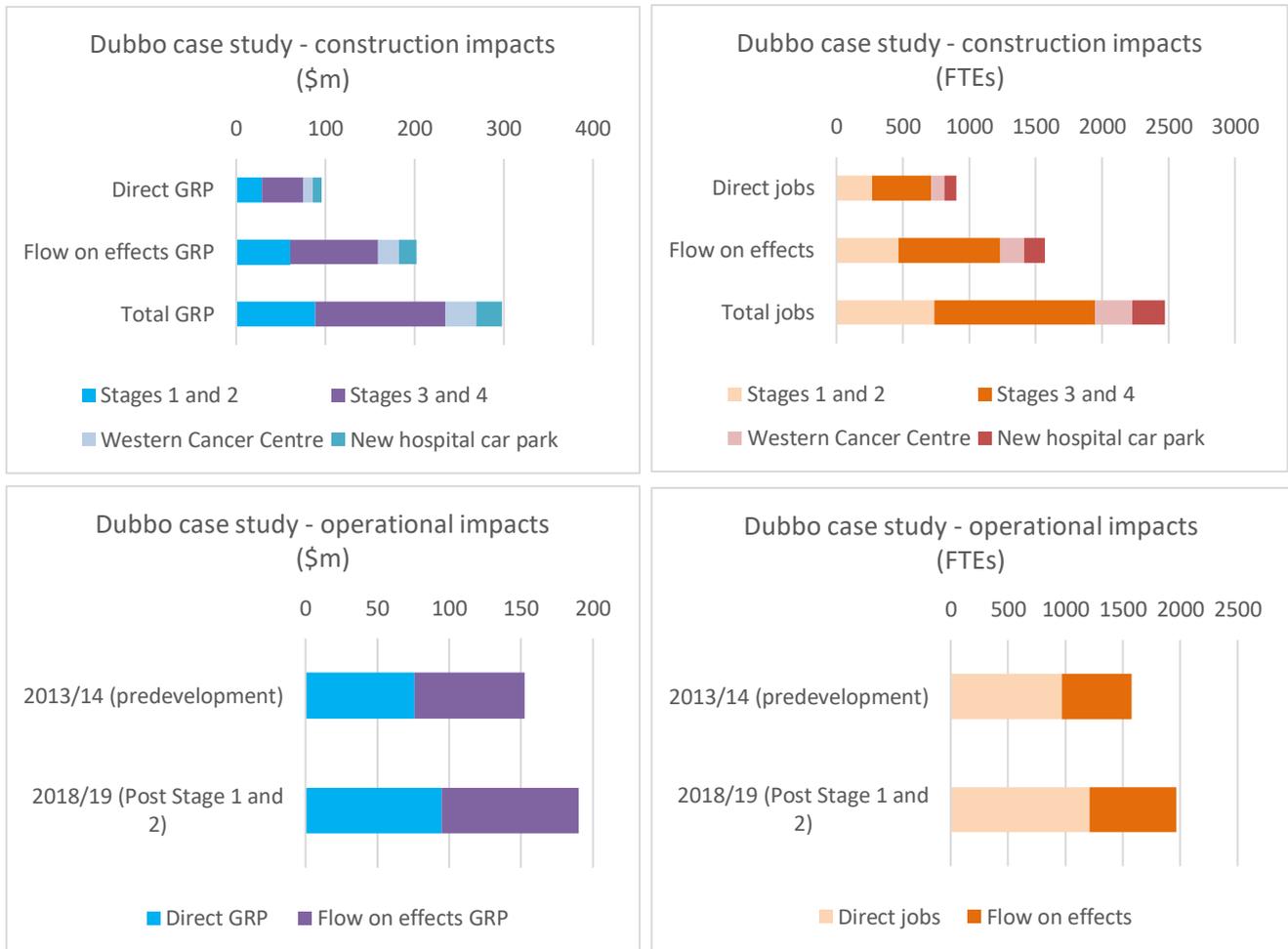
## CASE STUDY 3: DUBBO

The Dubbo Hospital redevelopment project is being delivered in four stages. The total investment is expected to be \$306.3m; \$91.3m has been dedicated to Stages 1 and 2 of the project and \$150m to Stages 3 and 4. The redevelopment is designed to expand and upgrade the facilities and services available to the people of Western NSW, ensuring the delivery of contemporary and integrated health services. In parallel with Stage 4, the \$35m Western Cancer Centre is being built to provide critical Oncology services closer to cancer patients. An additional \$30m for a new Dubbo Hospital car park has also been committed.



## DUBBO CASE STUDY ANALYSIS AND FINDINGS

### MULTIPLIER ECONOMIC IMPACTS



### LOCAL PARTICIPATION AND TRAINING

- Proportion of construction workers who were locals (based on postcode): 40%
- Indigenous participation has exceeded the contractual commitments for expenditure
- Training and traineeships for Stage 3 (proportion of total labour hours): 22%

### TREND ANALYSIS

- There was a noticeable increase of 15% in healthcare jobs across both the public and private health sector between 2011 and 2016.
- From 2016 to 2018, there was a notable increase in the number of healthcare and social assistance businesses from 211 to 244.
- In terms of health industry business counts by turnover size, the number of businesses increased over 2017 and 2018. The group of health businesses with turnover between \$100K and \$200K per annum increased the most.

- Updated data from the Regional Wellbeing Survey for 2016 illustrates that in terms of perception of the quality of local health services, Dubbo fares quite well in comparison with other parts of regional NSW and Australia, with the exception in areas such as mental health and specialist health services.

## LOCAL COMMUNITY IMPACTS

Interviews were conducted with key hospital professionals/executives and community stakeholders. Prominent themes and local benefits that emerged from the interviews were:

### 1. **Employment impacts:**

- The redevelopment has helped with the attraction of new specialists and nursing staff, which in turned has helped to support a wider range of medical services. Previously unavailable specialists are now available and the number of specialists such as oncologists have also increased.
- The filling of some jobs continue to be a challenge, particularly for higher level nursing and allied health positions.

### 2. **Dubbo as an increasingly attractive place to live and work:**

- The redevelopments have increased perceptions of the city's enhanced liveability, particularly in helping to attract other skilled professionals, due to employment opportunities and potential for future growth.
- It also signals that Dubbo is a place that is growing, with access to an increasing range of services and lifestyle amenities, while allowing for employment opportunities and career advancement.

### 3. **Important role in servicing the wider Western NSW region**

- The redevelopment of the hospital and particularly the Western Cancer Centre will provide easier access to a broader range of healthcare services to people in Dubbo and the wider Western NSW catchment, as they are now able to travel a shorter distance to receive treatment.
- This is critical as more than half of the patients travel from outside of Dubbo. Therefore, it is bringing recognition that Dubbo is expanding its ability to service a wider catchment.

### 4. **Observed and potential future business growth within Dubbo**

- The construction and construction-related industry has been the most positively impacted from the redevelopment so far.
- There are also spillover benefits to the local accommodation, air travel, food and local transport sectors.
- It is expected that the redevelopment will help attract new businesses as it provides a positive message and confidence to businesses for growth.
- It is also likely to help with greater expansion of a health precinct around the hospital, which would bring in more private investment.

## INDICATORS TO MONITOR

<b>Hypothesis</b>	<b>Areas of impact</b>	<b>Indicators</b>	<b>Source</b>
Larger treatment catchment	Whether the hospital redevelopment after completion of Stage 4, and particularly the Western Cancer Centre, will show broadening of the number and range of patients referred to the hospital for treatment from local area and from surrounding regions.	Type and spread of patients (by postcode) and activities.  Uptake rate of radiation treatment and number of PET scans	Local Health District
Increased hospital employment	Tracking the hospital employment after Stage 4 as to whether the redevelopment has increased attraction and retention of hospital staff, including specialists' numbers.	Hospital staffing level	Local Health District
Expanding health precinct and business growth	Whether hospital redevelopment catalyzes growth of private businesses in the health and social assistance industry located around the hospital or across Dubbo to create a health hub.	The extent and nature of the number of private businesses	ABS Counts of Australian Businesses
More in-migration	Although it is difficult to identify the scale of health-driven in-migration, it is worth tracking migration by age and occupation, as well as family characteristics to identify whether the presence of new health facilities has helped attract new residents.	In-migration by age, occupation and other family characteristics	Regional Wellbeing Study, ABS Census of Population and Housing ,and local demographic surveys