



## TWEED VALLEY HOSPITAL SOCIAL AND ECONOMIC IMPACT ASSESSMENT



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# TABLE OF CONTENTS

<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Project context	1
1.2 Consultancy objective	2
1.3 Method	4
1.4 Structure of report	4
1.5 Addressing SEARs	5
<b>2. CONTEXT</b>	<b>6</b>
2.1 Approach	6
2.2 Existing conditions and drivers for change	6
2.3 The Preferred Solution	22
<b>3. ESTIMATION OF IMPACTS</b>	<b>24</b>
3.1 Approach	24
3.2 Social impacts	26
3.3 Direct Economic Impacts	36
3.4 Indirect Economic Impacts (Wider Economic Benefits)	40
<b>4. SUMMARY OF IMPACTS</b>	<b>46</b>
4.1 Rationale	46
4.2 Net community benefit assessment	46
4.3 Distributional analysis	50
4.4 Conclusion	53
<b>LIST OF FIGURES</b>	
FIGURE 1: CURRENT AND NEW HOSPITAL SITE	2
FIGURE 2: TWEED HOSPITAL CATCHMENTS	3
FIGURE 3: AGE DISTRIBUTION, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	7
FIGURE 4: PERSONAL WEEKLY INCOME, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	7
FIGURE 5: CORE ACTIVITY NEED FOR ASSISTANCE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	9
FIGURE 6: INSUFFICIENT PHYSICAL ACTIVITY, PERSONS AGED 16 YEARS AND OVER, NORTHERN NSW AND NSW, 2002 TO 2017	10
FIGURE 7: HIGH BODY MASS ATTRIBUTABLE HOSPITALISATIONS, NORTHERN NSW AND NSW, 2010-11 TO 2014-15	11
FIGURE 8: METHAMPHETAMINE-RELATED HOSPITALISATIONS, PERSONS AGED 16 YEARS AND OVER, NORTHERN NSW AND NSW, 2009-10 TO 2016-17	12

FIGURE 9: ALCOHOL ATTRIBUTABLE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2014-15	12
FIGURE 10: SMOKING ATTRIBUTABLE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2013-14	13
FIGURE 11: CORONARY HEART DISEASE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2016-17	14
FIGURE 12: NEW CANCER CASES BY SEX, NSW, 1987 TO 2014	14
FIGURE 13: MELANOMA OF THE SKIN NEW CASES BY SEX, NSW, 1987 TO 2014.	15
FIGURE 14: CIRCULATORY DISEASE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2016-17	15
FIGURE 15: DIABETES AS A PRINCIPAL DIAGNOSIS FOR HOSPITALISATION, NORTHERN NSW AND NSW, 2010-11 TO 2016-17	16
FIGURE 16: FALL RELATED INJURY HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17	16
FIGURE 17: INFLUENZA AND PNEUMONIA HOSPITALISATIONS BY AGE CATGEORY, NORTHERN NSW AND NSW, 2001-02 TO 2015-16	17
FIGURE 18: TOTAL RESPIRATORY HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17	17
FIGURE 19: HOSPITALISATIONS ATTRIBUTABLE TO STROKE, NORTHERN NSW AND NSW, 2001- 02 2016 - 17	18
FIGURE 20: INTENTIONAL SELF-HARM HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17	18
FIGURE 21: SELF REPORTED LEVELS OF HIGH OR VERY HIGH PSYCHOLOGICAL DISTRESS, PERSONS AGED 16 AND OVER, NORTHERN NSW AND NSW, 2003 TO 2017	19
FIGURE 22: POPULATION PROJECTIONS BY AGE GROUP: 2011- 2036- LOCAL CATCHMENT	20
FIGURE 23: HOSPITALISATIONS FROM ALL CAUSES (RATE PER 100,000 POPULATION) NORTHERN NSW AND NSW, 2001-02 TO 2016-17	20
FIGURE 24: TWEED HOSPITAL CATCHMENTS	22

## LIST OF TABLES

TABLE 1: ADDRESSING OF SEARS	5
TABLE 2: INDEX OF RELATIVE SOCIO-ECONOMIC ADVANTAGE (IRSAD) DECILES BY LOCAL CATCHMENT AND NORTHERN NSW LGA, 2016, BY POPULATION	8
TABLE 3: HIGHEST EDUCATIONAL ATTAINMENT LEVEL, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	8
TABLE 4: UNEMPLOYMENT RATE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	9
TABLE 5: ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016	10
TABLE 6: POPULATION PROJECTIONS: 2011- 2036	19
TABLE 7: IDENTIFICATION OF SOCIAL AND ECONOMIC IMPACTS	25
TABLE 8: EMPLOYMENT DURING CONSTRUCTION AND OPERATION (FTE)	42
TABLE 9: REGIONAL GROSS VALUE ADDED (2018 \$MILLION)	43
TABLE 10: REGIONAL OUTPUT DURING CONSTRUCTION AND OPERATION PHASE (2018 \$MILLION)	44
TABLE 11: STAGE 1 (CONCEPT DEVELOPMENT & EARLY WORKS) SUMMARY OF NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, WITH STRENGTH OF IMPACT AND MITIGATION MEASURES FOR NEGATIVE IMPACTS	47

TABLE 12: STAGE 2 (DETAILED DESIGN, CONSTRUCTION & OPERATION) SUMMARY OF NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, WITH STRENGTH OF IMPACT AND MITIGATION MEASURES FOR NEGATIVE IMPACTS	48
TABLE 13: NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, DISTRIBUTIONAL ASSESSMENT (STAGES 1 & 2)	50
TABLE 14: TWEED TOWN CENTRE AND KINGSCLIFF - LOCALLY SPECIFIC IMPACTS ONLY (STAGES 1 & 2)	51
TABLE 15: SPECIFIC LOCAL GROUPS LIKELY TO BE IMPACTED BY TWEED HOSPITAL	52

# 1. INTRODUCTION

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## 1.1 Project context

Providing quality healthcare and cutting waiting times for planned surgeries is a priority for the New South Wales State Government as stated under the NSW *Premier's Priorities*. Health infrastructure – and specifically hospitals – are critical to achieving that aim in the Tweed and Byron Local Government Areas, where a significant growth in demand for services has necessitated a substantial increase in the capacity of the Tweed Valley Hospital<sup>1</sup>.

In response, the Northern NSW Local Health District (NNSW LHD) undertook a number of studies between 2012 and 2017 to understand how best to grow capacity at Tweed Valley Hospital. The studies ultimately concluded that Tweed Valley Hospital is at capacity and the current four hectare site will be insufficient to facilitate an expansion of the hospital through redevelopment. A relocation was also identified as required given the existing site in the Tweed Town Centre is constrained.

In 2017 an Investment Decision Template (IDT) was prepared by NSW Health Infrastructure (HI) which identified and proposed the construction of a new hospital facility on a greenfield site to meet service demand growth. In March 2018, a business case was prepared by Northern NSW Local Health District (LHD) and NSW Health Infrastructure to identify and confirm the specifics of reconfiguration, expansion, enhancement and consolidation of services at the proposed new facility in Kingscliff<sup>2</sup>.

The location of the Project Site in Kingscliff relative to the location of the old/existing site in Tweed Town Centre shown in the map below.

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<sup>1</sup> The Tweed Hospital is a Level 5 Major Non-Metropolitan Principal Referral Hospital of the Northern NSW Local Health district (NNSW LHD). The other hospitals of significance in this district are the Murwillumbah District Hospital (MDH) and the Byron Central Hospital (BCH) - both are Level 3 Hospitals. The majority of specialist medical and surgical services are provided at the Level 5 Tweed Valley Hospital.

<sup>2</sup> This is a preliminary business case which presents an initial assessment of the project and identifies a preferred solution.

FIGURE 1: CURRENT AND NEW HOSPITAL SITE



## 1.2 Consultancy objective

### Proposal

In order to deliver on the expansion and relocation of Tweed Valley Hospital, NNSW LHD and Health Infrastructure are required to submit a State Significant Development (SSD) application to NSW Department of Planning and Environment which includes the preparation of a Social and Environment Impact Assessment (SEIA) – this report.

This SEIA has been prepared to support rezoning of the Project Site and the SSD application for the hospital.

The proposal will also include a staged SSD application for a concept development application. There will be a detailed proposal for preliminary works and for detailed design, construction and operation subsequent to those preliminary works. These are defined by the following stages:

Stage 1: Concept development application and early and enabling works

Stage 2: Detailed design, construction and operation of Tweed Valley Hospital

**The Development Application, and this SEIA focuses on Stage 1. This comprises both the early enabling works and the concept development of the Project.** A separate Development Application will accompany Stage 2.

## This report

The objective of this SEIA is to identify and evaluate the extent of economic and social impacts which will result from the development of the new Tweed Valley Hospital. The evaluation is required by Health Infrastructure to accord with the NSW Department of Planning and Environment's planning approvals process as part of Health Infrastructure's submission.

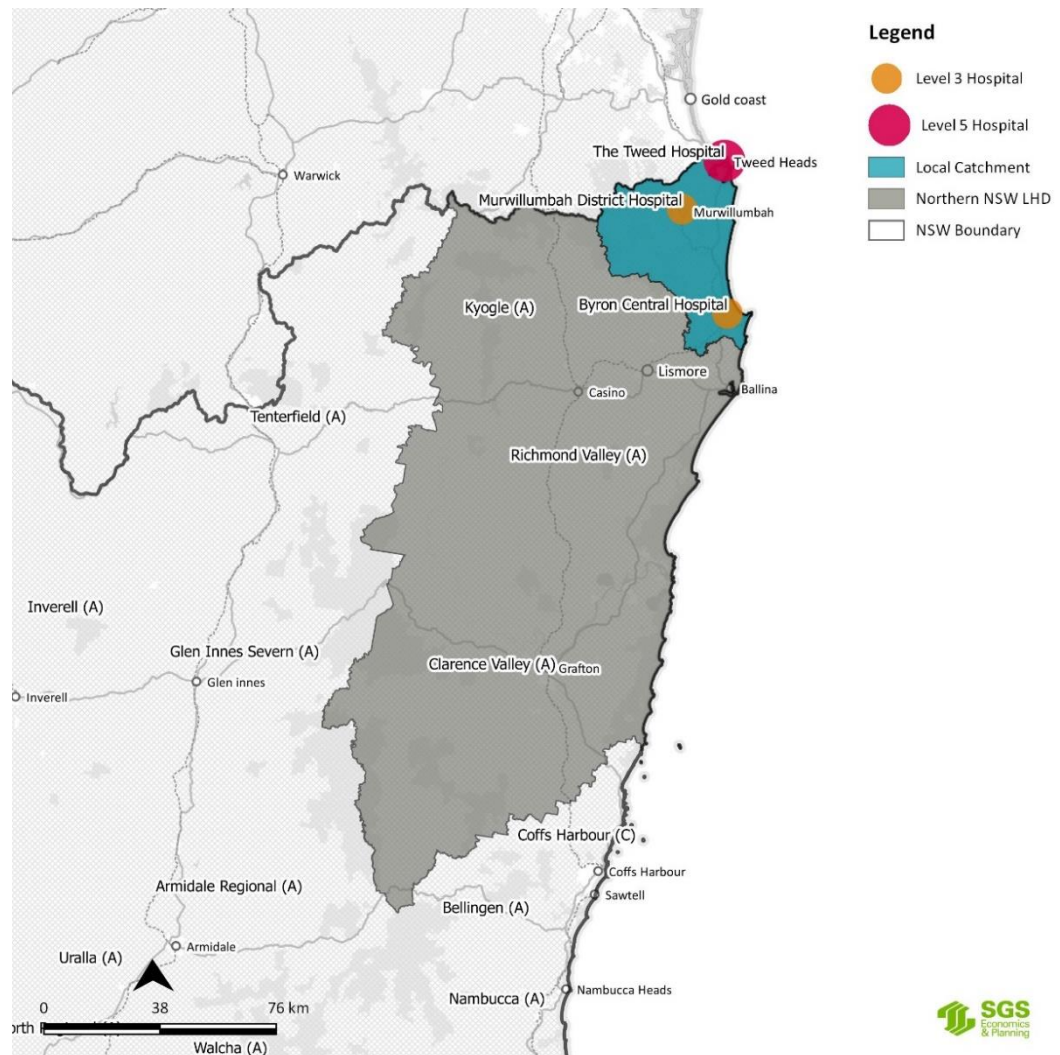
As outlined under the project brief of June 15 2018 issued by TSA Management, this evaluation will support the Health Infrastructure planning submission through:

- *"Reviewing the identified and perceived impacts that may face the community.*
- *Evaluating the socio-economic impacts (both positive and negative)*
- *Assessing the significance of the socio-economic impacts"*

- Project brief

The focus of this analysis is on the teal shaded 'local catchment' in Figure 2. This area encompasses the Tweed and Byron Shire Local Government Areas (LGAs) and is the official geographic catchment of the Tweed Valley Hospital as identified by the NNSW LHD.

FIGURE 2: TWEED HOSPITAL CATCHMENTS



Source: SGS Economics and Planning



### 1.3 Method

SGS has employed a range of methods in its evaluation and assessment of social and economic impacts, including:

1. Reviewing background materials to define the key issues
2. Profiling the local catchment to understand the socio-economic context of the local region
3. Linking that contextual understanding in (1) and (2) to the core purpose of the hospital redevelopment and relocation as articulated under the Tweed Valley Hospital Project Business Case document.
4. A Social Impact Assessment (SIA) which assesses the extent to which the proposed expansion and relocation of the hospital addresses a range of issues in this community, including health, amenity and access to services as defined under the catchment profile (2).
5. An Economic Impact Assessment (EIA) which presents direct employment and economic impacts, as well as calculating the wider economic effects on output, value added and employment through the use of an Input-Output (IO) Model.
6. Identification and assessment of positive and negative externalities which are likely to result from the relocation and expansion of the hospital facility.

The Social and Economic Impact Assessment is guided by the principles outlined in the *Social Impact Assessment Guideline (IAIA, 2015)*, as relevant to the specifics of the Tweed Valley Hospital project. The SEIA outlines the issues pertaining to the function of the hospital in the Tweed Valley Catchment, considers and assesses the impacts that elements of the project or process will have and, where applicable, provides mitigation recommendations or links to other studies that provide mitigation procedures.

The IAIA guidelines note the role of community engagement through 'participatory processes' (p8). As part of the wider Tweed Valley Hospital project, significant stakeholder and community consultation has been undertaken. This is detailed in the *Tweed Valley Hospital Project Stakeholder and Community Consultation Report* undertaken by Elton Consulting, which estimates that 300 external stakeholders were reached through 360 events. These included landowners.

**It is noted that updates to these impacts may need to be made at the response to submissions stage.**

### 1.4 Structure of report

The remainder of this report is structured as follows:

**Chapter 2** provides the contextual framework and community profile which describes key characteristics in this local catchment and how the expanded and relocated facility addresses those needs.

**Chapter 3** then identifies social and economic impacts, evaluates the nature of those impacts and assesses the significance they are likely to have on the community.

**Chapter 4** summarises those impacts and considers them holistically in terms of net benefit to the community, as well as the distributional outcomes of those impacts across NSW. The identified impacts are identified as either the early and enabling works or the Concept Development phase of Stage 1 to provide clarity on whether they occur.

## 1.5 Addressing SEARs

The Planning Secretary's Environmental Assessment Requirements (SEARs) that pertain to the Tweed Valley Hospital Project require a number of actions to be addressed. Table 1 identifies these requirements and where they are addressed in the SEIA and elsewhere. The SEIA addresses the SEARs identified under the 'Concept Proposal' heading.

TABLE 1: ADDRESSING OF SEARS (CONCEPT PROPOSAL)

SEARS action	Relevant SEIA section
An assessment of all the likely social and economic consequences of the hospital relative location, including the benefits the hospital would provide to the local region. The assessment should include (but not limited to) the following:	
<ul style="list-style-type: none"> <li>identification of all potential and perceived social and economic impacts and risks associated with the concept proposal, Stage 1 works and future use</li> <li>identification of all potential and perceived impacts of the proposed development on the agricultural communities, resources and enterprises surrounding the site</li> <li>consideration of all potential and perceived impacts of the proposal on agricultural productivity and land capability on the site and in relation to adjoining and nearby sites</li> <li>all potential and perceived noise and visual impacts during demolition and construction works</li> </ul>	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> </ul>
<ul style="list-style-type: none"> <li>Identification of the affected individual and groups during demolition and future construction works, including the users/occupiers of the surrounding properties</li> </ul>	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> <li>Addressed in a Land Use Conflict Risk Assessment (LUCRA) report (Section 7.3 of the EIA)</li> <li>SEIA Chapters 3 and 4</li> <li>Addressed in a Land Use Conflict Risk Assessment (LUCRA) report (Section 7.3 of the EIA)</li> <li>SEIA Chapters 3 and 4</li> <li>Addressed in Built Form and Urban Design report (section 7.4 of EIA)</li> <li>Addressed in Visual Impact and Amenity report (Section 7.7 of EIA)</li> <li>Addressed in Traffic, Access and Parking report (section 7.8 of EIA)</li> <li>SEIA Chapters 3 and 4</li> <li>Addressed in a Land Use Conflict Risk Assessment (LUCRA) report (Section 7.3 of the EIA)</li> <li>Addressed in Built Form and Urban Design report (section 7.4 of EIA)</li> <li>Addressed in Visual Impact and Amenity report (Section 7.7 of EIA)</li> <li>Addressed in Traffic, Access and Parking report (section 7.8 of EIA)</li> </ul>
<ul style="list-style-type: none"> <li>identification of the affected individual and groups who will be impacted by the future operation, including the users/occupiers of the surrounding properties</li> </ul>	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> <li>Addressed in a Land Use Conflict Risk Assessment (LUCRA) report (Section 7.3 of the EIA)</li> <li>Addressed in Built Form and Urban Design report (section 7.4 of EIA)</li> <li>Addressed in Visual Impact and Amenity report (Section 7.7 of EIA)</li> </ul>
<ul style="list-style-type: none"> <li>proposed mitigation measures to reduce the identified risks in the social and economic assessment. Impact of the proposed activities on the local community including consideration of local planning and consultation findings</li> </ul>	<ul style="list-style-type: none"> <li>Addressed in Traffic, Access and Parking report (section 7.8 of EIA)</li> <li>SEIA Chapter 4</li> <li>Referenced in EIA Section 7.26.5 and Chapter 8</li> </ul>
Outline future opportunities to deliver wider health related community or private activities and facilities within the site.	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> </ul>
Identify Crime Prevention through Environmental Design principles that will be considered in relation to the future development, including considerations of the location of the nearby transport node, school, TAFE and swimming pool.	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> <li>Addressed in section 7.5 of EIA)</li> </ul>
Outline all potential and perceived social and economic impacts on the development on the wider area, including particular impacts on the Tweed Heads City Centre and the adjacent farmland enterprises as a result of the relocation of the existing hospital services.	<ul style="list-style-type: none"> <li>SEIA Chapters 3 and 4</li> </ul>

## 2. CONTEXT

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The Tweed Valley Hospital addresses a specific, identifiable need for increased provision of health services in the local community. Existing and future trends in the catchment of this hospital indicate there are a range of benefits which a greenfield hospital facility can deliver to the region. The extent and nature of these trends are explored in this chapter, along with analysis of how the new hospital will expand services in response to these evolving needs.

### 2.1 Approach

A review of socio-economic, health and illness trends in the local catchment has been undertaken to gain a contextual understanding of the main issues in this catchment when it comes to the health and wellbeing of the local community (Section 2.2).

Section 2.3 then explores some of the challenges in addressing these issues and how the relocated and expanded hospital is intended to assist.

### 2.2 Existing conditions and drivers for change

The demand for health services in particular locations is influenced by a number of determinants. The first are social factors that have known linkages to health outcomes, including (but not limited to) age, income, level of socio economic disadvantage, educational attainment level, status of employment, disability, and aboriginal heritage.

The second range of determinants are lifestyle risk factors that continue to increase the need for healthcare services. These include poor levels of physical activity, rates of obesity, drug and alcohol misuse and rates of smoking.

Linked to these determinants are the observed rates of chronic disease and illness, including rates of cancer (particularly melanoma in NSW), coronary heart disease, cardiovascular disease, diabetes, falls, influenza and pneumonia, mental health (through rates of self-harm and self-reported levels of psychological distress), respiratory disease and stroke.

#### Social determinants of health

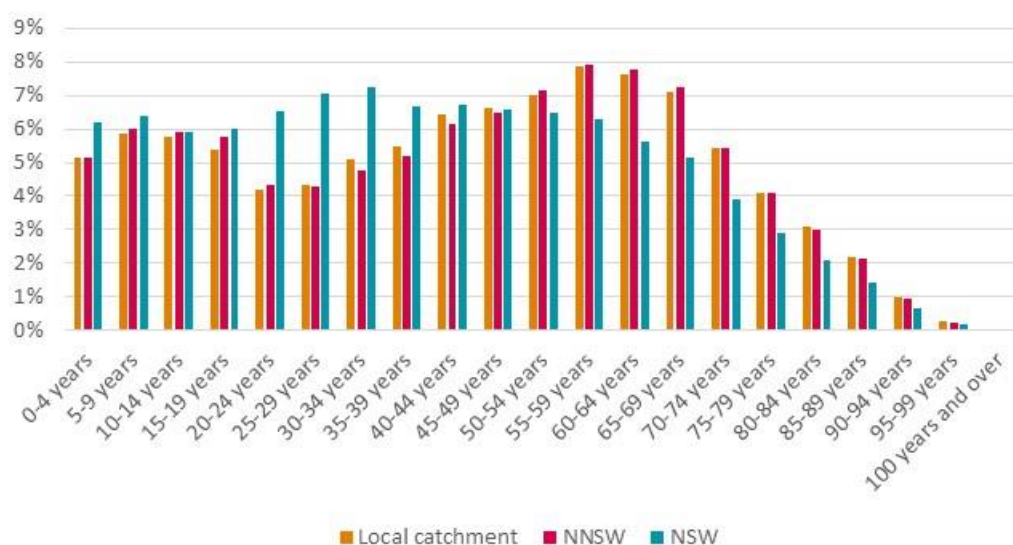
##### Age

Particular age groups traditionally utilise health services much more frequently, namely those who are very young (ages 0-4), and those who are over 65. Figure 3 represents the age distribution in the Local catchment, Northern NSW and NSW<sup>3</sup> by five year groups. For both the local and Northern NSW catchments, the figure depicts an ageing population, with the bulk of the population between 40-44 years to 65-69 years with the peak being 55-59 years. There is also a significant younger population in the local catchment and Northern NSW. Conversely, the largest age groups in NSW are 25-29 and 30-34 years. There is quite a significant hollowing out of people aged 20 – 39 years in both the local and Northern NSW catchments. This has implications for the health system (and young workforce) supporting the older demographic and significant child population.

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<sup>3</sup> In this report, where the term 'NSW' is used in isolation, this refers to the entire State of NSW in totality.

FIGURE 3: AGE DISTRIBUTION, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016

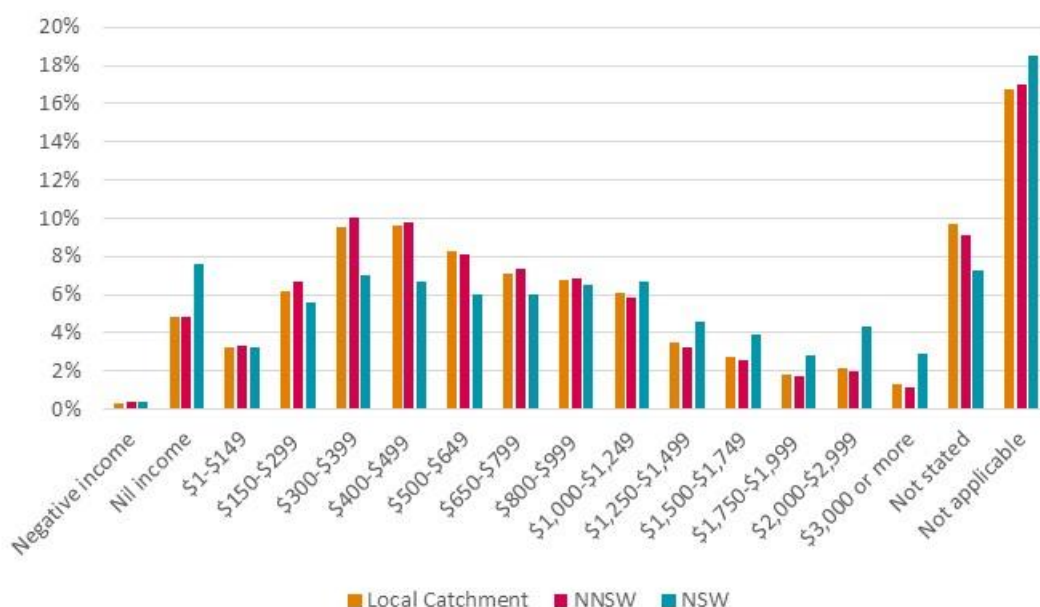


Source: ABS Census Data (2016), Age distribution by 5 year groups, place of usual residence

### Weekly income

A low personal weekly income limits the amount of money an individual has to spend on their and their personal and family's health and wellbeing (including good nutrition, and access to and the financial viability of health care services). Income can therefore be seen as an influencer of health service utilisation (both public and private). Figure 4 shows the personal weekly income of the local catchment area, Northern NSW and NSW. The catchment areas have a considerable proportion in the lower income brackets in comparison to NSW. The differences are most acute within the \$300 - \$399, \$400 - \$499, \$500 - \$649 and \$650 - \$799 income brackets.

FIGURE 4: PERSONAL WEEKLY INCOME, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016



Source: ABS Census Data (2016), Personal Weekly Income, place of usual residence

## Socio Economic Disadvantage

Similar to personal weekly income, an individual's relative socio-economic circumstance will also affect a person's financial ability to maintain their personal and family's health and wellbeing. Table 2 depicts the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) Deciles for the local government areas within Northern NSW. It indicates that socio-economic disadvantage is marked in Northern NSW, with severe pockets of disadvantage. A score of 1 signifies the most socio-economically disadvantaged areas and a score of 10 signifies the most advantaged. Of the seven LGAs in Northern NSW, six scored five or under. Of these six, Clarence Valley, Kyogle and Richmond Valley were ranked most disadvantaged and Lismore was ranked second most disadvantaged. The Tweed and Byron LGAs have IRSAD scores of three and six respectively, indicating disparity of disadvantage within the Tweed Hospital's local catchment.

TABLE 2: INDEX OF RELATIVE SOCIO-ECONOMIC ADVANTAGE (IRSAD) DECILES BY LOCAL CATCHMENT AND NORTHERN NSW LGA, 2016, BY POPULATION

IRSAD Deciles	Local Government Areas within Northern NSW (Data by Population)						
	Ballina	Byron	Clarence Valley	Kyogle	Lismore	Richmond Valley	Tweed
Decile 1	0	0	50,670	8,939	0	22,805	0
Decile 2	0	0	0	0	43,134	0	0
Decile 3	0	0	0	0	0	0	91,374
Decile 4	0	0	0	0	0	0	0
Decile 5	41,786	0	0	0	0	0	0
Decile 6	0	31,556	0	0	0	0	0
Decile 7	0	0	0	0	0	0	0
Decile 8	0	0	0	0	0	0	0
Decile 9	0	0	0	0	0	0	0
Decile 10	0	0	0	0	0	0	0

Source: ABS Census Data (2016), Index of Relative Socio-economic advantage, place of usual residence

## Educational Attainment Level

A person's educational attainment level has linkages to the amount of income an individual can expect to receive over their lifetime and consequently influences a person's ability to maintain their personal and family's health and wellbeing. A low level of education is also linked to choices and behaviours around good nutrition<sup>4</sup>. As Table 3 highlights, the local catchment and Northern NSW have lower levels of the resident population reaching educational levels of year 12 and above, and higher rates of the population attaining year 9 to 11 years of education compared to NSW.

TABLE 3: HIGHEST EDUCATIONAL ATTAINMENT LEVEL, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016

	Year 12 and above (up to higher doctorate)		Year 9 to Year 11 (including Cert 1 and 11)		Year 8 or below		No educational attainment		Not applicable		Total Population
	No.	%	No.	%	No.	%	No.	%	No.	%	
Local Catchment	57,616	47%	23,602	19%	3,642	3%	211	0.2%	20,609	17%	122,930
NNSW	129,188	44%	60,881	21%	10,485	4%	544	0.2%	49,388	17%	290,268
NSW	3,797,558	51%	1,189,382	16%	235,246	3%	54,870	0.7%	1,386,336	18%	7,480,230

Source: ABS Census Data (2016), Level of Educational Attainment, place of usual residence

<sup>4</sup> Monsiavais and Drewnowski (2009) Journal of the American Dietetic Association, Volume 109, Issue 5, Pp. 814- 822

## Unemployment

High unemployment can be linked to poorer health outcomes due to a person's reduced ability to finance their own and their family's health and wellbeing. Table 4 shows the unemployment rate of the wider catchment area and NSW, highlighting a higher unemployment rate for the local catchment and Northern NSW compared to NSW.

TABLE 4: UNEMPLOYMENT RATE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016

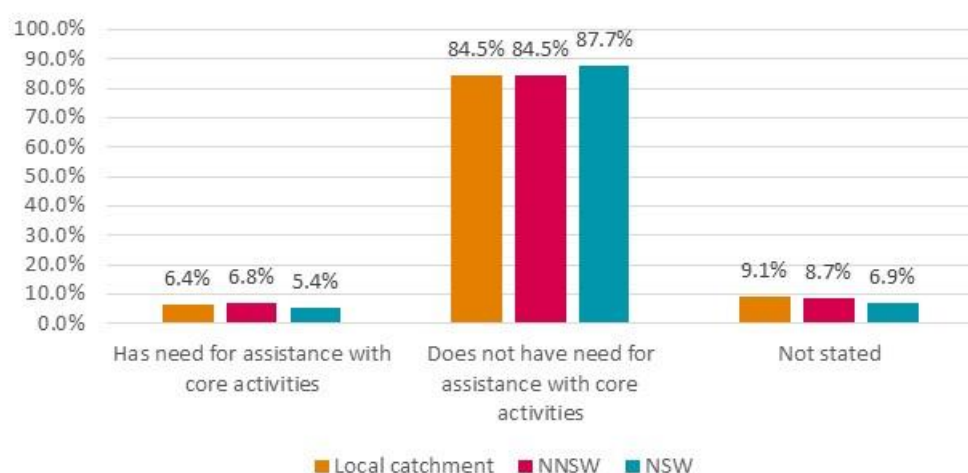
Area	Workforce	Unemployed	Rate
Local Catchment	49,289	3,662	7.4%
Northern NSW	113,984	9,017	7.9%
NSW	3,380,336	225,552	6.7%

Source: ABS Census Data (2016), Level of Employment, place of usual residence

## Profound or Severe Disabilities

An individual with profound or severe disabilities may experience poor health outcomes as a result of their disability. Their disability may also limit the extent to which they can be employed, thus having an impact on an individual's ability finance their own and their family's health and wellbeing. Figure 5 outlines the percentage of the population across the three areas who have a need for assistance with core activities, a variable developed by the ABS to measure the number of people with a profound or severe disability. The data shows only a slightly higher percentage of people with a need for assistance for core activities within the local and Northern NSW catchment than NSW.

FIGURE 5: CORE ACTIVITY NEED FOR ASSISTANCE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016



Source: ABS Census Data (2016), Core Activity Need for Assistance, place of usual residence

## Aboriginal and Torres Strait Islander Status

It is well established that on average, Aboriginal and Torres Strait Islander people have poorer health outcomes across a myriad of categories than non-Aboriginal people in Australia. Table 5 shows that there is a higher percentage of the population with Aboriginal heritage in the Northern NSW population compared to both the local catchment and wider NSW.

TABLE 5: ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE, LOCAL CATCHMENT, NORTHERN NSW AND NSW, 2016

INGP Indigenous Status	Local catchment		NNSW		NSW	
	No.	%	No.	%	No.	%
Non-Indigenous	108,582	88.3%	254,900	87.8%	6,826,288	91.3%
Aboriginal	3,547	2.9%	11,918	4.1%	207,256	2.8%
Torres Strait Islander	301	0.2%	517	0.2%	4,842	0.1%
Both Aboriginal and Torres Strait Islander	346	0.3%	522	0.2%	4,083	0.1%
Not stated	10,154	8.3%	22,410	7.7%	437,765	5.9%
<b>Total</b>	<b>122,930</b>	<b>100.0%</b>	<b>290,268</b>	<b>100.0%</b>	<b>7,480,230</b>	<b>100.0%</b>

Source: ABS Census Data (2016), Indigenous Status, place of usual residence

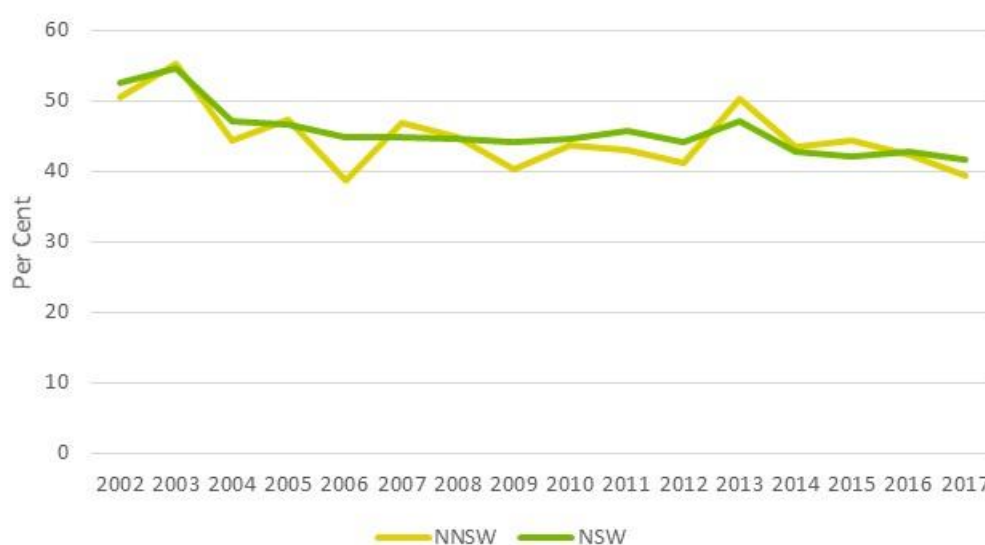
### Lifestyle risk factors

Lifestyle risk factors have implications for the long term health of the population. Correspondingly, increased prevalence of lifestyle risk factors have implications on the utilisation rates of various forms of health care. Where possible, lifestyle risk factor attributable hospitalisations have been presented due to their relevance to this impact assessment. Where there are strong divergences between male and females, trends by sex have also been shown.

### Levels of physical activity and obesity

Insufficient levels of physical activity can result in poor health outcomes, including those associated with being overweight or obese (such as heart and kidney issues and diabetes). Figure 6 depicts the insufficient physical activity rates in Northern NSW (NNSW) and NSW. Since 2002, insufficient activity rates have declined in both NNSW and NSW (thus indicating an increase in activity levels in the population aged 16 and over). In 2017, there was little disparity between the two regions, with NNSW registering 39.4 per cent and NSW 41.6 per cent respectively. Both regions have experienced a decline in insufficient physical activity by just under 11 per cent since 2002.

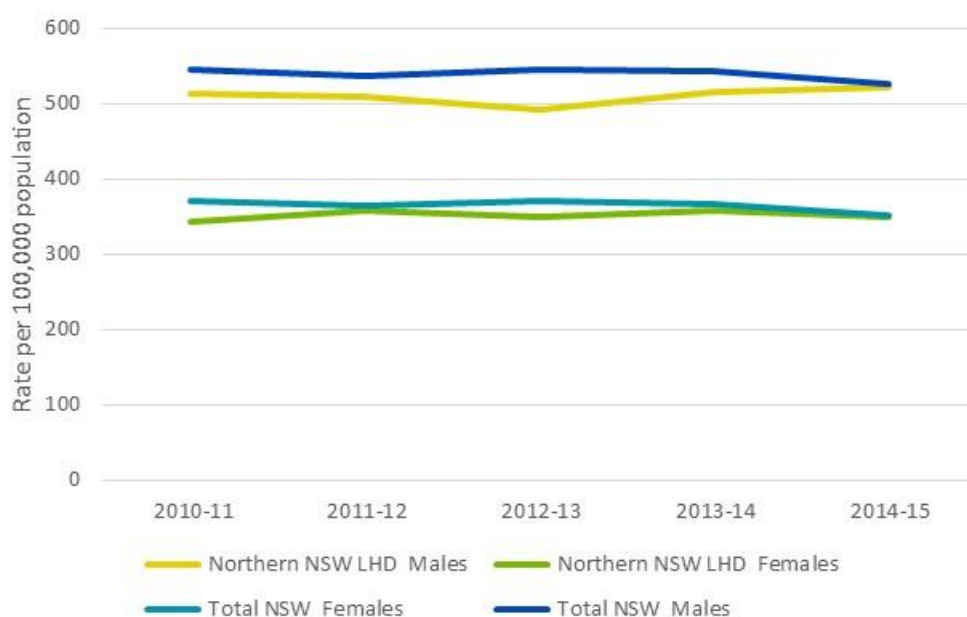
FIGURE 6: INSUFFICIENT PHYSICAL ACTIVITY, PERSONS AGED 16 YEARS AND OVER, NORTHERN NSW AND NSW, 2002 TO 2017



Source: NSW Government (2016) Health Stats NSW, Insufficient Physical activity Data, Persons ages 16 and Over

Figure 7 is an indicator of overweight and obesity rates within the Northern NSW and NSW population. There main disparity is between males and females in both NNSW and NSW with males recording significantly higher high body mass attributable hospitalisations in both regions. Rates for NNSW males have increased slightly since 2010 from 513.3 to 522.9 (per 100,000) and NSW males have decreased from 544.7 to 526. Females in both regions have remained relatively steady and comparable with hospitalisation rates of 367.5 in NSW and 352.3 in NNSW in 2014-15.

FIGURE 7: HIGH BODY MASS ATTRIBUTABLE HOSPITALISATIONS, NORTHERN NSW AND NSW, 2010-11 TO 2014-15



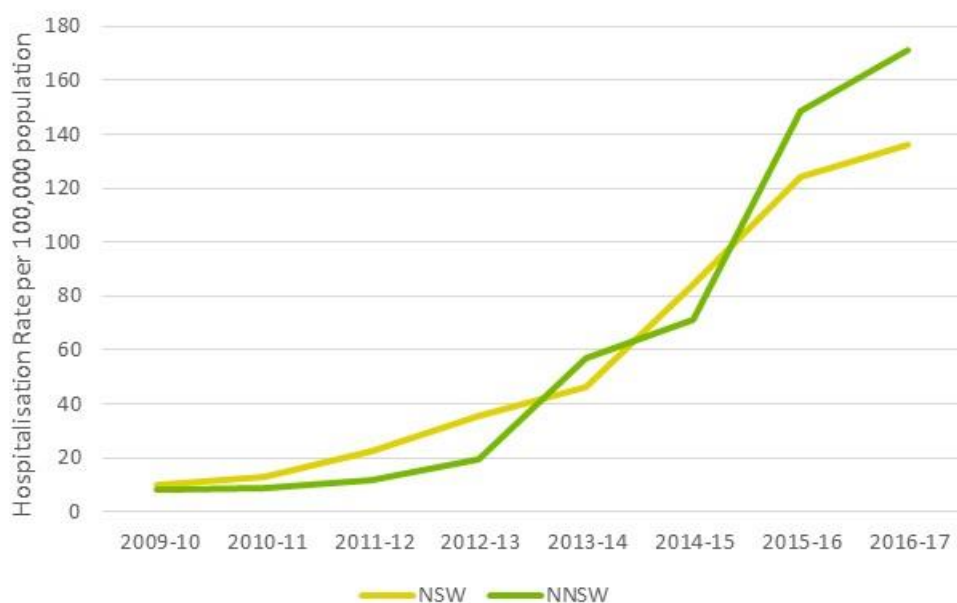
Source: NSW Government (2016) Health Stats NSW, High Body Mass Attributable Hospitalisations Data

## Drug and alcohol misuse

The misuse of drugs and alcohol places significant strains on the Australian health system. Figure 8 represents methamphetamine related hospitalisations in Northern NSW and NSW. Both areas show an alarming increase in methamphetamine hospitalisations. In NNSW the rate of hospitalisations has increased by 1,965 per cent, from 8.3 to 171.4. In NSW the rate has grown from 9.8 to 136.3, an increase of 1,293 per cent. In 2016-17 NNSW had a significantly higher rate of hospitalisations.



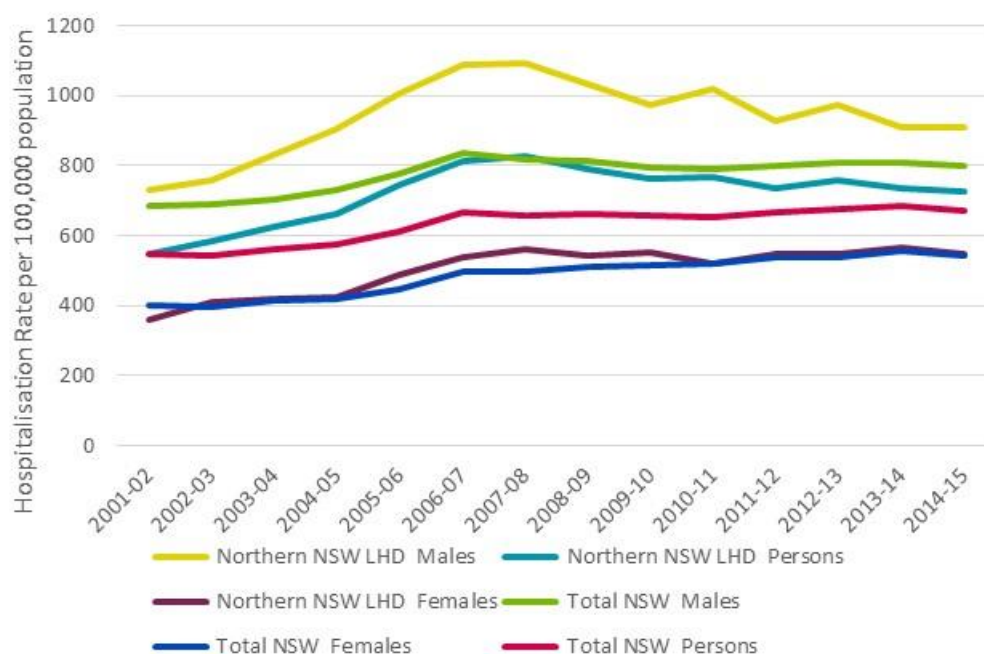
FIGURE 8: METHAMPHETAMINE-RELATED HOSPITALISATIONS, PERSONS AGED 16 YEARS AND OVER, NORTHERN NSW AND NSW, 2009-10 TO 2016-17



Source: NSW Government (2016) Health Stats NSW, Methamphetamine-Related Hospitalisations Data, Persons Aged 16 Years and Over

Figure 9 represents alcohol attributable hospitalisation with male and female divisions. outlining that males in Northern NSW have highest rate of alcohol attributable hospitalisations. Since 2001-02 this number has grown from a rate of 732 to 856, an increase of 16 per cent. Males in NSW had the next highest rate of hospitalisations. Females in both regions had significantly smaller rates compared to males, although both regions have been increasing equally since 2001-02.

FIGURE 9: ALCOHOL ATTRIBUTABLE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2014-15

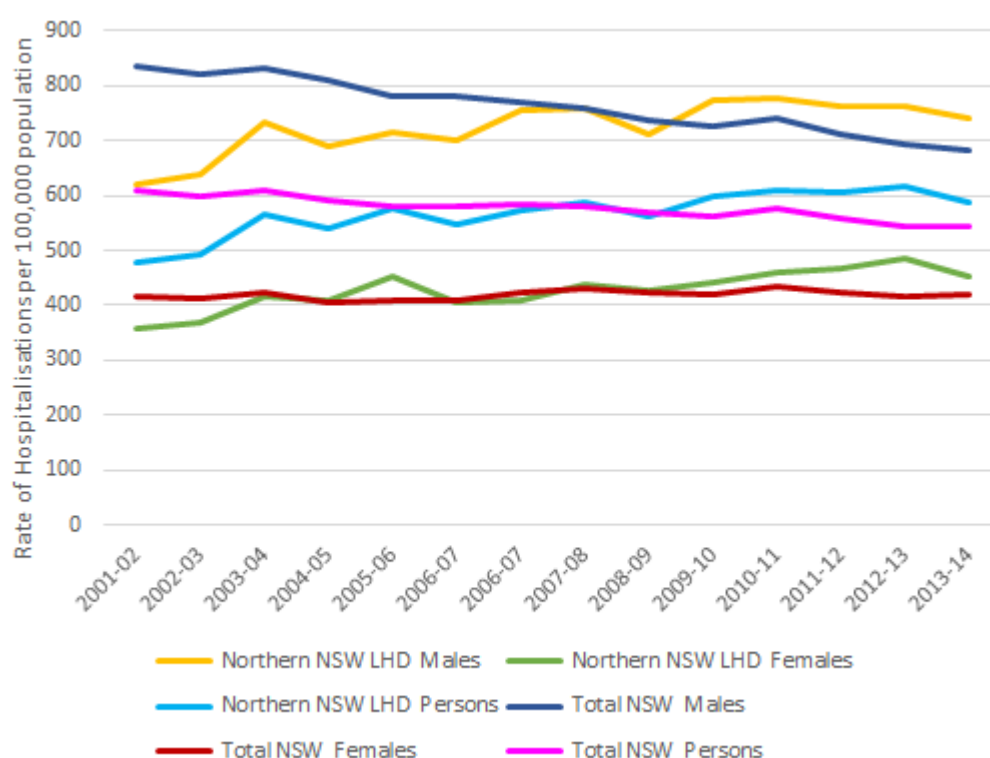


Source: NSW Government (2016) Health Stats NSW, Alcohol Attributable Hospitalisations Data

## Smoking

It is well established that smoking has negative health impacts, both for individuals and those regularly exposed to second hand smoke. Figure 10 represents smoking attributable hospitalisation rates in Northern NSW and NSW, with male and female divisions. Males have the highest rates, 741 and 683 in Northern NSW and NSW respectively. The rate in NSW has decreased steadily since 2001-02 while the rates in NNSW have increased. The rates for females in both regions is significantly less with 418.3 and 451.7 in NSW and NNSW respectively. Overall, the rates of hospitalisations was higher in NNSW with 586.4 compared to NSW, 542.1 in 2016-17.

FIGURE 10: SMOKING ATTRIBUTABLE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2013-14



Source: NSW Government (2016) Health Stats NSW, Smoking Attributable Hospitalisations Data

## Rates of chronic disease and illness

Rates of chronic illness and diseases in the community have strong linkages to the utilisation rates of health care; particularly hospitals. Many chronic diseases and illnesses are well linked to the lifestyle risk factors outlined above.

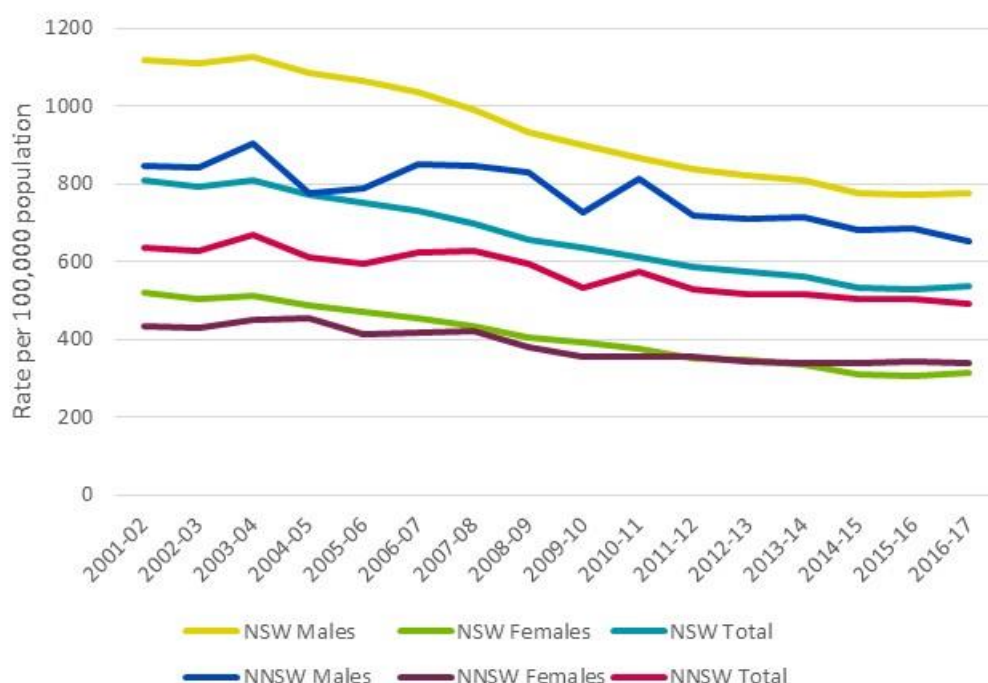
The following section highlights the rates of chronic disease and illnesses across the Northern NSW and broader NSW areas. Due to the relevance to this assessment, where possible chronic disease and illness attributable hospitalisations data has been presented. Where there are strong divergences between male and female outcomes, trends by sex have also been shown.

### Rates of coronary heart disease hospitalisations

Coronary heart disease hospitalisations, depicted in Figure 11, have decreased across both regions. As is consistent with some lifestyle indicators, Males in both regions have the highest rates of hospitalisations for coronary heart disease. In 2016-17, NSW males had the highest rates, followed by Northern NSW males, 776 and 653 per 100,000 respectively. Females in both regions have remained similar since 2001-02, decreasing as a similar rate and in 2016-17

they were 313 in NSW and 340 in Northern NSW. Overall, NSW has a higher rate of Coronary heart disease hospitalisations and has had a more significant decrease compared to Northern NSW.

FIGURE 11: CORONARY HEART DISEASE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2016-17

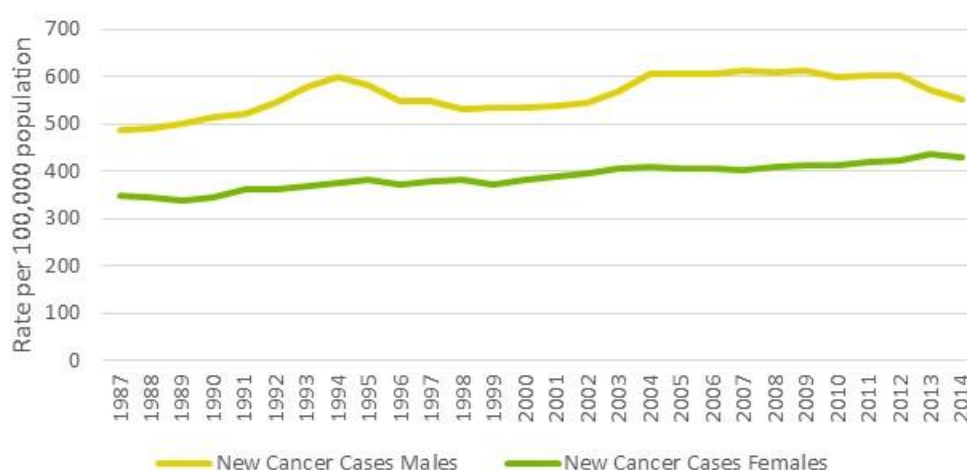


Source: NSW Government (2016) Health Stats NSW, Coronary Heart Disease Hospitalisations Data

### Rates of new cancer cases

Figure 12 shows the rates of new cancer cases in NSW. Males in NSW represent a significantly higher share of new cases. Both groups have increased at a steady rate.

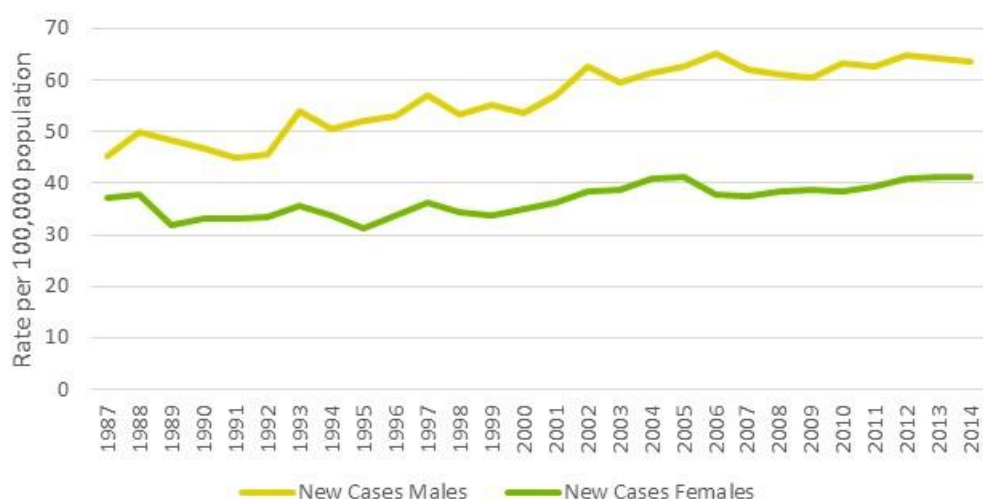
FIGURE 12: NEW CANCER CASES BY SEX, NSW, 1987 TO 2014



Source: NSW Government (2016) Health Stats NSW, New Cancer Cases Data (Northern NSW Data not available)

Figure 13 shows the increasing cases of Melanoma of the skin in NSW. Rates of new male cases have been increasing significantly more than females. Males in NSW have increased from 45 to 63 per 100,000 while females have only increased from 37 to 41.

FIGURE 13: MELANOMA OF THE SKIN NEW CASES BY SEX, NSW, 1987 TO 2014.

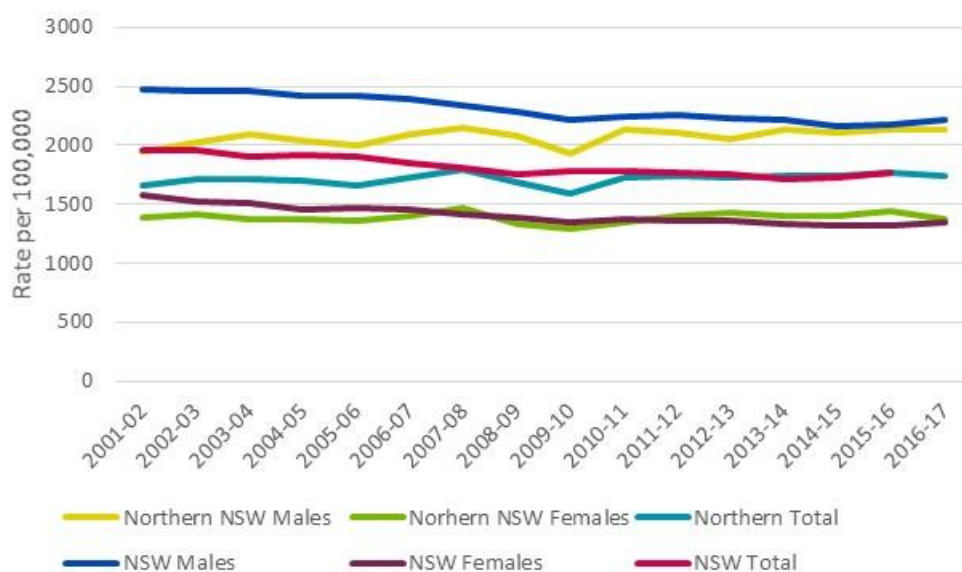


Source: NSW Government (2016) Health Stats NSW, Melanoma of the Skin New Cases Data (Northern NSW Data Not Available)

### Rates of circulatory disease hospitalisations

Figure 14 represents the rate of hospitalisations for circulatory disease in Northern NSW and NSW. Historically, NSW males have had the highest rate but this has been decreasing steadily from 2,472 to 2,218. Males in Northern NSW represent the next highest rate and has slightly increased, from 1,943 to 2,130. Females in both regions are significantly less represented compared to males and have remained relatively consistent since 2001-02. Overall, NSW has decreased slightly from 2,000 to 1,766 while Northern NSW has increased from 1,656 to 1,736.

FIGURE 14: CIRCULATORY DISEASE HOSPITALISATIONS BY SEX, NORTHERN NSW AND NSW, 2001-02 TO 2016-17

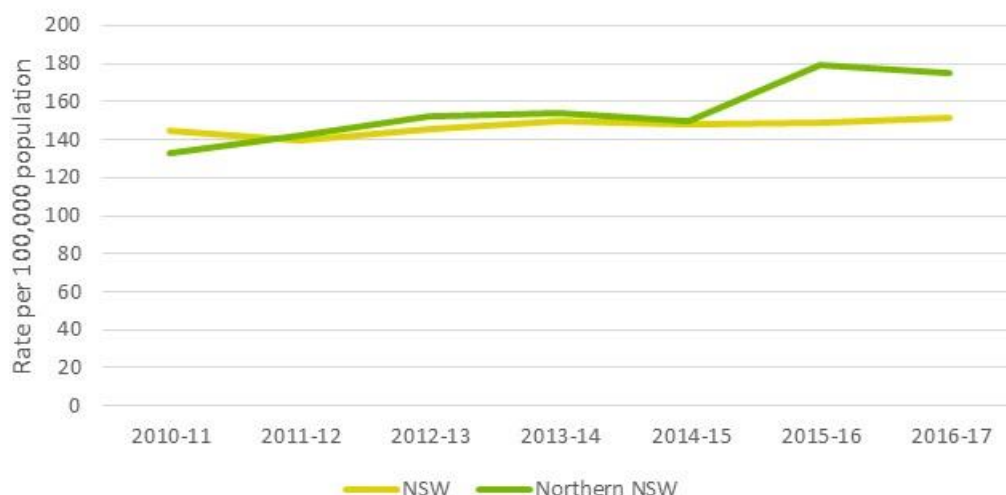


Source: NSW Government (2016) Health Stats NSW, Circulatory Disease Hospitalisations Data

### Rates of diabetes as principal reason for hospitalisation

Figure 15 shows the rates of diabetes as a principal reason for hospitalisation in Northern NSW and NSW. Northern NSW has a higher representation and there was a significant spike in 2014-15. Both regions have increased between 2010-11 and 2016-17, from 133 to 175 and 145 to 152 in Northern NSW and NSW respectively.

FIGURE 15: DIABETES AS A PRINCIPAL DIAGNOSIS FOR HOSPITALISATION, NORTHERN NSW AND NSW, 2010-11 TO 2016-17



Source: NSW Government (2016) Health Stats NSW, Diabetes as a Principal Diagnosis for Hospitalisations Data

### Rates of fall-related injury hospitalisations

Figure 16 depicts the rate of hospitalisations for fall-related injuries in Northern NSW and NSW. As expected, the rate of falls in the 65 and over category is far more significant compared to that of all ages. The 65 and over category has been increasing steadily in both regions between 2001-02 and 2016-17. Northern NSW 65 and over category has the highest representation and has increased by 109 per cent, from 1612 to 3362. NSW has increased at a slower rate (40 per cent), from 2227 to 3126. The all ages category has remained relatively steady with both regions experiencing slight increases.

FIGURE 16: FALL RELATED INJURY HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17

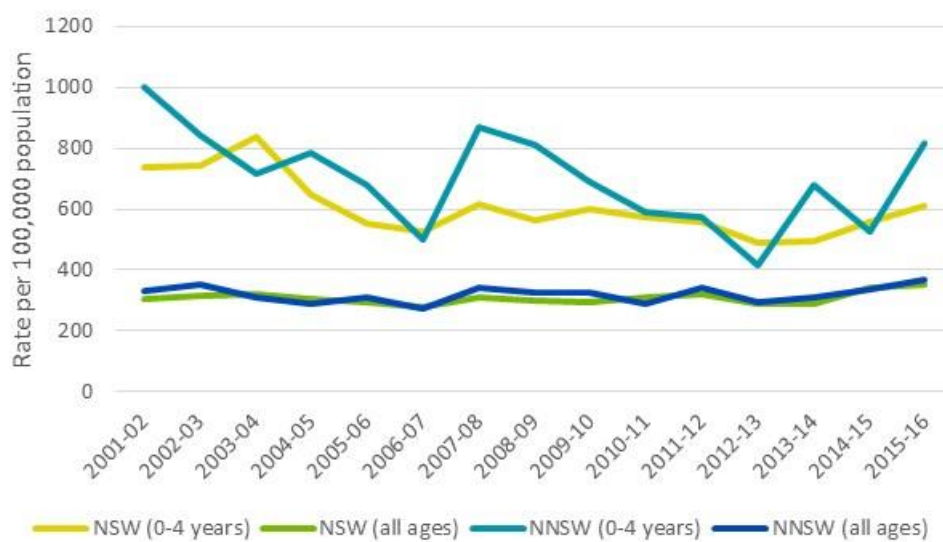


Source: NSW Government (2016) Health Stats NSW, Falls Related Injury Hospitalisations Data

### Rates of influenza, pneumonia and respiratory hospitalisations

Figure 17 shows the rates of hospitalisation for Influenza and Pneumonia in Northern NSW and NSW. The rates in the 0 to 4 years category are higher compared to all other ages. The rates in Northern NSW have acted in an irrational and sporadic nature, with multiple highs and lows between 2001-02 and 2015-16. In NSW this same category has decreased in the same period with fewer peaks and troughs. Northern NSW finished with a higher rate compared to NSW, ultimately due to a significant peak between 2014-15 and 2015-16. The rates of the all ages category has remained relatively steady in both regions.

FIGURE 17: INFLUENZA AND PNEUMONIA HOSPITALISATIONS BY AGE CATGEORY, NORTHERN NSW AND NSW, 2001-02 TO 2015-16



Source: NSW Government (2016) Health Stats NSW, Influenza and Pneumonia Hospitalisations Data

Figure 18 shows the rate of respiratory hospitalisations in Northern NSW and NSW. Both regions have increased in a sporadic nature and have registered a similar growth in the period 2001-02 to 2016-17.

FIGURE 18: TOTAL RESPIRATORY HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17



Source: NSW Government (2016), Respiratory disease



### Rates of stroke hospitalisations

Figure 19 represents the rate of hospitalisations attributable to stroke in Northern NSW and NSW between 2001-02 and 2016-17. During this period, the rate in NSW has steadily decreased, from 170 to 144, representing a 15 per cent increase. In Northern NSW, the rate has increased from 162 to 164 representing a 1 per cent increase, albeit in a sporadic nature.

FIGURE 19: HOSPITALISATIONS ATTRIBUTABLE TO STROKE, NORTHERN NSW AND NSW, 2001- 02 2016 - 17



Source: NSW Government (2016), Health Stats NSW, Stroke Hospitalisations Data

### Rates of mental illness related hospitalisations

Figure 20 depicts self-harm hospitalisation rates in Northern NSW and NSW (self-harm being one indicator for prevalence of mental illness). The disparity between the two regions is alarming. Northern NSW has a far greater rate of hospitalisations due to self-harm and between 2001-02 and 2016-17 has increased by 124 per cent. Conversely, the rate in NSW has remained relatively consistent only increasing 9.5 per cent in the same period. The trend in Northern NSW has been sporadic with multiple peaks and troughs.

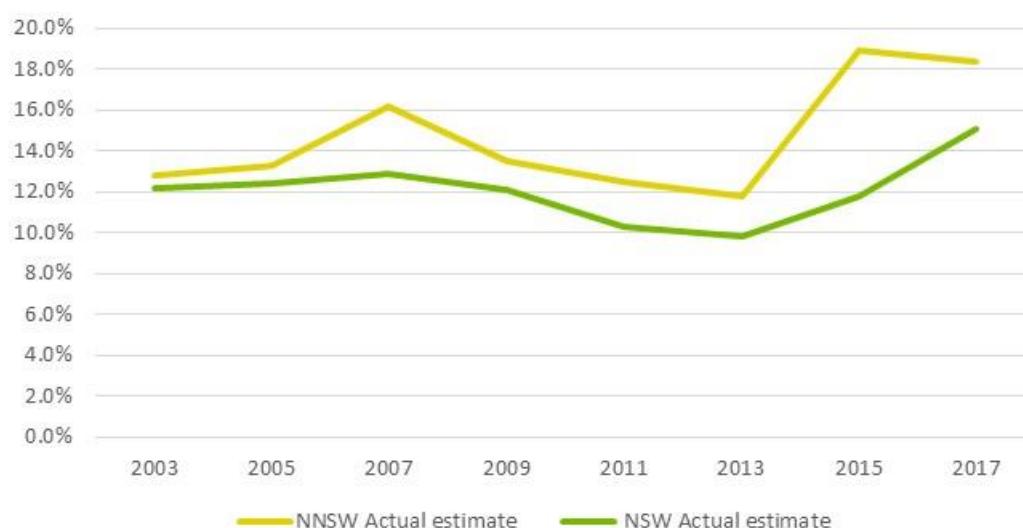
FIGURE 20: INTENTIONAL SELF-HARM HOSPITALISATIONS, NORTHERN NSW AND NSW, 2001-02 TO 2016-17



Source: NSW Government (2016) Health Stats NSW, Intentional Self Harm Hospitalisations Data

Figure 21 shows high or very high levels of self-reported psychological distress in persons aged 16 years and over in Northern NSW and NSW recorded through the NSW Population Health Survey (SAPHaRI). Northern NSW has a higher estimated percentage of the population experiencing high levels of psychological distress compared to NSW. There was a significant spike in Northern NSW between 2013 and 2015 while NSW experienced a spike between 2015 and 2017. Northern NSW has increased from 12.8 per cent to 18.4 per cent while NSW has increased from 12.2 per cent to 15.1.

FIGURE 21: SELF REPORTED LEVELS OF HIGH OR VERY HIGH PSYCHOLOGICAL DISTRESS, PERSONS AGED 16 AND OVER, NORTHERN NSW AND NSW, 2003 TO 2017



Source: NSW Government (2016) Health Stats NSW, Self-reported High or Very High Levels of Psychological Distress Data

### Projected health requirements

The table below outlines that by 2036, the local and Northern NSW catchments are expected to increase in population by 26.6% and 19.3% respectively. For the local catchment alone, this represents an increase in around 150,000 people. Although both the local and Northern NSW catchments are projected to grow at a slower than NSW as a whole, this amount of population growth will undoubtedly have implications the delivery of a range of infrastructure; health services included.

TABLE 6: POPULATION PROJECTIONS: 2011- 2036

	2011	2016	2021	2026	2031	2036	Total % Change	AAGR*
Local Catchment	119,150	126,850	133,850	140,700	147,250	153,300	28.60%	1.0%
Northern NSW	288,250	301,600	313,800	325,100	335,250	343,950	19.3%	0.7%
New South Wales	7,218,550	7,748,000	8,297,500	8,844,700	9,386,850	9,925,550	37.5%	1.3%

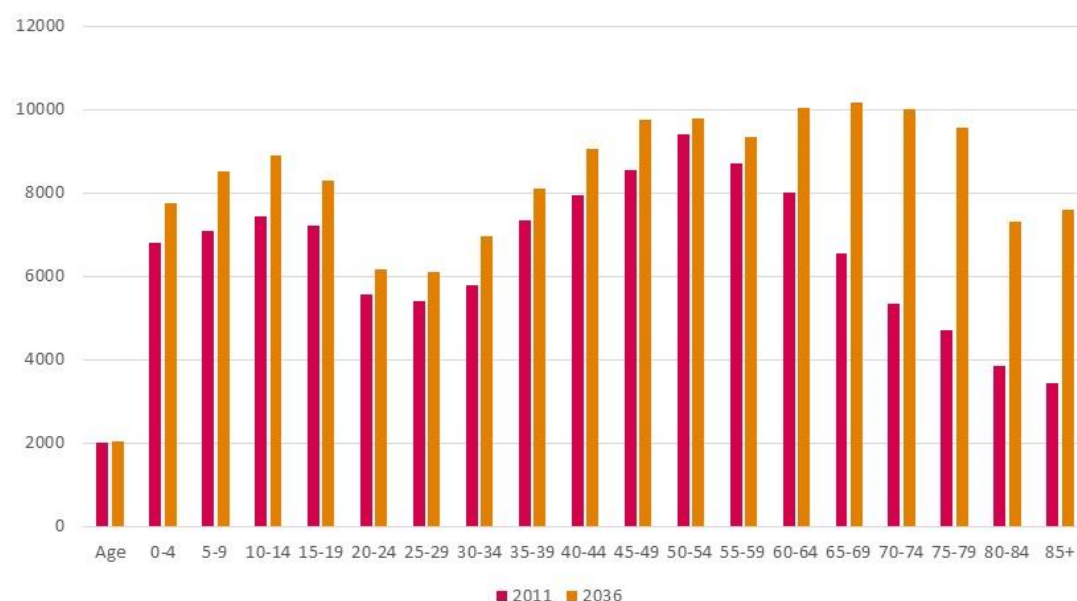
\*Average Annual Growth Rate

Source: NSW Government (2018) Population Projections

Importantly, the population is not expected to grow evenly. The figure below demonstrates the marked increase the population aged over 65 projected by 2036. As people over 65 generally rely on health services much more than other age groups, this will increase pressures on the Northern NSW health system even further.



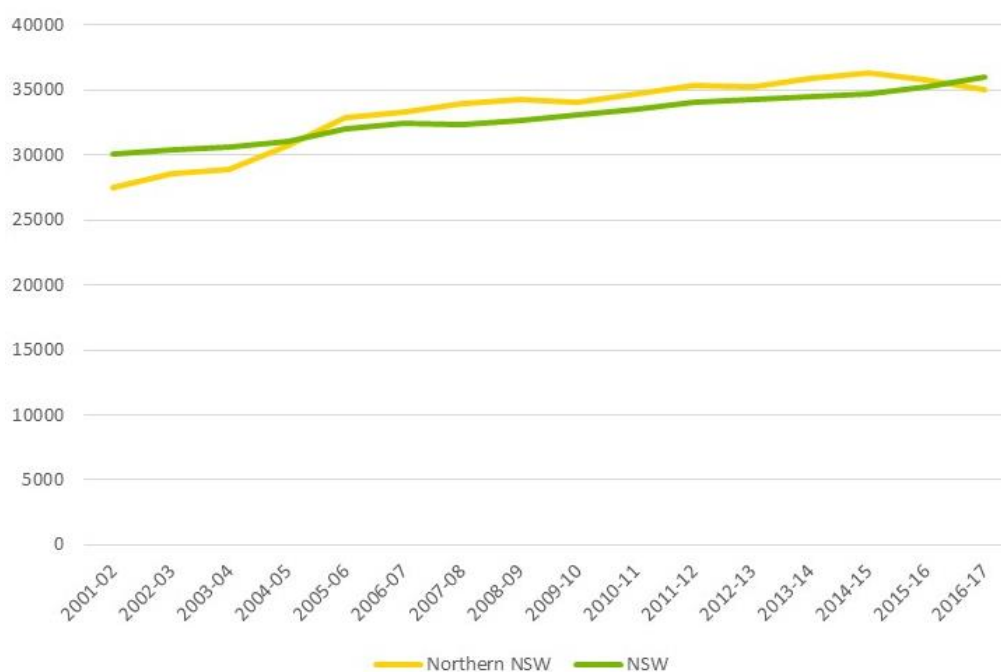
FIGURE 22: POPULATION PROJECTIONS BY AGE GROUP: 2011- 2036- LOCAL CATCHMENT



Source: NSW Government (2018) Population Projections

The figure below demonstrates the overall rate of hospitalisations from all causes at a rate of 100,000 of the population. It shows a sustained increase in hospitalisations for both Northern NSW and NSW between 2001- 02 and 2016- 17, with Northern NSW at times showing a higher rate of hospitalisations per 100,000 population than NSW.

FIGURE 23: HOSPITALISATIONS FROM ALL CAUSES (RATE PER 100,000 POPULATION) NORTHERN NSW AND NSW, 2001-02 TO 2016-17



Source: NSW Government (2016) Health Stats NSW, Hospitalisations for all causes data

## Implications for the Tweed Valley Hospital Project

The data presented above demonstrates how many social determinants, lifestyle risk factors and observed rates of chronic disease and illnesses have - and will continue to have - significant implications for health in this region. This in turn reflects the challenges that confronts the Tweed Hospital in meeting these health service demands. In particular, pressure points exist for both the local catchment and Northern NSW (compared to wider NSW) in the following social determinants of health factors:

- An ageing population, and a large child population
- A lower average weekly income
- Pockets of high levels of relative socio- economic disadvantage
- Lower levels of educational attainment
- A higher unemployment rate
- A (slightly higher) percentage of the population with a profound of severe disability, and
- A higher percentage of the population with Aboriginal heritage.

Many lifestyle risk factors, although showing some improvements, will still have implications on the rate of hospitalisations in the Tweed Hospital catchments. Of note are the particularly alarming rates of methamphetamine use in Northern NSW and NSW more generally, which will likely not only impact rates of general hospitalisation, but also may require longer term psychological treatment.

Sustained rates of chronic disease and illnesses will continue to result in hospitalisations in the local and Northern NSW catchments. Of particular note is the increase in self-harm hospitalisations and high self-reported levels of psychological distress, indicating that mental health services will experience greater demand in the future.

Population projections, particularly the projected increase in people aged 65 and over, combined with a sustained upwards trend of rates of hospitalisations, clearly demonstrate an increased future demand for health services in the local and Northern NSW catchment. Thus the need for a larger facility with a wider range of services is justified.

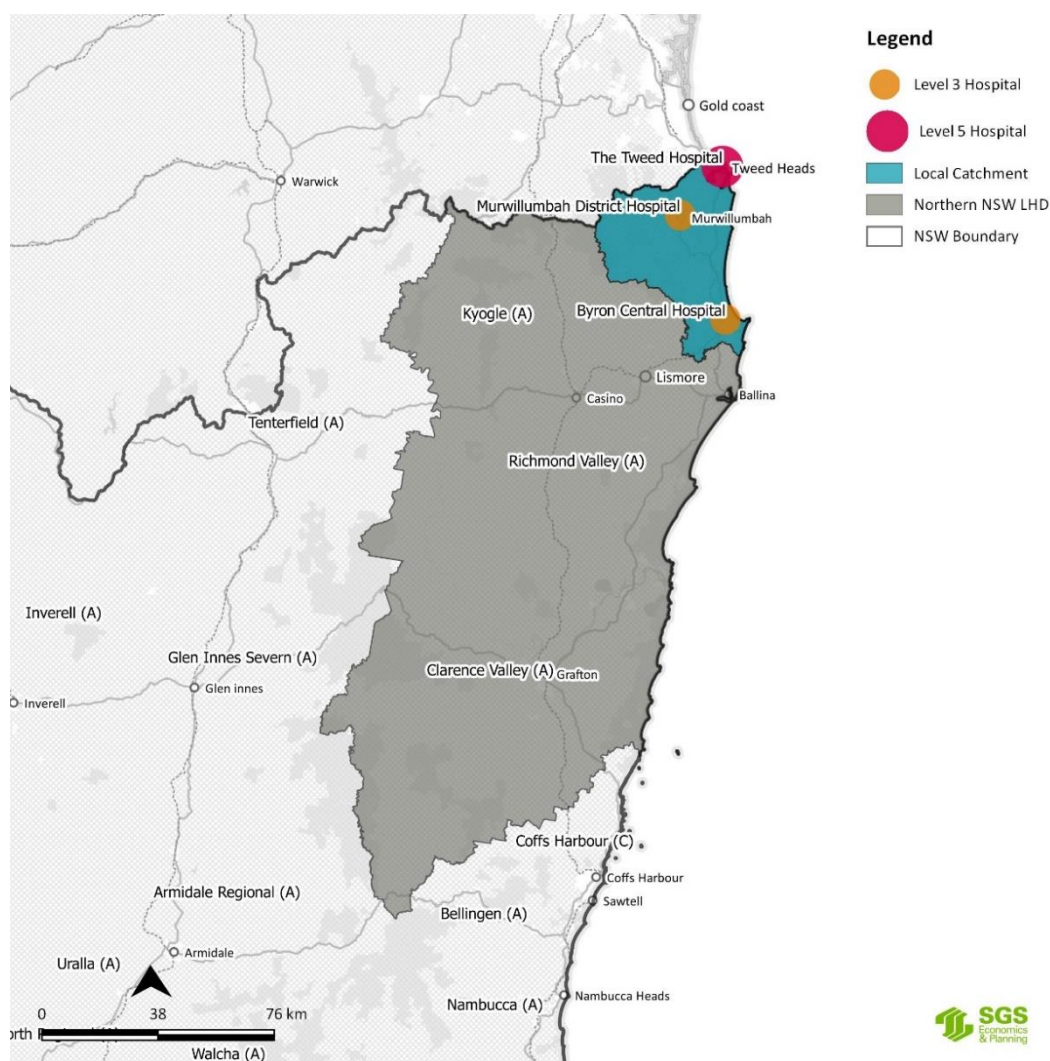
## 2.3 The Preferred Solution

### The current Hospital

The Tweed Hospital is a “Level 5<sup>5</sup> Major Non – Metropolitan Principal Referral Hospital”, providing services to the north- east corner of New South Wales. The hospital sits within the Northern NSW Local Health District (referred to as Northern NSW), which consists of the seven local government areas of Ballina Shire, Byron Shire, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed Shire Council. The Tweed Hospital has a local catchment area of Tweed Shire Council and Byron Shire Council. The Hospital is closely linked with Murwillumbah District Hospital and Byron Central Hospital, both Level 3 hospitals. The figure below depicts the two catchments of the current Tweed Hospital, along with the locations of the two Level 3 hospitals in the catchment.

Importantly, the Tweed Hospital is currently located just south of the border of Queensland. The Tweed Shire has a strong relationship with southern Queensland, with Tweed Heads and the nearby Coolangatta regarded as ‘twin towns’. Many services are utilised by residents either side of the state border, including health services.

FIGURE 24: TWEED HOSPITAL CATCHMENTS



<sup>5</sup> Clinical services are categorised into six capability levels, with Level 1 managing the least complex patients and Level 6 managing the most complex patients.

## The case for change

Northern NSW LHD service planning for the Tweed Hospital catchments identified that a substantial increase in capacity is required to meet the growth in demand for services. Clinical services and master planning studies undertaken between 2012 and 2017 concluded that the services provided at Tweed Hospital are already at capacity. Specific capacity constraints will be further explored in subsequent sections of this report.

The clinical services and master planning studies also concluded that due to site constraints, the current four hectare site is not suitable to meet the health care needs of the community in the future, or to be redeveloped. The current Tweed Hospital site has a gross floor area of 25,000 square metres. Expanding the current hospital to meet Australian Health Facility Guidelines would require a gross floor area of 38,000 square metres, without any expanded services.

The current hospital site is constrained on all four sides by roads, residential development, the Tweed River and recreation facilities. The site itself has also been completely built out, with no space for additional buildings. On site redevelopment would cause significant long term disruption to patients, visitors and staff, impacting on capital and recurrent costs.

In addition to these constraints, the location of the current Tweed Hospital puts it at risk of flooding. Flood modelling exercises identified in the business case have revealed that the existing hospital would need to be evacuated under a 'Probable maximum flood'. Under the NSW Government's Floodplain Development Manual and Tweed Shire Council's Flood Risk management policy, all new critical infrastructure and emergency response facilities must be located **above** the Probable Maximum Flood level. The current Tweed Hospital site and surrounding roads are five metres **below** Probable maximum flood levels. Significant capital investment on the site would therefore be at odds with policy.

The future projected population growth, combined with a sustained upwards trend of rates of hospitalisations demonstrate an increased future demand for health services in the local and Northern NSW catchment, which this site therefore could not accommodate.

## The Preferred Option

The 2017 Investment Decision Template proposed the construction of a purpose- built referral hospital on a greenfield site to "meet service demand to 2031/2032 and deliver health services at predominantly Role Delineation 5 to residents of and visitors to the Hospital's Local and Wider Catchment".

The preferred Option to meet projected future service demand is to develop the Tweed Valley Hospital on a greenfield site, supported by a network of community health facilities, and with the starting case that Murwillumbah District Hospital retains its current role. The new Tweed Valley Hospital will provide the service expansion required to meet the projected service need to 2031/2032. The Tweed Valley Hospital site also sits above the Probable Maximum Flood level.

# 3. ESTIMATION OF IMPACTS

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This chapter assesses the full suite of economic and social impacts. This includes consideration of the direct health benefits that are canvassed in Chapter 2, as well as the broader impacts of the relocation and expansion project on the community.

## 3.1 Approach

As identified in Section 1.2, Stage 1 of the process consists of two parts – ‘early and enabling works’ and ‘concept development’. The Social and Economic impacts assessed in this report cover both aspects, however the majority focus on the latter – the overall concept of the hospital relocation. This includes the relocation of operations from the current site at Tweed Heads.

The following community impacts have been identified and defined as economic (direct and wider) or social as outlined Table 7. Each impact is described in detail in Section 3.2 (social) and Section 3.3 (economic). The method for each is summarised below.

Note that in both the Social and Economic Impact Assessments, the impacts being assessed are marginal to the base case of no hospital relocation or expansion. That is, the impacts described here must be *in addition* to positive or negative impacts that would have otherwise occurred anyway (for example, interim maintenance works at the existing facility which are ongoing).

### Social Impact Assessment

A Social Impact Assessment (SIA) for a hospital is primarily concerned with the nature of improvements to health care provision, experience and accessibility.

In this case, with the geographical nature of the facility’s relocation, there are also other social considerations around safety and rural/agricultural resources and lands and the impact of the hospital leaving the Tweed Heads centre. While the relocation is within the catchment, and therefore a transfer effect in cost-benefit analysis terms, localised impacts are addressed in this study also. These have been developed through analysis of health and social-related issues, review of similar projects and associated impacts and cross-referencing of other study reports as part of the EIA.

### Economic Impact Assessment

An Economic Impact Assessment (EIA) primarily measures the degree to which the economic stimulus associated with a project accumulates in total economic activity levels of a defined region, i.e. after measuring the cumulative impact of all the buyer/ supplier transactions that are induced in the region. The basic steps in undertaking an EIA include:

1. Isolating how the project stimulates the regional economy<sup>6</sup> (direct impacts).
2. Generating region specific econometric models and subsequently deriving economic multipliers for major regional industry groups.
3. Applying these multipliers (by relevant industry group) to the direct impacts to estimate total regional impacts in terms of regional (output) **value added** and **employment**.

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<sup>6</sup> For this purpose of this project, the local area was defined as the Auburn Local Government Area, as reconfiguring the Input Output Model for the new Cumberland LGA geography is beyond the scope of this report.

Broader economic impacts which are not factored into this core analysis are also identified and described in Section 3.3.

TABLE 7: IDENTIFICATION OF SOCIAL AND ECONOMIC IMPACTS

Social Impacts	Economic Impacts
Impact on surrounding areas during construction	<b>Direct Impacts</b>
Impact on availability of health services and facilities	Employment during construction
Impact on capacity of health services and facilities	Employment and Employment Growth during operations
Impact on quality of health care provision	Gross Regional Product
Impact on health care experience for patients, carers and families	Loss of agricultural land
Impact on physical accessibility of health services and facility	Reduced economic function of centre
Impact on catchment self-sufficiency and cross- border patient flows	Impact on traffic and car parking
Impact on skills, education and research	Impact on agglomeration and clustering of health services
Impact on health outcomes for Aboriginal and Torres Strait Islander people	<b>Wider Impacts</b>
Impact on community safety	Employment during construction
Impact on patient, patient carers and families and staff safety	Employment and Employment growth during operations
Impact on the amenity of the surrounding environment	Gross Regional Product during construction
Impact on rural lands	Gross Regional Product during operations
Impact on Tweed Heads Town Centre	

Source: SGS Economics and Planning

## 3.2 Social impacts

This section summarises key potential social impacts associated with the realisation of the Preferred Option for delivery of health services in the catchments, being the relocation of the Tweed Hospital to the greenfield Project Site, and Murwillumbah Hospital retaining its current role. The section outlines the expected impact on the local catchment, Northern NSW catchment and New South Wales more broadly (where relevant). This section heavily draws upon material outlined in the *Tweed Valley Hospital Project Business Case*, particularly regarding current and future health service provision.

Based on work undertaken in the previous tasks of the study, review of the *Tweed Valley Hospital Project Business Case* and consideration of similar projects, the potential social impacts identified in Table 7 are described in this section.

### Impact on surrounding areas during construction

Construction will create noise, heavy vehicle movements and potentially temporary traffic impacts adjacent the Project Site. These will have a negative impact on local residents, particularly the residential communities of Kingscliff and along Cudgen Road. The Project Site does not however have residential properties immediately abutting the property so these noise and visual amenity issues are likely to be low and contained through mitigation measures outlined in the Built Form an Urban Design report, as well as on-site mitigation measures. Local and passing traffic may be disrupted during construction due to temporary works or the movement of large trucks and machinery. This will be mitigated through on-site traffic management strategies as part of the construction process.

Construction of the new Tweed Valley Hospital will have a negative impact on the surrounding areas through potential noise, visual and traffic issues, although these are likely to be mitigated through on-site measures and the fact the Project Site is not immediately adjacent residential communities and the most heavily used route does not travel through residential areas.

### Impact on availability of health services and facilities

The Tweed Valley Hospital will result in a net increase in the number of beds available to the community for health care, namely an additional<sup>7</sup>:

- 91 overnight beds (including acute overnight medical, surgery and maternity beds)
- 4 overnight mental health short stay beds
- 28 overnight subacute beds
- 34 day only beds
- 6 emergency department beds
- 32 Integrated Ambulatory- consult/ procedure Beds.

The Tweed Valley Hospital will also make the following facilities (either currently not available or at a limited capacity at the Tweed Hospital or Murwillumbah district hospital) available to the community:

- 2 chemotherapy chairs and 2 LINAC bunkers
- 2 operating theatres
- 1 Cardiac Cath Lab Procedure Room
- 1 Interventional Radiology Procedure Room
- 2 birthing suites, and
- 2 renal dialysis chairs.

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<sup>7</sup> Note these figures are provisional only and not yet finalised – only provided here to enable approximate assessment of social and economic impacts.

The net increase in the number of beds and facilities are all to be delivered via the new Tweed Valley Hospital. There is no net increase in beds or services at the Murwillumbah hospital currently planned as part of this project.

Currently, patients who live within the local and wider catchments must travel outside of Northern NSW to access LINAC bunkers and Cardiac Catheter Lab Procedure Rooms if they require them.

A number of services that are currently being provided/ are located at the Tweed Hospital do not currently form part of the scope of services at the Tweed Valley Hospital Site. These services include<sup>8</sup>:

- Community Health
- Oral Health (non-surgical)
- Breast Screen services
- The Tweed Clinical Education and Research Institute (TCERI)
- Ambulance Station.

It is recommended that these services would be best delivered in, or collocated with, a community health facility located in or close to the Tweed Heads Town Centre. It is therefore assumed that these services will remain somewhere within the catchment. Northern NSW LHD is separately considering the alternate delivery of these services in future iterations of the Asset Strategic Plan.

Delivery of the new Tweed Valley Hospital will have a positive impact on the availability of health services and facilities for both the Local catchment and the Northern NSW catchment.

### Impact on capacity of health services and facilities

There are a number of capacity constraints at the existing Tweed Hospital site of which are outlined in the Tweed Valley Hospital Project business case. These are summarised below.

#### Perioperative Services constraints

As demonstrated in section 2.2, the Northern NSW population is ageing, and is projected to continue. This ageing population has both increased the demand for surgery and increased clinical complexity of surgical caseloads. The capacity of the operating theatres at the Tweed Hospital has been deemed insufficient for current and future demand. The Tweed Hospital is the only hospital within the Northern NSW catchment to provide emergency operating theatres for all surgery, intensive care, coronary care, and diagnostic services 24 hours a day.

#### Inpatient beds

The overnight surgical beds at the Tweed Hospital are currently operating at capacity. Increasing the operating theatre's capacity will correspondingly increase the demand for these beds.

#### Emergency Department constraints

Presentations to the emergency department at the Tweed Hospital increased by 21% from 2012- 13 to 2015- 16. There is an upwards trend in emergency presentations requiring hospital admission, reflecting and increasing acuity and complexity of presentations. This is consistent with the age profile of the Northern NSW catchment (i.e. high proportions of very young and over 65 community members), who often present with more complex/ acute symptoms. There is currently insufficient space to receive ambulance trolleys and insufficient

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<sup>8</sup> As above – these figures are not yet finalised and only provided for the purposes of social and economic impact assessment.



treatment areas for the number of presenting patients. There is also an increasing amount of patients presenting with mental health complexities. This reflects the trends in mental health statistics outlined in section 2.2.

### **Cancer Services**

The cancer unit has inadequate capacity to accommodate cancer patients, both currently and in the future. Between 2011 and 2014, the number of occasions of service for chemotherapy and other cancer treatments at the current Tweed Hospital site increased by 57%, or an additional 6,549 occasions. It is projected that between 2016 and 2021 the number of new cancer patients in the Tweed LGA alone will increase by 49.4%. Space is restricted in the centre; treatment chairs are located too close together, which impacts on patient comfort and privacy. Staff must constantly rearrange clinical equipment and furniture.

It is important to note that these capacity constraints are so pressing that a programme of Holding Works are being undertaken. These works have already been committed to, and are required in order to keep the Tweed Hospital safe and operating until the new hospital is opened. The holding works however will not fully mitigate these constraints; significant service gaps will remain.

Delivery of the Tweed Valley Hospital will have a positive impact on the capacity of health services and facilities, as it will resolve capacity constraints out to 2027.

### **Impact on quality of health care**

The improved capacity levels for services listed above will no doubt have a positive impact on the quality of the care received by Northern NSW patients. Two areas of the hospital that will see improvements to the quality of health care are elective surgeries and emergency care.

#### **Improvements for elective surgery**

Operating theatre capacity is currently limiting operating sessions and the ability to meet emergency demand without negatively impacting on the number of elective procedures. Delays, both for elective surgery and the number of patients waiting for procedures has negative health outcomes. Patients may have surgery cancelled on the day due to urgent cases being prioritised over elective cases. The increased operating theatre and perioperative unit capacity in the new Tweed Valley Hospital will improve patient flow for elective surgery. In addition to this, the expansion capacity of day only and overnight surgery will alleviate elective surgery pressures.

#### **Improvements for emergency care**

Currently space constraints in the emergency department at the Tweed Hospital result in shortfall of treatment spaces. This increases the risk of contamination due to there being no isolation rooms. There is also a lack of consultation rooms for private discussions with patients and family members, and a lack of workstations for staff and visiting staff from allied health. These limitations combined prevents effective patient flow. The added space in the new Tweed Valley Hospital will have a positive impact on patient flows in emergency. Patients will be able to get to the right place for treatment quicker, and thus reduce their time spent in the emergency department.

Delivery of the new Tweed Valley Hospital will have a positive impact on the quality of care provided in Northern NSW, particularly for elective surgery and emergency care.

## Impact on health care experience for patients, carers and families

### Improvements in technology to improve patient experience

Under the preferred option, the Tweed Valley Hospital aims to strengthen the relationships and clinical networking between primary, community and hospital services. This will reduce duplication in service provision and improve referral and treatment. This will largely be driven by improvements to technology infrastructure that will facilitate the coordination of health services across different health care providers. Improved technology will enhance patient care, staff satisfaction and efficiency and allow for a seamless patient journey through the health system. This will present a step change in service delivery from the traditional approaches to the health care system where patients must learn to navigate through the health system.

### Additional services for patients and their relatives

Due to site constraints, the current Tweed Hospital site cannot provide any additional services for patients or their relatives. In addition to a greater access to additional health services at the Tweed Valley Hospital site, other service partnership opportunities will be explored. This includes the potential for accommodation, retail, childcare and other spaces and facilities to be collocated on the Project Site (possibly funded by service partners).

Accommodation for carers and families supports early discharge models of care. The accommodation could also be utilised for students and key workers visiting the Northern NSW catchment. Retail, childcare and other spaces and facilities would improve the experience for patients, carers, visitors, staff and students spending longer periods of time at the hospital.

Delivery of the new Tweed Valley Hospital will have a positive impact on the experiences of patients, carers and families.

## Impact on physical accessibility of health services and facility

The Project Site is 14 kilometres or roughly a 13 minute drive, south of the current Tweed Hospital. Relocating the site retains the hospital within the local catchment and no catchment boundary changes are proposed. The current supply chain for the hospital from Lismore also remains unaffected.

The relocation places the new hospital more centrally within the health precinct and close to future growth areas around Kingscliff (and away from cross-border patient flows discussed as a separate impact below). It is acknowledged that the relocation from Tweed Heads will impact the town centre. This is discussed as a separate, localised impact. Given the hospital relocation is a transfer within the existing catchment and close to areas of future population growth, it is anticipated that the relocation will have a low negative impact on physical accessibility to health services *at a whole of catchment level*, offset over time by population growth in and around Kingscliff.

Delivery of the new Tweed Valley Hospital will have a low negative impact on the physical accessibility of health services and facilities for the local catchment, with mitigation measures possible.

### Impact on catchment self- sufficiency and cross- border patient flows

The current Tweed Hospital sits on the border of NSW and Queensland. This results in cross overs with the use of health services on either side of the border, both by NSW residents and QLD residents. The business case notes that in 2010/ 11, approximately 5,400 residents of the Northern NSW catchment accessed inpatient care in Queensland, resulting in 11,400 cost weighted undiscounted separations. In the same year, 9,880 residents of Queensland accessed inpatient care in the Northern NSW catchment resulting in 8,444 cost weighted undiscounted separations.

A cross border agreement is in place between NSW and Queensland Health Services. This agreement includes the requirement for particular QLD hospitals to provide speciality services to Northern NSW residents, including elective and emergency diagnostic and interventional cardiology and radiation oncology services.

Neither the Tweed Hospital nor the Murwillumbah District Hospital have an Interventional Cardiology service. These services are currently being provided by Gold Coast Health Services via a contract agreement with John Flynn Private Hospital in Tugun, QLD. John Flynn Private Hospital is located seven kilometres, or an 11 minute drive from the current Tweed Hospital site. Although close by for patients, the John Flynn Hospital will only be able to support patients requiring Interventional cardiology from the Northern NSW catchment until 2018-19 when it is anticipated that Gold Coast University Hospital will be at full capacity serving the local South East Queensland and Gold Coast public demand.

Neither the Tweed Hospital nor the Murwillumbah District Hospital have a Radiation Oncology Service. These services are also being provided by the Gold Coast University and under contract with John Flynn Private Hospital. It has been assessed that by 2020, the Gold Coast Health University will be unable to deliver high volume Radiation Oncology services to the residents of Northern NSW, rather will only have the capacity to deliver quaternary level services.

There is therefore a known risk that health services in Queensland will fail to provide services for the Northern NSW catchment. The Northern NSW Government cannot actively manage this risk as they cannot influence investment decisions of the Queensland Government.

The Project will allow Northern NSW to become self-sufficient in Interventional Cardiology and Radiation Oncology. It is also anticipated that the provision of increased service capacity to meet local demand as well as providing enhanced services in respiratory, operating theatres, emergency departments and medical imaging will draw local patients back to the Tweed Valley Hospital. The physical location of the Project Site (15 minutes further away from the Queensland border) will also likely have some impact on the inflows from Queensland.

Delivery of the new Tweed Valley Hospital will have a positive impact by increasing self-sufficiency in services and reversing the cross- border flows between Queensland and New South Wales.

### Impact on skills, education and research

Due to site constraints, the current Tweed Hospital site cannot provide additional floorspace for educational or research purposes. Aspirations for the new Tweed Valley Hospital site to include increased education, training and research facilities. The Northern NSW LHD is preparing an education, training and research strategy for the Tweed Valley hospital site. There is also a plan for discussions with service partners. The presence of the TAFE across the road from the Project Site also presents opportunities for the future clustering of research and educational institutions, with potential for building the precinct as a health and education precinct in the future - possibly with the ability to attract a university presence.

The Tweed Valley Hospital will employ more practitioners, which will increase the ability for practitioners to learn from their new peers. These practitioners will also now be working at a higher quality facility, further improving their ability to upskill by learning new techniques. New technology infrastructure such as telehealth facilities will provide appropriate spaces to support training and education for both staff and students across the campus.

The Tweed Valley Hospital will increase opportunities for clinical placements for tertiary students, vocational education traineeships and the support of a viable technology-enabled library service to assist staff undertaking research and educational opportunities.

Delivery of the new Tweed Valley Hospital will have a positive impact on the skills, education and research capacity of health care workers located in Northern NSW.

### Impact on health outcomes for Aboriginal and Torres Strait Islander people

The socio – economic profile outlined in section 2.2 demonstrates the higher percentage of the population with Aboriginal heritage in the Northern NSW region compared to NSW as a whole. Opportunities to improve the health outcomes and health experiences of Aboriginal people are constrained due to the limited ability to provide culturally appropriate environment and services at the current Tweed Hospital. The construction of culturally appropriate facilities for a large local Aboriginal population as part of the Project will better meet the health needs of this specific community group. It is also intended that the Tweed Valley Hospital will raise the profile of the Aboriginal workforce during construction and through to operation.

Delivery of the new Tweed Valley Hospital will have a positive impact on the health outcomes of Aboriginal and Torres Strait Islander community of Northern NSW.

### Impact on community safety

There may be concerns that the Project may bring with it the presence of non-law abiding behaviour to Kingscliff. Whilst such behaviour could logically be associated with any public facility such as stadiums, railway stations or even parks, there is presently no evidence which can be used to predict the likelihood or severity of this impact.

Nonetheless, there are mitigation measures which can be put in place to manage this (as yet unquantifiable) potential risk. The Built Form and Urban Design Study makes reference to Crime Prevention through Environment Design (CPTED) guidelines under Section 79C of the EP&A Act 1979, which promotes a multi-disciplinary approach to deterring criminal behaviour through environmental design and design of buildings and places that are safe and secure.

The CPTED makes reference to four key strategies including:

- Territorial reinforcement
- Surveillance
- Access Control
- Space/Activity Management

The new Tweed Valley Hospital has adopted these principles of CPTED in the development of the Project Site Masterplan and concept proposal to establish a safe and secure environment. More details of how each strategy is implemented can be found in the Built Form and Urban Design Study.

There may be potential for some low negative impact on community safety at the new hospital, however this is mitigated through CPTED and other hospital design principles.

## Impact on patient, patient carers and families and staff safety

### Infectious diseases and alcohol and drug related behaviours

The current Tweed Hospital has limited isolation rooms throughout the hospital, particularly in the emergency department. The existing isolation rooms do not meet contemporary infection control standards (especially in ICU/ HDU). There is also limited fit for purpose facilities (again, particularly in the emergency department) for drug and alcohol affected aggressive patients. The current location of the sole safe room is next to the relative room and early treatment zone, which has implications for the safety of patient carers and families and those being treated when they immediately arrive at the hospital. The socio- economic profile of the Northern NSW catchment implies that drug and alcohol affected patients will continue to be dominant users of the emergency department.

The new Tweed Valley Hospital includes the provision of new facilities that comply with current standards and guidelines, including an isolation room within the emergency department and the provision of isolation rooms and related facilities that comply with infection control standards across the hospital.

### Improved safety from flooding

The location of the current Tweed Hospital puts it at risk of flooding. Flood modelling exercises have revealed that the existing hospital would need to be evacuated under a 'probable maximum flood', with the site and surrounding roads being five metres **below** probable maximum flood levels.

Evacuation due to flooding would have negative impacts on patients and staff members, and relatives if they were visiting at the time. It would also have negative flow on effects for surrounding hospitals who would have to quickly accommodate new patients over and above their patient load. Evacuated staff members would not be able to return to work until the flooding had subsided and it was safe to return. In addition, there would likely be clean up/ repatriation costs to ground floor areas.

The Tweed Valley Hospital Project Site sits above probable maximum flood levels, thereby heavily reducing the risk of flooding.

Delivery of the new Tweed Valley Hospital will have a positive impact by reducing the risk of patients, visitors and staff members being adversely affected by infectious diseases, the behaviour and actions of drug and alcohol affected patients, and from flooding.

## Impact on the amenity of the surrounding environment

A Draft Visual Impact Assessment has been prepared (based on concept development at this stage). The report acknowledges that a new hospital on what is currently an agricultural site would be an obvious modification of the local visual environment if viewed from various viewpoints in the surrounding locality. The most affected area would be the west-facing and elevated residential areas, with some residences likely to lose distant views of Mount Warning.

Nonetheless the report concludes that despite some reduction in visual quality for these viewpoints, all view frames would still maintain a 'reasonable visual amenity standard'.

The Built Form and Urban Design Report also includes a 'Privacy and Visual Impact' assessment. This report also comes to similar conclusions, whilst adding that there will be minimal visual impact on privacy of neighbouring properties of the residential area to the north of the Project Site (beyond the environmental area).

The visual assessment indicates that all assessed visually sensitive receivers maintain view frame qualities in the medium rating range. The visual impact of the proposal would be

further considered during detailed design, including the development and incorporation of measures to assist in reducing or mitigating visual impact.

Please refer to the Built Form and Urban Design Report for further details on amenity impacts.

The Project will have some degree of negative impact on the surrounding environment. This will be mitigated through design measures.

### Impact on rural lands

The current Tweed Hospital Site sits within a highly developed residential and commercial area. The new Tweed Valley Hospital will be built on a site currently being used for primary agricultural production, namely sweet potato farming. Surrounding land uses include an environmental conservation area directly north, an educational facility (TAFE) to the south, primary agricultural lands to the south and west, and residential areas to the east and further north after the conservation area.

Although a hospital is a sensitive land use, other sensitive land uses are already present in the area (and also interface with established agricultural uses) in particular residential and educational facilities.

The Land Use Conflict Risk Assessment (LUCRA) report formally assessed the specific potential risks for land use conflict in this area associated with the new Tweed Valley Hospital. It concluded that the Project site is suitable for the proposal, subject to the following recommendations to manage specific risks:

- A vegetated buffer along the southern boundary to safeguard spray drift
- Supplementary plantings between existing rows of trees and shrubs on the western and south-western boundary of the Project site to form an improved vegetative screen
- Noise impacts from hospital operations to be managed so as to comply with the Noise Policy for Industry (NSW EPA 2017) and the Interim Construction Noise Guidelines (DECC 2009)
- Soil and Water Management Plan (SWMP) for the construction and operation phases to manage stormwater runoff
- Measures to reduce potential traffic impacts as addressed under the Traffic Impact Assessment and through the subsequent Traffic Management Plan – for both construction and operational phases of the project.

Subject to the above risk management measures, the Project Site should be able to accommodate the new Tweed Valley Hospital with minor impacts on the operations of rural lands nearby.

## Impact on Tweed Heads Town Centre

### Community accessibility to hospital and outpatient services

The relocation of the hospital and certain outpatient services from the current site in Tweed Heads Town Centre will have an impact on the local Tweed Heads community and their ability to access these services. The relocation retains the hospital within the local catchment and is therefore a transfer effect at a regional level, meaning that there is no regional impact. Notwithstanding this view, it is evident at a local level, the effects of the relocation will be felt by the local Tweed Heads community.

These impacts are more likely to be felt by the elderly, infirm and those who do not have access to private vehicle or can easily utilise public transport. While data regarding why people have chosen to reside in Tweed Heads is not available, there may be members of the community who have located in the town centre due to the access it provides to the hospital and outpatient services. These are the people most likely to be adversely affected by the hospital's relocation to Kingscliff.

It is noted that there is potential to increase bus services to the Project Site from Tweed Heads and this will mitigate this accessibility issue for those who can patronise it. Further, the supply chain of health-related services in the local health district comes from Lismore Hospital. This is unaffected by the relocation. The local catchment too does not change under the relocation to the Project Site.

Over the long term, it is anticipated that population growth within the region will mean that these localised impacts are lessened as the hospital becomes centrally located for more of the catchment's population.

Relocation of hospital and outpatient services is likely to negatively impact certain sectors of the local Tweed Heads community, particularly those without private vehicle access ability to use public transport. The relocation of the hospital within the local catchment, and within 14 kms of the Tweed, coupled with the potential for increased bus service frequency, is likely to mitigate many of these impacts. There is no impact to health supply chains or the local catchment.

### Re-location of allied health services co-locating with the hospital

In addition to the hospital re-locating, there is a likelihood that some of the allied health services that currently operate in Tweed Heads town centre will re-locate to ensure they retain connection with the hospital anchor. These services are those that do not require location within the hospital itself but benefit from co-location and clustering. These may include, for example, pathology facilities, physiotherapists or consulting rooms.

As with the relocation of the hospital and outpatient services, while still being a transfer within the existing local catchment, this is likely to have an impact at a local level within Tweed Heads itself as these services are no longer as easily accessible for the local population. As with the hospital impacts, this is likely to impact most significantly on the elderly or infirm, those without access to private vehicles or those who cannot easily utilise public transport. As above, these impacts are mitigated by the relocation within the local catchment and the potential increase in bus services between Tweed Heads and the new site.

It is noted however, a number of existing community health and other support services on the Current Tweed Hospital Site that are not currently included in the proposed service offering at the new Greenfield site. These services include:

- Community Health
- Oral Health (non-surgical)



- Breast Screen services.

It is suggested that these services would be best delivered in, or co-located with, a community health facility located in or close to the Tweed Heads Town Centre. In addition, the Tweed Clinical Education and Research Institute (TCERI) and Ambulance Station, both on the current Tweed Hospital site, are not currently included in the service offering on the new Greenfield site.

Relocation of allied health services is likely to negatively impact certain sectors of the local Tweed Heads community, particularly those without private vehicle access ability to use public transport. The relocation of the hospital within the local catchment, and within 14 kms of the Tweed, coupled with the potential for increased bus service frequency, is likely to mitigate many of these impacts. There is no impact to health supply chains or the local catchment.

### Perceptions of safety

The hospital's central location in Tweed Heads and 24 hour operations provides a degree of passive surveillance to the town centre. While no specific data regarding safety perception levels is available, the removal of the hospital and its associated activity is likely to reduce the passive surveillance and associated perceptions of safety that this provides. This is likely to be felt most at night-time and therefore by those who require to be in the town centre at that time. These may include shop or restaurant owners and patrons and tourists. It is noted that this is qualitative and not based on discussion with local businesses, however the loss of a significant centre anchor and its associated activity is likely to have some impact.

While it is still unknown what will replace the Tweed Hospital, it is likely that this impact will only be felt during the transition between the site's current use and any future use while the site remains vacant.

Minimal negative impact due to reduction in activity and associate perceptions of safety while the site transitions from current use to as yet unidentified future use.

### Violence and anti-social behaviour associated with hospitals

Violence or anti-social behaviour from abusive or combative patients or other visitors is a negative social impact felt by hospitals and their immediate vicinities. While no data on the instances of these issue in Tweed is available, the relocation of the hospital from Tweed Heads town centre is likely to have a positive impact regarding these particular types of issues. As per other impacts identified in this report, while the relocation effectively transfers these issues to another part of the catchment, these are likely to be mitigated due to the lack of surrounding residential and business uses adjacent the Project Site at Kingscliff and further addressed through the design of the hospital to better address such impacts.

The hospital relocation will have a positive impact to the Tweed Heads town centre through the reduction of hospital-related violence and anti-social behaviour and a broader marginally positive impact on the local catchment due to the separation of the hospital from surrounding land uses.



### 3.3 Direct Economic Impacts

#### Employment

##### Construction phase

The construction phase of the Project will generate around 2,700 full time equivalent (FTE) jobs in the construction industry over 3.5 years. This amounts to an estimated average of 771 direct jobs employed on the Project per year.

This figure does not include any workers employed at the existing site for Holding Works as it was assessed that this work would have occurred regardless of the decision to proceed with the relocation and expansion project.

##### Operations phase

The relocation of the Tweed Hospital itself from the Tweed Town Centre to Kingscliff is in the short term a net transfer effect in the NSW economy, as the immediate impact is merely a relocation of employment and output from one location to another within the region.

As discussed in Section 2 however, the existing location inhibits any future expansion of this facility. Therefore in the medium to long term this relocation is the enabler for operational employment growth associated with Tweed Valley Hospital.

Once operational, the new Tweed Valley Hospital at Kingscliff will employ approximately 1,335 FTE workers, an estimated increase of 280 on the base case. Additionally, it is assumed the existing (approximately) 150 community health staff will remain located at Tweed Heads near the site of the old hospital. These ancillary staff have not been factored into the economic impact of the Project as it is understood they will remain in Tweed Heads regardless of whether the relocation and expansion proceeds.

#### Economic clustering of health-related activities at Kingscliff

The rise of the knowledge economy has increased the importance of locational considerations when it comes to economic growth.

More specifically, agglomeration economies are now widely known to exist where Knowledge Intensive Service Activities (KISAs) co-locate in dense clusters. This is particularly important in the health and education sectors where skills-based training, research and innovation (all discussed in the SIA in Section 3.2) are essential to the productivity and competitiveness of these industries.

The location for the new hospital at Kingscliff was chosen in part due its proximity to Kingscliff TAFE and the major population centre in Kingscliff - which is expected to grow significantly over the coming years. It is envisioned that by collocating the new hospital with the TAFE, there will be significant scope and opportunity to develop a regionally significant health and education precinct over time.

The Project Site was also chosen for its large size to allow for future hospital expansions, along with the ability to attract allied health services which typically prefer to locate within walking distance of anchor hospitals. The surrounding precinct has also been assessed to possess significant potential for population and employment growth in the future under the Kingscliff Locality Plan.

To that effect a number of community health and other support services on the existing site have been identified that would be best delivered in, or colocated with, a community health facility located in or close to the Tweed Heads town centre. The extent of these services may include Community Health, Oral Health (non-surgical) and BreastScreen services. As well, the Tweed Clinical Education and Research Institute (TCERI) – a partnership between NNSW LHD, Bond University and Griffith University – is located on the existing hospital site.

In the short term, there will be a significant impact on the clustering of health services due to the relocation. However over time, there will be opportunities for these services to be co-located with the new hospital.

Health Infrastructure identifies that partnership opportunities to relocate and expand these services and establish new facilities on the Project Site will be explored through 2018.

Overall, it is assessed that the move of the hospital to the Project Site is likely to enable significant levels of health and education agglomeration over the medium to long term which is not possible at the current site. This will in turn become an important catalyst for creating a fully-fledged health and education precinct at Kingscliff.

This major long term benefit is to some extent offset by two associated impacts:

- The direct loss of agricultural land, which stems from the Project Site that the relocated hospital is to occupy
- Potential externalities associated with the potential loss of the hospital itself from Tweed Town Centre.

Both impacts are addressed in more detail below.

### Loss of agricultural land

The provision of health services and associated economic clustering around the relocated hospital is offset by the loss of agricultural uses on the Project Site which it is planned to occupy.

Tweed Shire Council released its 10-year Community Strategic Plan in 2011, outlining the community's vision and directions for Tweed Shire from 2011 to 2021. Through the plan, residents emphasised the importance of agriculture: as an industry, as part of the community and as a defining element of the Tweed's aesthetic landscapes<sup>9</sup>.

The relocation of the Tweed Hospital to Cudgen Road Cudgen will see approximately 16 hectares of state significant agricultural land converted to health employment use. Approximately 11 hectares of the Project Site is currently producing sweet potatoes with a single year of production on the land estimated to have a gross margin of \$71,670<sup>10</sup>. Based on this estimate, the present value of the lost agricultural production in perpetuity is estimated to be \$1.02m. It is noted that while the loss of production value of the land may be offset by the increased productivity of the proposed use, it is not possible to relocate the productive land elsewhere.

This loss equates to 0.13% (in land area) of mapped State Significant Farmland (SSF) on the Far North Coast of NSW.

### Economic function of Tweed Town Centre

#### Regional Level Impact

The Tweed Hospital is currently located in the centre of Tweed Heads, the economic centre of the Tweed Local Government Area. The hospital site, including parking and NSW Ambulance facilities, is approximately 40,000 sqm. Tweed River is located to its east, low to medium density residential is to its north and south, and to its west is a block containing community buildings, local council offices and recreational facilities. More broadly, the area contains a

<sup>9</sup> Tweed Shire Council, 2016, Sustainable Agriculture Strategy, p.10.

<sup>10</sup> Agricultural Risk Consulting Group estimation of gross margin at site.

small goods retail centre to the north and bulky goods retail along Wharf Street to the west but is largely residential.

Public hospitals are important regional economic drivers, directly providing a range of stable employment to local areas. Indeed, health and social services is the largest industry of employment in the Tweed LGA and it is considered a population-serving industry. That is, the growth of health-related services is closely associated with population growth. Given the current and Project Sites are within close proximity of each other (around 15 minutes' drive), many hospital employees are likely to choose to keep their jobs, making the net impact on Tweed Heads employment small or negligible – in essence a transfer effect from Tweed Town Centre to Kingscliff. If this is the case, the relocation would merely increase travel times for these employees, rather than result in any net employment loss in the economy. Note that current and future employees who live south of the river would also benefit from reduced travel times due to the relocation, so the net effect is unlikely to be major.

From a broad NSW community perspective, the relocation of the Tweed Hospital from the Tweed Town Centre to Kingscliff is considered a transfer effect of economic activity as the hospital remains within the Tweed-Byron Region.

### Local Level Impact

At the local centre-level, this move equates to the loss of a significant anchor land use within the Tweed Town Centre in the *short term*.

Hospitals create economic value for the surrounding community through their procurement and by attracting visitors to the area who then spend money on local goods and services. Businesses such as those providing short term accommodation, food and hospitality services as well as retailers close by the current hospital site are the major beneficiaries. So it is logical that the relocation of the hospital away from this area will have a negative impact on trading levels and perceptions of centre vitality – at least in the short term.

Site sensitive procurement such as catering and cleaning services may also be affected. Procurement of more specialised goods or services may not change with the move and so would have a limited negative effect on the existing catchment.

That said, the relocation of the hospital frees up a significant parcel of land for alternative uses to populate in the medium-to-long term. In property development terms, the existing site is well positioned near the Tweed River and possesses relatively strong levels of amenity. It could be occupied by other strategically important uses that serve the local and regional population. More specifically, major retail, hospitality or entertainment type uses are all just as, if not more suitable in this location than a hospital; and would more likely provide their own package of stimuli for the nearby traders – whilst potentially enhancing the amenity of the precinct through street activation, attractive visual presentation and distinctive store frontages – all elements which hospitals are typically unable to contribute.

Health Infrastructure notes that NSW Department of Planning and Environment and Tweed Shire Council are in the process of developing a Regional City Action Plan for Tweed, which will provide the opportunity to develop a future vision for this site, accounting for the opportunities canvassed above.

### Impact on traffic and car parking

The new hospital at Cudgen Road and the loss of the hospital at Tweed Heads will likely impact on traffic and parking at both sites.

#### Tweed Town Centre

At the current Tweed Hospital site, the move will reduce traffic and demand for parking in the long run. This will almost certainly be a positive economic effect on the Town Centre and its surrounding businesses including:

- Reductions in road congestion
- Better amenity outcomes from reduced vehicle traffic
- Increased pedestrian and passing trade given improved amenity
- Improved opportunities for street activation and alfresco dining
- Reduced competition for parking space
- Increased liveability effects for surrounding residents.

#### Kingscliff

For the purpose of traffic analysis consistent with benchmarking against other NSW regional hospitals, traffic analysis has been based on a yield of 430 beds and 1,050 staff resulting in an anticipated increase of 5,000 vehicles per day. This increased vehicle movement at the Project Site during the construction and operational stages of the relocation will impact residents, visitors and businesses located in the area.

During the operational phase, the increased activity at the Project Site will likely be heaviest along Cudgen Road and north and south along the Tweed Coast Road, which provides the main connection to the Pacific Motorway.

The effect of increased traffic volumes on surrounding residential land uses will likely be limited as the most heavily used route does not travel through the residential areas.

Furthermore, there is intended to be improved public transport access in the form of extra bus services from Tweed to the Project Site in Kingscliff.

The new hospital will also contain significantly more parking spaces than what the current Tweed Hospital site is able to provide – mitigating the risk of overparking on the streets of Kingscliff.

That said, local agricultural uses may find the increased traffic disruptive and in conflict with their preferred use.

### 3.4 Indirect Economic Impacts (Wider Economic Benefits)

An economic impact assessment measures the total economic impact of a project on a region, by combining the direct impacts of the project with the **indirect impacts**.

These indirect impacts are triggered by the direct impact and relate to the multiple rounds of buyer-supplier transactions that ensue in the region after the initial impact has occurred.

Economic impacts are measured in terms of output (\$ millions), value added (\$ millions) and additional full time equivalent (FTE) jobs.

A definition of each of these impacts is provided below:

**Output** is a measure of spending in the economy. **Direct output** is the initial spending related to the delivery of the project (capital outlay and additional operating costs in this case). Output multipliers are applied to the direct output to calculate the **indirect output** (subsequent spending) that is generated. The sum of direct output and indirect output is referred to as **total output** and is measured in \$ millions.

**Value added** is a measure of the returns yielded from output. It includes the wages paid to employees and the profits earned by businesses. The sum of direct value added and indirect value added is referred to as **total value added** and is measured in \$ million.

**Employment** positions are created during the value adding process and are measured in terms of Full Time Equivalent (FTE) jobs created over the course of the project (hospital construction and operation in this case).

#### Method

In general terms, the key steps in undertaking an assessment of indirect impacts involves:

1. Isolating how the project stimulates the regional economy (direct impacts).
2. Generating region specific econometric models and subsequently deriving economic multipliers by major industry groups.
3. Applying these multipliers (by relevant industry group) to the direct impacts to estimate indirect regional impacts.
4. Calculating total regional impacts by combining direct and indirect impacts.

SGS takes the inter-industry relationships (buyer-supplier transaction) that are measured by the Australian Bureau of Statistics in the National Accounts, and scales these relationships down to a state level initially and subsequently a regional level, using available datasets and accepted mathematical techniques.

The results of this scaling process are a set of regional industry specific multipliers which estimate how spending in a specific regional industry, via the assessed direct impacts (stimuli), flows through to total output (or income for businesses); total regional value added (or contribution to GRP net of taxes), and total FTE jobs.

Employment, gross value added and output impacts have been measured compared to the base case and reflect the expected impact of additional spending, employment and output under the preferred option.

For the purpose of this analysis, the Tweed and Byron Local Government Areas are considered to be the local economic catchment.

## Limitations to analysis

Input-output modelling has some limitations, compared with using a partial or general equilibrium econometric models (also known as CGE modelling).

- The input-output (econometric) model assumes relationships between industries are static over the forecast period. That is, productivity improvements are not factored in and historic relationships are assumed to hold
- The input-output (econometric model) model does not account for any 'underutilised capacity' at the industry level or additional economies of scale that might ensue, as production expands from its existing base.
- All of the stimuli (direct impacts) are assumed to be 'new' economic activities for each regional economy. That is, crowding out or industry substitution effects are assumed to be negligible, meaning that key economic inputs such as labour and capital are assumed to be unconstrained, i.e. there is sufficient slack in the economy to service these stimuli without transferring significant resources from other productive uses. It also means that the activities that are promoted by the project do not adversely affect operations elsewhere.

Given that this Project is still in its planning stages (services and employment figures could still shift slightly), an Input-Output Model method was adjudged to be the most appropriate form of economic appraisal for Indirect Impacts.

## Regional employment creation

Employment projections for this Project can be considered in three major streams:

- **Construction phase** – which refers to the stimulus generated by construction and works associated with will generate 2,700 FTE jobs at 771 jobs per year over a 3.5 year period from 2019 to 2022. The Construction phase will cross both Stage 1 and Stage 2 of the project.
- **Operations phase** – which refers to the stimulus generated by the operations of an expanded hospital at Kingscliff. This includes a base staffing of 1,053 FTE jobs currently, rising by 20% to 2026/27, and then increasing by 1.1% per annum to 2031/32. The operations phase will be realised in Stage 2 of the project.
- **Agriculture** – which refers to the loss of agricultural jobs given that the relocation of the hospital. This amounts to 4 FTE jobs per annum. It is assumed that these jobs will not be relocated to any other part of the NSW economy. The loss of agricultural jobs will occur during Stage 1 of the project.

The distribution of direct, indirect and total employment generation across the region by construction and operations each year is shown in the table below. **It is important to note these figures show the total number of jobs expected to be operating each year, not the *additional* number of jobs added each year.<sup>11</sup>**

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<sup>11</sup> For example, in 2027, there are a total of 269 persons employed in the NSW economy due to the expanded operations of the hospital. By 2028, there are 287 persons. In effect, those 'original' 269 persons likely retained their jobs, whilst a further 18 people in NSW found employment in 2028 as a result of the hospital's expanded operations.

TABLE 8: EMPLOYMENT DURING CONSTRUCTION AND OPERATION (FTE)

	Construction			Operations			Agriculture			Net Impact		
Year	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
2019	771	1,007	1,778	-	-	-	-4	-2	-6	767	1,005	1,772
2020	771	1,007	1,778	-	-	-	-4	-2	-6	767	1,005	1,772
2021	771	1,007	1,778	-	-	-	-4	-2	-6	767	1,005	1,772
2022	386	503	889	-	-	-	-4	-2	-6	382	501	883
2023	-	-	-	42	12	54	-4	-2	-6	38	10	48
2024	-	-	-	84	23	108	-4	-2	-6	80	21	102
2025	-	-	-	126	35	161	-4	-2	-6	122	33	155
2026	-	-	-	168	47	215	-4	-2	-6	164	45	209
2027	-	-	-	211	58	269	-4	-2	-6	207	56	263
2028	-	-	-	224	62	287	-4	-2	-6	220	60	281
2029	-	-	-	239	66	305	-4	-2	-6	235	64	299
2030	-	-	-	253	70	323	-4	-2	-6	249	68	317
2031	-	-	-	267	74	341	-4	-2	-6	263	72	335
2032	-	-	-	282	78	360	-4	-2	-6	278	76	354
2033	-	-	-	282	78	360	-4	-2	-6	278	76	354
2034	-	-	-	282	78	360	-4	-2	-6	278	76	354
2035	-	-	-	282	78	360	-4	-2	-6	278	76	354
2036	-	-	-	282	78	360	-4	-2	-6	278	76	354
2037	-	-	-	282	78	360	-4	-2	-6	278	76	354
2038	-	-	-	282	78	360	-4	-2	-6	278	76	354
2039	-	-	-	282	78	360	-4	-2	-6	278	76	354
2040	-	-	-	282	78	360	-4	-2	-6	278	76	354
2041	-	-	-	282	78	360	-4	-2	-6	278	76	354
2042	-	-	-	282	78	360	-4	-2	-6	278	76	354
2043	-	-	-	282	78	360	-4	-2	-6	278	76	354
2044	-	-	-	282	78	360	-4	-2	-6	278	76	354
2045	-	-	-	282	78	360	-4	-2	-6	278	76	354
2046	-	-	-	282	78	360	-4	-2	-6	278	76	354
2047	-	-	-	282	78	360	-4	-2	-6	278	76	354
2048	-	-	-	282	78	360	-4	-2	-6	278	76	354

Source: Health Infrastructure and SGS Economics and Planning, 2018

### Regional value added

Value added for the region was calculated from the projected capital expenditure for the new hospital and the yearly value of production from the lost agricultural land. Details of these figures were sourced from the business case and from a valuation of the agricultural land respectively and can be found in Appendix 1.

The Project is expected to generate \$425 million in total value added (direct and indirect) across five years up to 2023. During its operational phase, the new hospital is expected to

generate up to \$46m gross value added. The hospital will also see a decline of around \$0.4m in gross value added per year due to the loss of agricultural production.

The distribution of the direct, indirect and total value added generated in the region is shown in the table below. As above, **it is important to note these are annual figures, and are not cumulative over the 30 year timespan of the analysis.**

TABLE 9: REGIONAL GROSS VALUE ADDED (2018 \$MILLION)

	Construction			Operations			Agriculture			Net Impact		
Year	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
2019	4.6	6.3	10.9	0.0	0.0	0.0	-0.3	-0.1	-0.4	4.3	6.2	10.5
2020	30.6	42.1	72.7	0.0	0.0	0.0	-0.3	-0.1	-0.4	30.3	42.0	72.3
2021	78.8	108.6	187.4	0.0	0.0	0.0	-0.3	-0.1	-0.4	78.6	108.4	187.0
2022	53.0	73.0	126.0	0.0	0.0	0.0	-0.3	-0.1	-0.4	52.8	72.9	125.7
2023	12.0	16.5	28.5	14.8	7.9	22.8	-0.3	-0.1	-0.4	26.6	24.3	50.9
2024	0.0	0.0	0.0	18.5	9.8	28.3	-0.3	-0.1	-0.4	18.2	9.7	27.9
2025	0.0	0.0	0.0	22.2	11.8	34.0	-0.3	-0.1	-0.4	21.9	11.7	33.6
2026	0.0	0.0	0.0	26.0	13.8	39.8	-0.3	-0.1	-0.4	25.7	13.7	39.4
2027	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2028	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2029	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2030	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2031	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2032	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2033	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2034	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2035	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2036	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2037	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2038	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2039	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2040	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2041	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2042	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2043	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2044	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2045	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2046	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2047	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3
2048	0.0	0.0	0.0	29.8	15.9	45.7	-0.3	-0.1	-0.4	29.6	15.8	45.3

Source: SGS Economics and Planning, 2018



## Regional output

Regional output was calculated based on NSW Health's projected spending on construction and operations of the new hospital, and the yearly value of production from the lost agricultural land. During construction, the Project is expected to generate over \$1 billion in total output (direct and indirect) across the region. During the operational phase after 2024, the hospital is expected to generate up to \$67 million in total output above the base case. The loss of agricultural production sees a decline in output \$0.7m every year. The distribution of direct, indirect and total output generated over the construction of the Project is shown in the table below:

TABLE 10: REGIONAL OUTPUT DURING CONSTRUCTION AND OPERATION PHASE (2018 \$MILLION)

	Construction			Operations			Agriculture			Net Impact		
Year	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
2019	13.8	13.1	26.9	0.0	0.0	0.0	-0.5	-0.2	-0.7	13.3	12.8	26.2
2020	92.4	87.5	179.9	0.0	0.0	0.0	-0.5	-0.2	-0.7	92.0	87.3	179.2
2021	238.3	225.6	463.9	0.0	0.0	0.0	-0.5	-0.2	-0.7	237.9	225.4	463.3
2022	160.3	151.7	312.1	0.0	0.0	0.0	-0.5	-0.2	-0.7	159.9	151.5	311.4
2023	36.3	34.4	70.7	20.2	13.1	33.4	-0.5	-0.2	-0.7	56.1	47.3	103.4
2024	0.0	0.0	0.0	25.2	16.3	41.5	-0.5	-0.2	-0.7	24.7	16.1	40.8
2025	0.0	0.0	0.0	30.2	19.6	49.8	-0.5	-0.2	-0.7	29.8	19.4	49.2
2026	0.0	0.0	0.0	35.4	23.0	58.4	-0.5	-0.2	-0.7	34.9	22.8	57.7
2027	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2028	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2029	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2030	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2031	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2032	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2033	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2034	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2035	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2036	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2037	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2038	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2039	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2040	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2041	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2042	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2043	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2044	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2045	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2046	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2047	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4
2048	0.0	0.0	0.0	40.7	26.4	67.1	-0.5	-0.2	-0.7	40.2	26.2	66.4

Source: Health Infrastructure and SGS Economics and Planning, 2018

## Summary

In net terms, the Project is predicted to have a significantly positive indirect economic outcomes in terms of its effects on employment, output and gross value added across the New South Wales economy.

## 4. SUMMARY OF IMPACTS

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### 4.1 Rationale

This report:

- Summarises the core purpose of the Project in question, which is to relocate the Tweed Hospital to Kingscliff in order to enable an expansion of the facility which would otherwise not be possible at the current site in the Tweed Town Centre due to land use constraints. The expansion is intended to facilitate the increased and improved provision of health care in the Tweed-Byron Region, amongst other outcomes.
- Profiles the socio-economic characteristics of this local region, with a focus on the prevalent health issues – many of which can in some part be ameliorated or addressed by an expanded and improved Level 5 hospital.
- Undertakes a social impact assessment which found that in addition to providing improved health outcomes, the expansion also generates other positive externalities such as enhanced skills, education and research capacity.
- Undertakes an economic impact assessment which identifies substantial employment and productivity outcomes that are likely to be partially offset by the loss of agricultural land at Kingscliff as well as a reduced economic function of the Tweed Town Centre (at least in the short term).

In the remainder of this section, the overall impact is qualitatively distilled within a net community benefit framework. The overall impact is then discussed in distributional terms as many of these impacts vary in terms of spatial intensity.

### 4.2 Net community benefit assessment

Table 11 and Table 12 summarise the social and economic impacts generated from the relocation and expansion of the hospital in Sections 3.2, 3.3 and 3.4. These are categorised as either positive or negative impacts. Each impact is qualitatively described as being High, Medium or Low, as well as whether an indication of whether the impact is a net positive or net negative impact for the NSW community. These qualitative descriptions are defined as follows.

**High** – The impact is expected to have a significant effect and be felt throughout the whole catchment and even beyond, driven by the provision of services or infrastructure not currently within the catchment.

**Medium** – The impact is expected to have a moderate impact throughout the catchment and be driven by a marginal change in infrastructure or services already provided.

**Low** – The impact is likely to have negligible impact, be appropriately mitigated to remove its impact or have local or temporary impacts.

Those impacts that are considered Medium or High are most likely to influence the overall findings of a net community benefit assessment or Cost Benefit Analysis.

Impacts have been split by the two parts of Stage 1 – early enabling work and concept development of the hospital, to indicate when the impacts are likely to be generated. Mitigation measures are also identified, as appropriate, for negative impacts.

TABLE 11: SUMMARY OF NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, WITH STRENGTH OF IMPACT AND MITIGATION MEASURES FOR NEGATIVE IMPACTS - EARLY ENABLING WORKS PHASE

Early enabling works phase	Positive	Negative	Mitigation measures
<b>SOCIAL</b>			
Impact on surrounding areas during construction		MEDIUM	Construction is temporary and on-site traffic and construction measures will mitigate worst of the issues. Project Site is not immediately adjacent residential areas.
Impact on the amenity of the surrounding environment		LOW	Considered during design process to minimise visual impact (Refer to Built Form and Urban Design Report)
Impact on rural lands		LOW	Land Use Conflict Risk Assessment undertaken with risk management recommendations made
<b>ECONOMIC</b>			
Increased employment during construction phase (continuing into stage 2)	MEDIUM		
Increased GRP during construction	HIGH		
Loss of agricultural land		MEDIUM	Developed land unable to be relocated resulting in loss of land. Design measures seek to minimise impact on adjacent rural lands (see above). Project Site is small component of Far North Coast's State Significant Farmland (0.13%) agricultural land

Source: SGS Economics and Planning

TABLE 12: SUMMARY OF NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, WITH STRENGTH OF IMPACT AND MITIGATION MEASURES FOR NEGATIVE IMPACTS - CONCEPT DEVELOPMENT PHASE

Concept development phase	Positive	Negative	Mitigation measures
<b>SOCIAL</b>			
Improved availability of health services and facilities	HIGH		
Increased capacity of health services and facilities	MEDIUM		
Improved quality of health care	MEDIUM		
Improved health care experience for patients, carers and families	MEDIUM		
Enhanced catchment self-sufficiency in service provision	HIGH		
Positive impact on skills, education and research capacity of NSW health care workers	HIGH		
Positive impact on the health outcomes of Aboriginal and Torres Strait Islander community of Northern NSW	MEDIUM		
Reduces the risk of patients, visitors and staff members being adversely affected by infectious diseases, the behaviour and actions of drug and alcohol affected patients, and from flooding.	HIGH		
Impact on surrounding areas during construction		MEDIUM	Construction is temporary and on-site traffic and construction measures will mitigate worst of the issues. Project Site is not immediately adjacent residential areas.
Impact on physical accessibility of health services and facility		LOW	Relocation of Hospital remains within local catchment, minimising wider impacts; potential to increase bus service and frequency between Tweed Heads and Project Site to facilitate patient and visitor accessibility. Long term population growth will benefit from more centralised health facilities; reduced cross-border patient flows will free up beds for NSW patients.
Impact on the amenity of the surrounding environment		LOW	Considered during design process to minimise visual impact (Refer to Built Form and Urban Design Report).
Impact on rural lands		LOW	Land Use Conflict Risk Assessment undertaken with risk management recommendations made.
Impact on Tweed Heads Town Centre		MEDIUM	Relocation of Hospital remains within local catchment, minimising wider impacts; potential to increase bus service and frequency between Tweed Heads and Project Site to facilitate patient and visitor accessibility; Transition of current site to another use will mitigate issues around passive surveillance and centre activity. Development of Regional City Action Plan for Tweed.
Impact on community safety		LOW	Application of CPTED principles in design process.

Concept development phase	Positive	Negative	Mitigation measures
<b>ECONOMIC</b>			
Increased employment during construction phase	MEDIUM		
Increased employment during operational phase of the hospital	HIGH		
Increased GRP during operations	HIGH		
Long term agglomeration benefit associated with clustering of health sector activities	MEDIUM		
Reduced traffic congestion in Tweed Town Centre	MEDIUM		
Improved public transport outcomes between Kingscliff and Tweed Town Centre	LOW		
Reduced parking demand in Tweed Town Centre	LOW		
Reduced economic function of the Tweed Town Centre		MEDIUM	Relocation of Hospital remains within local catchment, minimising wider impacts; potential retain some community health facilities within Tweed Heads Town Centre; Current site likely to transition to another use, minimising the time negative trade impacts are felt. Development of Regional City Action Plan for Tweed.
Increased traffic volumes at Kingscliff		LOW	Refer to Traffic study.

Source: SGS Economics and Planning

The majority of impacts identified in the social and economic assessments are likely to be positive, although the strength of these impacts varies. These positive impacts are to some extent offset by some negative impacts, the most significant being the reduced economic function of the Tweed Town Centre as a result of the relocation alongside the resultant social impacts, with others being fairly minor or ones which can be mitigated to a large extent with identified measures. It is considered that the wider positive impacts to both the community and economy outweigh the negative impacts identified in the study.

It is noted that the majority of impacts, both positive and negative, are expected to be generated during or the concept development phase that considers impacts once the hospital is operational. Due to the preliminary nature of the early enabling works phase, there are few positive impacts. Most are negative and associated with the impact on rural lands or the construction process. The significant benefits accrue in the Concept Development.

Several impacts occur across both phases. This is due to similar works being undertaken across both and their impacts being felt during both phases of construction.

### 4.3 Distributional analysis

The same impacts are then placed into Table 13 where a distributional analysis is undertaken to assess the extent to which the various impacts are concentrated in a local township or more evenly distributed across the broader region or the state of New South Wales.

TABLE 13: NET IMPACT ACROSS SOCIAL AND ECONOMIC ASSESSMENTS, DISTRIBUTIONAL ASSESSMENT (EARLY AND ENABLING WORKS AND CONCEPT DEVELOPMENT PHASES)

Impacts	SPATIAL SCOPE
<b>SOCIAL</b>	
Enhanced availability of health services and facilities	Tweed-Byron Region
Increased capacity of health services and facilities	Tweed-Byron Region
Enhanced quality of health care	Tweed-Byron Region
Improved health care experience for patients, carers and families	Tweed-Byron Region
Enhanced catchment self- sufficiency in service provision	Tweed-Byron Region
Positive impact on skills, education and research capacity of NSW health care workers	New South Wales; Tweed-Byron Region
Positive impact on the health outcomes of Aboriginal and Torres Strait Islander community of Northern NSW	Tweed-Byron Region
Reduces the risk of patients, visitors and staff members being adversely affected by infectious diseases, the behaviour and actions of drug and alcohol affected patients, and from flooding.	Tweed-Byron Region
Impact on surrounding areas during construction	Kingscliff
Impact on physical accessibility of health services and facility	Tweed-Byron Region; Kingscliff (positive only); Tweed Town Centre (negative only)
Impact on community safety	Kingscliff
Impact on the amenity of the surrounding environment	Kingscliff
Impact on surrounding rural lands	Kingscliff
Impact on Tweed Heads Town Centre	Tweed Town Centre
<b>ECONOMIC</b>	
Increased employment during construction phase	New South Wales, Tweed-Byron Region
Increased employment during operational phase of the hospital	New South Wales, Tweed-Byron Region
Increased GRP during construction	New South Wales, Tweed-Byron Region
Increased GRP during operations	New South Wales, Tweed-Byron Region
Long term agglomeration benefit associated with clustering of health sector activities	New South Wales, Tweed-Byron Region
Reduced traffic congestion in Tweed Town Centre	Tweed Town Centre
Improved public transport outcomes between Kingscliff and Tweed Town Centre	Tweed Town Centre, Kingscliff
Reduced parking demand in Tweed Town Centre	Tweed Town Centre
Loss of agricultural land	New South Wales
Reduced economic function of the Tweed Town Centre	Tweed Town Centre
Increased traffic volumes at Kingscliff	Kingscliff

Source: SGS Economics and Planning

The analysis demonstrates that most of the positive social outcomes associated with an expanded hospital facility benefit the broader Tweed-Byron Region, whilst some negative impacts would appear to be more concentrated to either the Tweed Town Centre or Kingscliff.

Nonetheless, as the table below shows, both Kingscliff and Tweed Town Centre also stand to benefit from other locally specific impacts associated with the hospital relocation and expansion as well.

TABLE 14: TWEED TOWN CENTRE AND KINGSCLIFF - LOCALLY SPECIFIC IMPACTS ONLY (EARLY AND ENABLING WORKS AND CONCEPT DEVELOPMENT PHASES)

Locality	Positive Local Impacts	Negative Local Impacts
Tweed Town Centre	Reduced traffic congestion in Tweed Town Centre	Reduced economic function of the Tweed Town Centre
	Improved public transport outcomes between Kingscliff and Tweed Town Centre	Reduced physical accessibility of health services and facilities
	Reduced parking demand in Tweed Town Centre	Reduced local community accessibility to hospital and outpatient and allied health services within Tweed Town Centre
	Decreased risk of hospital-related violence and anti-social behaviour*	Decreased perception of night-time safety*
Kingscliff	Improved physical accessibility of health services and facility	Increased traffic volumes at Kingscliff
	Improved public transport outcomes between Kingscliff and Tweed Town Centre	Impact on surrounding areas during construction
		Impact on community safety*
		Impact on the amenity of the surrounding environment*
		Impact on surrounding rural lands*

Source: SGS Economics and Planning

\* These identified impacts are part of the broader impact discussed in Section **Error! Reference source not found.** and in the tables above, entitled 'Impact of Tweed Heads Town Centre. They have been split here to indicate their local specificity

### Impacts to specific local groups at new Hospital site

Consultation was undertaken by TSA and Health Infrastructure to understand the likely to nature of impacts to key local stakeholders (particularly land users) and property owners. The likely impact findings are summarised in Table 15 below, along with potential mitigation measures.



TABLE 15: SPECIFIC LOCAL GROUPS LIKELY TO BE IMPACTED BY TWEED VALLEY HOSPITAL

Local Group/ Stakeholder	Likely Impact	Mitigation measures
Kingscliff Community Health Centre	Little impact, although run-off of red dirt into library entrance during planning and construction is worth keeping in mind.	Ensure that during construction, red dirt run-off is monitored – and managed if required.
Kingscliff Aquatic Centre	No impact identified	Not applicable
Kingscliff High School	No impact identified	Not applicable
TAFE	<p>The Hospital being in such close proximity offers great potential for TAFE students to benefit from training and research opportunities within an integrated health and education precinct.</p> <p>Potential parking impacts for people utilising TAFE parking during construction and when hospital is operational was raised. The hospital will also bring with it increased volumes of traffic, which may be a concern for the TAFE entrance intersection.</p>	<p>In terms of parking – the new hospital will contain significantly more parking spaces than what the existing Tweed Hospital site is able to provide – mitigating the risk of overparking on the streets of Kingscliff.</p> <p>In terms of traffic – the new hospital will be serviced by substantially improved and increased public transport services to and from the hospital.</p>
Agricultural properties	<p>Traffic &amp; access – Concerns around how increased traffic would lead to restricted access to properties</p> <p>Car parking – Concerns surrounding parking spill-over onto agricultural properties both during and after construction</p> <p>Crime – Concerned about criminal or anti-social behaviour which could result in theft or property damage</p> <p>Impact to business – Operationally, there is concern that shadowing could result in lost production</p>	<p>In terms of traffic – the new hospital will be serviced by substantially improved and increased public transport services to and from the hospital.</p> <p>In terms of parking – the new hospital will contain significantly more parking spaces than what the existing Tweed Hospital site is able to provide – mitigating the risk of overparking on the streets of Kingscliff.</p> <p>In terms of crime and anti-social behaviour - TVH has adopted the principles of CPTED in the development of the Project Masterplan and concept planning to establish a safe and secure environment. More details of how each strategy is implemented can be found in the Built Form and Urban Design Study.</p> <p>In terms of impact to agricultural business – The LUCRA report identified measures including:</p> <ul style="list-style-type: none"> <li>▪ A vegetated buffer along the southern boundary to safeguard spray drift</li> <li>▪ Supplementary plantings between existing rows of trees and shrubs on the western and south-western boundary of the Project Site to form an improved vegetative screen</li> <li>▪ Soil and Water Management Plan (SWMP) for the construction and operation phases to manage stormwater runoff</li> </ul>
Residential properties	Concerns surround increased traffic, red dust, criminal behaviour, impact on the residential character of Kingscliff.	In terms of traffic – the new hospital will be serviced by substantially improved and

		<p>increased public transport services to and from the hospital.</p> <p>The red dust is an issue which will need to be monitored during construction and managed if required.</p> <p>In terms of crime and anti-social behaviour - TVH has adopted the principles of CPTED in the development of the Project Site Masterplan and concept planning to establish a safe and secure environment. More details of how each strategy is implemented can be found in the Built Form and Urban Design Study.</p> <p>In terms of impact on character - The visual impact of the proposal would be further considered during detailed design, including the development and incorporation of measures to assist in reducing or mitigating visual impact.</p>
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Source: Agricultural impact – Consultation with neighbouring properties (TSA & HI, August 6-9 2018)

## 4.4 Conclusion

This study has applied a mix of quantitative and qualitative methods in the undertaking of its analysis. It considers both positive and negative impacts, however, it finds that the new Tweed Valley Hospital in Kingscliff will, on balance, create an overall positive social and economic impact to the region. Many of the negative impacts identified have tangible mitigation measures to reduce their impact. The early stage negative impacts of construction will be exceeded by the long-term social and health-relative positive impacts that the new hospital will provide to the catchment.



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