Health Projects International

Cudgen Connection
Market Assessment

Update v1.2
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1. About HPI

Health Projects International (HPI) is an award winning, international firm of specialist health planning consultants. The firm is comprised of experienced Health Service Planners, Nurse Planners, Health Facility Planners, Hospital Architects and Clinical Interior Designers. HPI is a name trusted by numerous Governments, Health Authorities and private sector clients. HPI is responsible for some of the largest healthcare service and facility planning projects in the world by volume and type.

1.1 A to Z of Health Planning

HPI and its international arm TAHPI have delivered projects from Australasia to SE Asia, the Indian subcontinent, the GCC, Africa and Europe. HPI operates from 8 offices and has activities in 24 countries.

HPI provides substantial specialist expertise in health planning and policy development for both Government and private sector organisations in many countries. We have a strong reputation for the robust analysis of health systems and asset development issues and, as a result, our investigations and reports contribute to the execution of government policy initiatives, including new regulatory, licensing and health standard frameworks.

1.2 Services

HPI offers a full range of consultancy services from Health Service Planning, Health Facility Planning, Architectural and Engineering Design, Biomedical Engineering Construction Supervision, Operational Commissioning, Interior Design and associated graphic design, video production, and software development.

Services include master planning, clinical services planning and briefing, detailed architectural and engineering design and construction documentation as well as monitoring of all processes to completion and operation. The building types include public and private hospitals, healthcare cities, specialist clinics, day surgery centres, medical centres, diagnostic and rehabilitation centres. HPI offers international best practices, state-of-the-art methodologies for the design and rapid procurement of healthcare projects. HPI is the developer and owner of the powerful HFBS suite of Health Planning software with 12 modules used for every aspect of health planning. This integrated approach allows HPI to evaluate health projects efficiently and give clients the certainty they need to make difficult decisions.

1.3 Staff & Offices

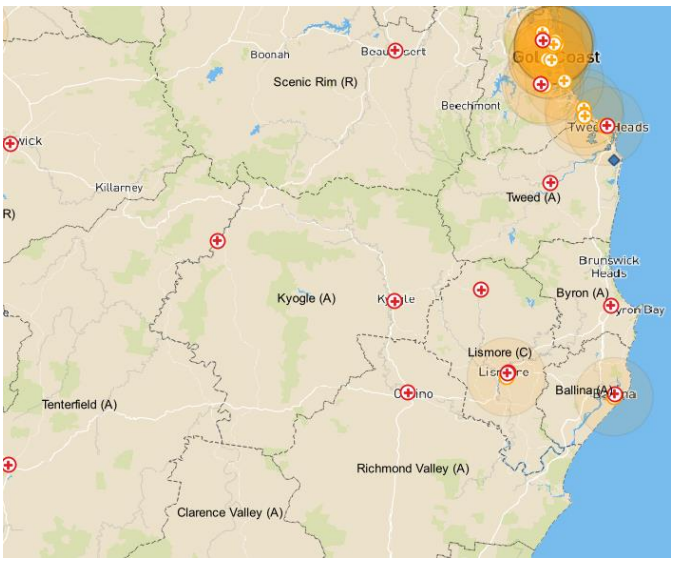
HPI has over 250 direct and locally contracted staff including health Architects, Interior Designers, Nurse Planners and Software Developers responsible for over 300 completed projects.

2. Executive Summary

HPI has been engaged to perform an update on the previous market assessment and gap analysis for an integrated care centre at the proposed site location of **741 Cudgen Road, Cudgen**. The site is a 5-minute walk from the new Tweed Valley Hospital and approximately a 15-minute drive South of the Tweed Heads centre and the Gold Coast Airport.

The analysis has been performed on the primary catchment of the Tweed and Byron Local Government Areas (LGAs) with a flow analysis of the secondary catchment from surrounding LGAs of the Northern NSW Local Health District (NNSWLHD).

Figure 1 Supply of Hospitals and LGA boundaries.
Red = Public, Yellow = Private (& 10km Radius), Blue = Project Location



This report is structured into the following areas:

- Population & Demographics (population size, density, structure, growth, Medicare utilisation, private health insurance, socioeconomic and demographic demand drivers)
- Supply & Geospatial Analysis (Geospatial and service model review of existing supply, competitor profiling, health and aged care facilities)
- Demand Modelling (Population-driven demand of the primary and secondary catchment)
- Gap Analysis (Comparison of supply and demand, with a review of potential demand of patient outflow/inflow)

Population & Demographics

- **Population**: the population of Tweed is growing at a rate slower than the overall population in NSW. NSW Department of Planning, Industry and Environment (DPIE) population projections estimate an additional 19,048 residents in the primary catchment of Tweed and Byron Local Government Areas (LGAs) over the next 20 years.
- **Migration**: interest in real estate (both short-term and permanent) has increased dramatically during and following the peak COVID-19 period. Pre-COVID migration counts showed a net migration inflow of nearly 3,000 people, with a rapid growth in the net migration in the age group of 65 and over, putting extra pressure on the demand for healthcare services in the area.
- **Ageing** Population: the population profile of Tweed and Byron is ageing at a rate faster than Regional NSW and Capital Cities. There is estimated to be an additional 13,876 residents (40% increase) over the age of 65 by 2040. Those aged over 65 typically utilise healthcare at a rate close to four times the amount of those under the age of 65, resulting in a compounding effect on healthcare demand and will ultimately shift investment priorities.
- **Private Health Insurance** hospital coverage of the catchment is estimated to be approximately 28.6%, slightly below the NSW average of 33.1%. Due to mismatches in private hospital demand and supply, those with PHI who are not already utilising public hospitals are travelling **outbound** to neighbouring LGAs to receive private health care.
- **Socioeconomic** measures indicate a similar income profile to regional NSW and a slightly higher unemployment rate compared to the State and regional NSW. Tweed has a slightly greater socioeconomic disadvantage compared to Byron.
- **Job availability** analysis identifies that 36.4% of Tweed residents working in healthcare are employed externally to Tweed and 44% of Byron residents in healthcare are externally employed. This indicates an outflow of local workers – especially those in the healthcare industry. There is a larger shortage of jobs in the healthcare industry for Byron than Tweed, and a shortage of over 300 hospital jobs when considering both Tweed and Byron resident outflow of healthcare workers.

Supply & Geospatial Analysis

Key Supply Measures	Tweed & Byron LGAs	NSW	Australia	Comment
Public Beds	~565	20,910	63,590	
Private Beds	23	8,500	34,339	Limited private supply results in low self-sufficiency and **higher outflows of residents** seeking private healthcare in neighbouring areas
Public to Private Bed Ratio	24.56:1	2.46:1	1.85:1	Significantly higher public to private bed ratio, indicating an **over-reliance on the public system**
% Population with PHI[1]	28.6%	33.1%	31.3%	**Lower % coverage in private health insurance** compared with NSW and Australia

[1] *https://phidu.torrens.edu.au/current/maps/sha-aust/lga-single-map/aust/atlas.html*

Public Beds per 1,000 Capita	4.13	2.55	2.40	The catchment of the Tweed Hospital is wider than Byron and Tweed LGAs and caters for the majority of the NNSWLHD and also some inflows from QLD.
Private Beds per 1,000 Capita	0.17	1.04	1.30	**Limited private bed supply** results in large opportunities for private healthcare investment in the Tweed and Byron LGA region.

- The new **Tweed Valley Hospital development** will provide an estimated total of 430 overnight and day only beds, 42 acute care and trauma ED treatment spaces, 12 operating theatres and expanded outpatient space. The hospital is planned to provide services in emergency, paediatrics & adolescent care, rehabilitation, geriatrics, maternity & special care nursery, intensive care, cardiac inpatient & outpatient, renal, mental health inpatient & outpatient and drug & alcohol.
- **There is a lack of private bed supply in the catchment,** with only 1 private day hospital providing 23 same day places and 3 OT and 2 procedural rooms. Over 11% of all admissions to Tweed Hospital are those with private health insurance
- **Potentially preventable hospitalisations (PPH)** acts as a proxy measure of primary care effectiveness. Tweed Valley was ranked the 9th worst out of 89 NSW SA3 regions in 2018 for PPH per 100,000, which has worsened since 2014 where it was ranked 15th. This implies that there are opportunities to invest in primary care services and also to improve the interface between admitted and non-admitted care within the region.
- **Drivetime analysis** shows that there are close to 97,000 NSW residents within a 30 min drive (~70% of primary catchment), 174,000 within 1 hour, and 243,000 within 2 hours.
- **NNSWLHD Strategic Plan and Clinical Services Plan** key priorities have been studied and included in this report, which highlight many aligning strategies to the vision of this development

Demand Modelling

- The health service demand modelling has been conducted by applying age and gender specific per capita rates for current and future years to the population projections of the primary and secondary catchment. These age and sex specific reference rates are sensitive to trends in healthcare utilisation over the last 15 to 20 years. The demand modelling figures reflect these trends, such as the shifts from acute overnight to same day/ambulatory services.

Gap Analysis

<table>
<tr><th rowspan="2">Service Type</th><th colspan="2">Supply</th><th colspan="2">Demand (Primary)</th><th colspan="2">Demand (Secondary)</th><th colspan="2">Gap (Primary & Secondary)</th></tr>
<tr><th>2020</th><th>+ Planned (New Tweed Valley Hospital)</th><th>2020</th><th>2040</th><th>2020</th><th>2040</th><th>2020</th><th>2040</th></tr>
<tr><td colspan="9">Public & Private</td></tr>
<tr><td>Inpatient Beds</td><td rowspan="2">398
(240 Tweed, 70 Murwillumbah, 65 Byron Central, 23 Tweed Day Surgery)</td><td rowspan="2">+190
Tweed Expansion</td><td>399</td><td>476</td><td>120</td><td>124</td><td rowspan="2">+76</td><td rowspan="2">+313</td></tr>
<tr><td>Same Day Places</td><td>111</td><td>239</td><td>34</td><td>62</td></tr>
<tr><td>Elective OT</td><td>14
7 TVH, 2 Murwillumbah, 5 Tweed Day Surgery</td><td>+5
Tweed Expansion</td><td>18</td><td>28</td><td>5</td><td>7</td><td>+4</td><td>+16</td></tr>
<tr><td>Rehabilitation</td><td>~16 Tweed Hospital,
24 Murwillumbah</td><td>-</td><td>77</td><td>121</td><td>23</td><td>31</td><td>+60</td><td>+112</td></tr>
<tr><td colspan="9">Private Only</td></tr>
<tr><td>Inpatient Beds</td><td rowspan="2">23</td><td rowspan="2">-</td><td>114</td><td>105</td><td>34</td><td>27</td><td rowspan="2">+167</td><td rowspan="2">+173</td></tr>
<tr><td>Same Day Places</td><td>32</td><td>50</td><td>10</td><td>14</td></tr>
<tr><td>Elective OT</td><td>5</td><td>-</td><td>9</td><td>15</td><td>1</td><td>2</td><td>+5</td><td>+12</td></tr>
</table>

- In aggregate, the primary and secondary catchment is undersupplied by 167 **private acute beds** in 2020 and will increase to 173 private beds by 2040, due to the significantly low supply of acute beds in the private sector. There is a clear indication that the public sector is seeing more than its fair share, and those seeking private health care are attending public hospitals and/or travelling to neighbouring areas where greater private health service supply is available.

- There is a gap of 60 **rehabilitation beds** in 2020 and 112 beds by 2040. There are opportunities to provide Day Rehabilitation and Hydrotherapy services which can leverage off the primary care and allied health component of the precinct.
- By 2040, the number of residents over the age of 65 will increase by 13,876 residents (40% increase). Based on the age-sex profile of the primary and secondary catchment, there is a current and future gap of 548 and 400 **residential aged care places**, respectively.
- Using state-wide averages, a hospital **human resource profile** has been provided, with a ratio of 100 beds to 570 FTE (60 Salaried MO, 230 Nurses, 110 AH & Diagnostic, 100 Admin, 70 Domestic/Support). Using this assumed profile, an **essential worker / affordable housing** sensitivity analysis has also been performed. The medium scenario suggests a potential for 1.1 affordable housing rooms per hospital acute bed
- A **medihotel** benchmarking analysis has been performed and suggests a ratio of 16 medihotel beds per 100 acute beds. This equates to 106 accommodation beds for a full capacity TVH at 500 beds with a 100-bed private facility.
- The report identifies **operational and clinical benefits of co-locating** private and public health services (as well as education and research facilities), integrated into a comprehensive precinct that encompasses admitted and non-admitted health services with additional supporting facilities.

3. Glossary

Table 1 Glossary of Terms

Abbreviation	Explanation
ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
APRA	Australian Prudential Regulation Authority
CAGR	Compound Annual Growth Rate
CSP	Clinical Services Plan
DAP	Daily Accommodation Payment
FTE	Full-time Equivalent
GP	General Practitioner
HR	Human Resources
IPU	Inpatient Unit
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
KPU	Key Planning Unit
LGA	Local Government Area
LHD	Local Health District
MBS	Medicare Benefits Schedule
NNSWLHD	Northern New South Wales Local Health District
OPD	Outpatient Department
OT	Operating Theatre
PHI	Private Health Insurance
PPH	Potentially Preventable Hospitalisations
RAD	Refundable Accommodation Amount
SA3	Statistical Area Level 3
SEIFA	Socio-Economic Indexes for Areas
TVH	Tweed Valley Hospital
Δ	Change

4. Project Overview

4.1 Project Scope

The scope of this project involves the analysis of supply and demand for:

- Acute Overnight Beds
- Acute Same Day places/beds
- Non-Acute Care
- Outpatients
- Operating Theatres
- Medical Imaging

A competitor profile for same day place/beds has also been performed to understand major players within the catchment.

4.2 Study Catchment

The study for healthcare demand has been determined through likely catchments of the proposed facility. Local Government Areas (LGA) that represent the target population have been analysed, with a high-level overview of the surrounding LGAs and the implication of inflows and outflows of care.

For this report a review of the supply and demand for the Primary catchment includes Tweed and Byron LGAs, with a secondary catchment of the remaining LGAs of Northern NSW LHD.

Primary Catchment: Tweed and Byron LGAs

Secondary Catchment: Rest of Northern NSW LHD LGAs (Ballina, Clarence Valley, Kyogle, Lismore & Richmond Valley)

Figure 2 Primary Catchment LGA Boundaries

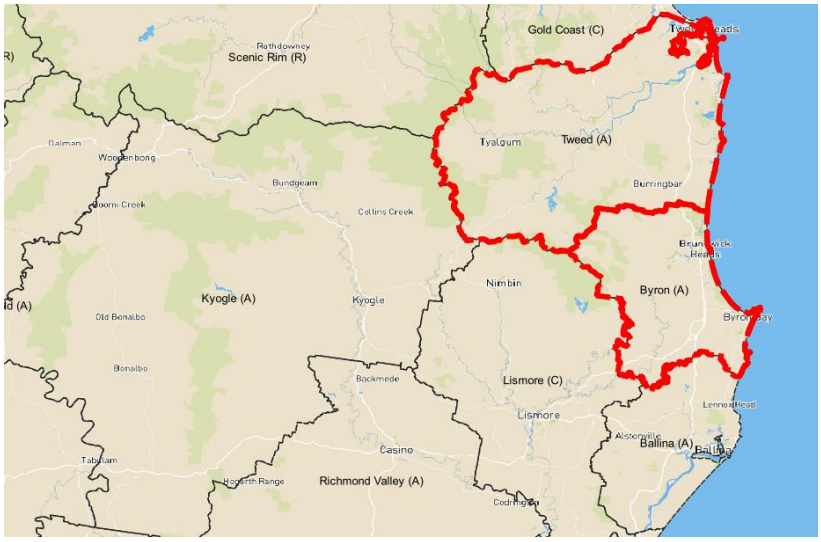


Figure 3 Boundary of Northern NSW LHD

4.3 Report Sources

This report uses both publicly available sources for supply and socioeconomic analysis, as well as HPI proprietary demand modelling software. The key sources used in the creation of this analysis include:

- AIHW
- ABS
- APRA
- MBS
- NSW Department of Planning, Industry and Environment (DPIE) Population Projections by LGA. All population projection tables were created from DPIE data unless stated otherwise.
- HealthDirect
- Profile.ID & Economy.ID
- Australasian Health Facility Guidelines
- Healthy North Coast[2]

[2] Healthy North Coast is an independent, not-for-profit organisation delivering the PHN program in North Coast NSW and providing health-related statistics on North Coast NSW

5. Population and Demographics

5.1 Population

Population profiles, both in size and structure, provide key insights into demand drivers for healthcare within the catchment. Historical population and projected populations for the catchment have been studied and utilised in demand modelling to create a demand profile specific to the size, age and sex profile of the population over the next twenty years.

5.1.1 Population Growth

Data on population projections by LGA are sourced from the NSW Department of Planning, Industry and Environment (DPIE) and used for Health Demand Projection[3]. A comparison is made below to highlight the differences in population size, structure and growth profiles of the study catchment, secondary catchment and the rest of the state. This provides both specificity and sensitivity in demand profiling for all in-scope service types.

There is a significant population growth forecasted in the region, and in particular the increase in the ageing population. It is hoped that the need for the health services in the region to be more self-sufficient, allowing better access to more high-quality health services locally into the future, without travelling outside the region.

The Population in Byron is projected to grow faster than the NSW average, while the Tweed LGA is slower. Both LGAs have a higher proportion of ageing population than the NSW average in 2023 (28% in Tweed and 20% in Byron, compared with 18% in NSW), with even a higher proportion in 2040 (35% in Tweed and 23% in Byron). The Tweed LGA will see considerable growth in the ageing population aged 65+ (7.4%), compared to the NSW average growth of 3.9% and 2.3% in Byron LGA.

Figure 4 Population Growth Rates - Tweed and New South Wales

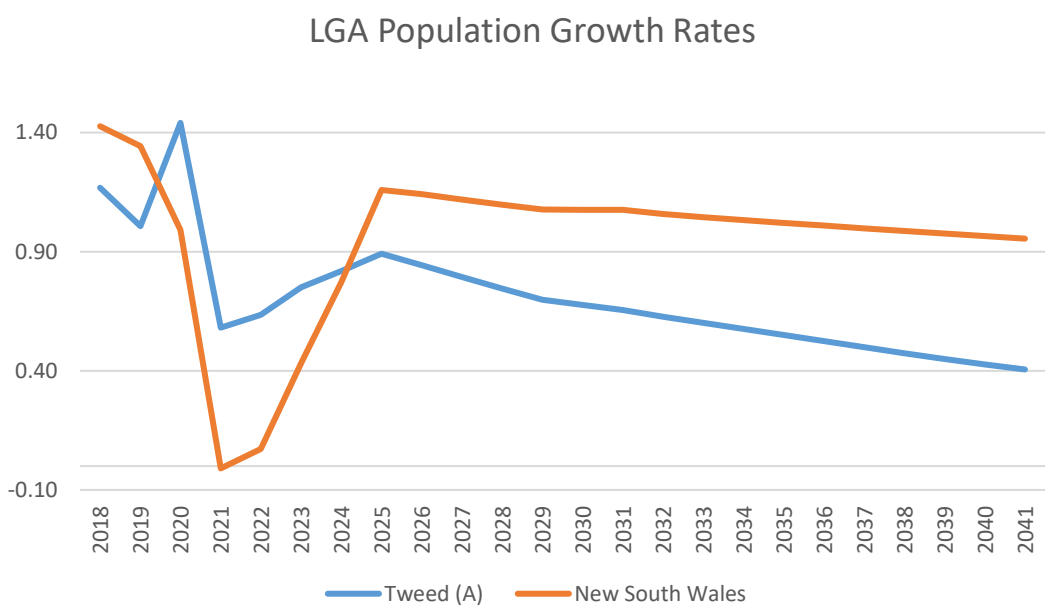
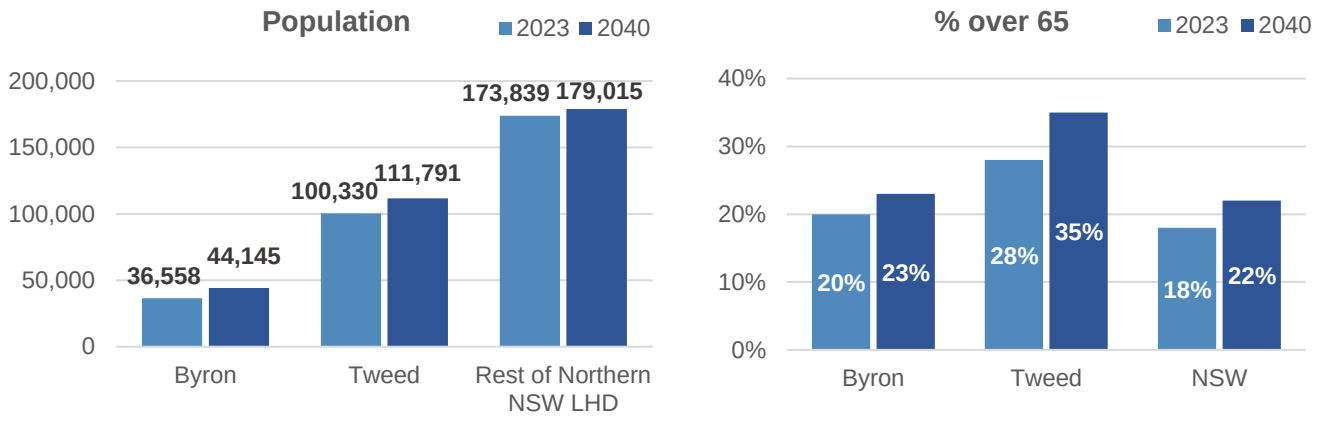


Table 2 Population change, Total and Proportion over 65, 2023-2040, Source: NSW DPIE

LGA	Total Population			% over 65		
	2023	2040	CAGR	2023	2040	percentage-point Change
Byron	36,558	44,145	1.12%	**20%**	**23%**	**2.3%**
Tweed	100,330	111,791	0.64%	**28%**	**35%**	**7.4%**
Ballina	46,339	53,259	0.82%	**27%**	**33%**	**5.8%**
Clarence Valley	52,047	54,281	0.25%	**29%**	**33%**	**4.5%**
Kyogle	8,508	6,717	-1.38%	**29%**	**37%**	**7.4%**
Lismore	43,214	39,784	-0.49%	**22%**	**27%**	**5.4%**
Richmond Valley	23,731	24,974	0.30%	**25%**	**29%**	**3.9%**
NSW Total	**8,207,936**	**9,779,573**	**1.04%**	**18%**	**22%**	**3.9%**

[3] Some of the population projection figures are different from the projections by the local Council: The council's projection is over 8% more than the DPIE projection for the primary catchment area. The DPIE data are identified and used as a precautionary and conservative measure; the gaps of health services provision will be larger if the Council's population projection figures are adopted.

Figure 5 Population projections, LGAs, Total and % over 65, 2020-2040, Source: NSW DPIE

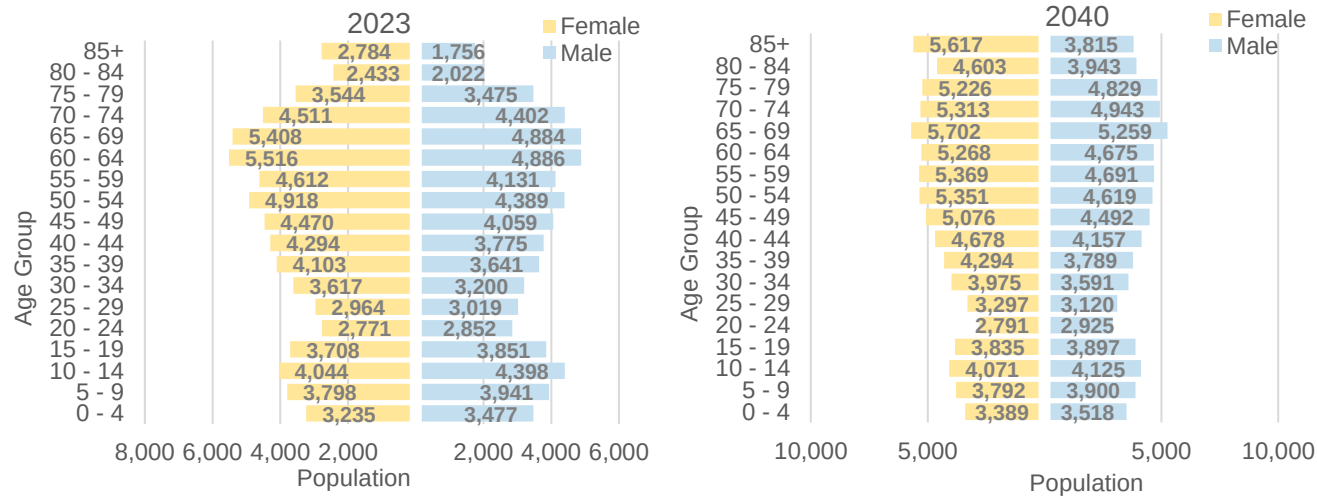


The population of persons aged 65 years and older in Byron and Tweed combined is expected to increase from 35,404 in 2023 to 49,280 in 2040, approximately a 40% increase. There are clear implications of this ageing population profile on healthcare utilisation and burdens of disease. The demand modelling takes the age and gender composition of this primary catchment to quantify the services required to support this population. These older residents make use of more acute health services due to chronic and complex conditions, dementia and fractures as a result of falls. The large composition of those in the older cohorts will influence the utilisation of rehabilitation, oncology, cardiology and other services targeting chronic diseases and conditions.

5.1.2 Population Demographics

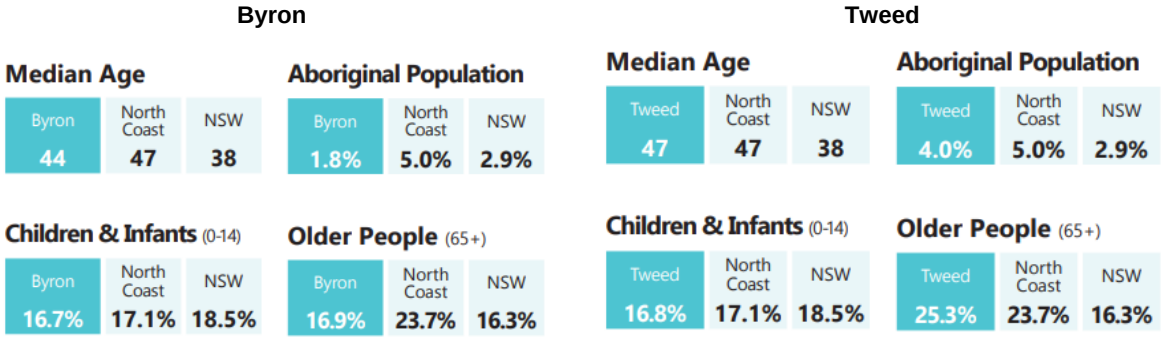
The local demographics have important implications for the health needs in the area. The situation of the ageing population is projected to worsen into the future, with more people in the older age brackets. The ageing population puts extra pressure on the already stressed healthcare services and burdens of disease.

Figure 6 Age and Sex Population Profile, 2023 Current and 2040 Projected, Primary Catchment, Source: NSW DPIE



Compared to the North Coast NSW, Byron has a lightly younger population, with a Median Age of 44 compared to 47 in Tweed LGA and the North Coast Average. The population in both LGAs are considerably older than the NSW overall with a median age of 38, according to the data published on https://hnc.org.au/. There is a smaller proportion of residents aged 14 years old or younger in both Byron (16.7%) and Tweed (16.8%), compared to the North Coast (17.1%) and the State Average (18.5%). More Aboriginal population in Tweed (4.0%) than the NSW average (2.9%) and in Byron (1.8%), who have been shown to have higher health needs than the general population.

Figure 7 Local Demographics in Byron and Tweed, compared with the North Coast and NSW average[4]



5.1.3 Pre-COVID: Net Internal and Overseas Migration

The migration counts showed a net migration inflow of nearly 3,000 people in 2019-2020, with slightly more in the Tweed Valley than the Richmond Valley-Coastal region. Whilst there was a net outflow for the 15-24 age group, the majority of inflows are of working age migrants. The outflow of residents in the 15-24 age group is likely based on the lack of university opportunities within close proximity. Providing education opportunities, especially those associated with healthcare, could assist in reversing this outflow through university alliances.

There has been a rapid growth in the net migration in the age group of 65 and over. It was six times in 2019-2020 the migration 2018-2019 in Richmond Valley Coastal Region and tripled in Tweed Valley during the same period.

Table 3 Net Migration shown by SA3, Type, Year. Source: ABS

Migration by Type	2016-17	2017-18	2018-19	2019-2020
Richmond Valley - Coastal	**955**	**1,174**	**870**	**1,347**
Net Internal Migration	330	625	350	996
Net Overseas Migration	625	549	520	351
Tweed Valley	**1,354**	**1,257**	**1,095**	**1,455**
Net Internal Migration	865	829	686	1,176
Net Overseas Migration	489	428	409	279

Table 4 Net Migration shown by SA3, Age, Year. Source: ABS

Migration by Age	2016-17	2017-18	2018-19	2019-2020
Richmond Valley - Coastal	**955**	**1,174**	**870**	**1,347**
0 - 14	286	344	330	415
15 - 24	-127	-35	-99	-103
25 - 44	513	606	387	507
45 - 64	242	240	242	466
65 and over	41	19	10	62
Tweed Valley	**1,354**	**1,257**	**1,095**	**1,455**
0 - 14	347	301	395	470
15 - 24	-29	4	-36	-10
25 - 44	387	307	310	385
45 - 64	516	484	379	478
65 and over	133	161	47	132
Grand Total	**2,309**	**2,431**	**1,965**	**2,802**

5.1.4 Post-COVID

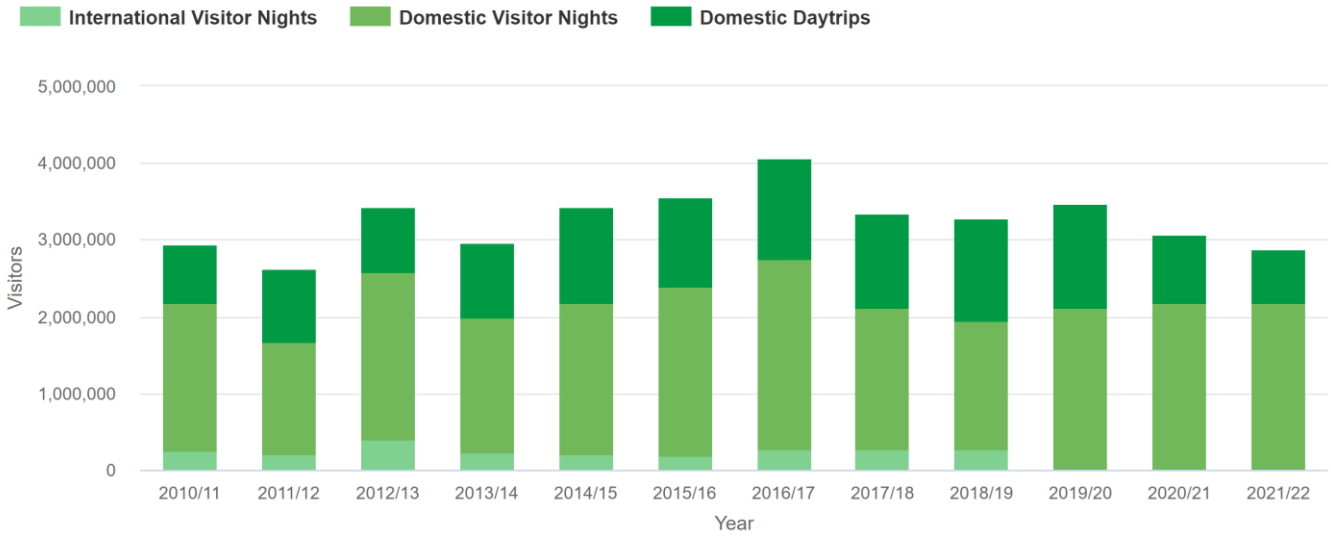
Data for the year 2020-2021 and onwards are not yet released, but we have observed that COVID has significantly impacted the healthcare provision and services in the region. At the times of the Pandemic, up to 40% of patients treated at Tweed Hospital were Queensland residents, as well as dozens of permanent and casual paramedics that live in Queensland but work in Northern New South Wales, causing both a demand and supply squeeze. At the peak of the lockdown, around 200 staff at the Tweed Hospital were unable to come into work due to their usual residential address being in Queensland.[5]

[4] https://hnc.org.au/
[5] In Queensland, Aug 2020, *Living on the edge: the Aussies left in no-man's land border closures,* accessed via: https://inqld.com.au/news/2020/08/14/living-on-the-edge-why-premiers-must-work-together-to-help-border-closure-victims/

The border closure has also significantly increased the number of intrastate NSW travellers to the area. Those who would otherwise holiday in Queensland are spending their holidays in the Tweed and Byron Bay area with an **estimated 50% higher demand for luxury and short-term rentals than in 2019.**[6]

There have been some spikes in property searches, which could indicate **increased long-term migration flows into NSW regional areas**. Research shows that searches for properties in the Richmond-Tweed area increased by 61.4% since April 2020. This data is thought to indicate a trend of more Australians considering a permanent lifestyle change.[7] Those areas that are in closer proximity to urban cities but still offer the lifestyle elements of more open natural space and affordable housing are expected to have sustained increases in intrastate migration.[8] However, COVID-19 seems to have impacted tweed tourism: the overall tourism level has decreased compared with that of the pre-COVID years (Figure 8).

Figure 8 Tweet Shire Tourism Nights Time Series



Source: Tourism Research Australia, Unpublished data from the National Visitor Survey and International Visitor Survey 2021/22.

Another driver for net migration is the availability of key social infrastructure, with migrants more likely to transition from transient to permanent residents of the area. In this supply-driven demand ('build it and they will come'), the potential investment into private healthcare and tertiary education would positively impact net migration flows (improving inflows and reversing outflows) as the area becomes more self-sufficient. The demand modelling in this report uses the latest NSW Population Projections produced by the Department of Planning, Industry and Environment on behalf of the NSW Government, which may not have factored in the Post-COVID migration trends. The changes in population and in the age-sex structure as published by the Department of Planning, Industry and Environment were used to project the demand figures in the demand analysis chapter.

5.2 Socioeconomic

Socioeconomic factors can also dictate how healthcare is utilised. Socio-Economic Indexes for Areas (SEIFA) is a measure developed by the ABS that ranks areas in Australia according to relative socio-economic factors. The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) is based on the ABS Census and a **lower IRSAD score indicates a lower socio-economic status** for the LGA, or more disadvantaged LGA. Deciles indicate what grouping each LGA lies in, with 1 being the most disadvantaged and 10 being the least disadvantaged.

Both Byron and Tweed LGAs have not been identified as an area of socio-economic disadvantage overall. Gold Coast and Byron display a similar socioeconomic index (both decile 9), whilst Tweed shows a slightly greater disadvantaged profile (decile 7).

Figure 9 Key LGA by Index of Relative Socio-economic Advantage and Disadvantage, (IRSAD), 2021 Census

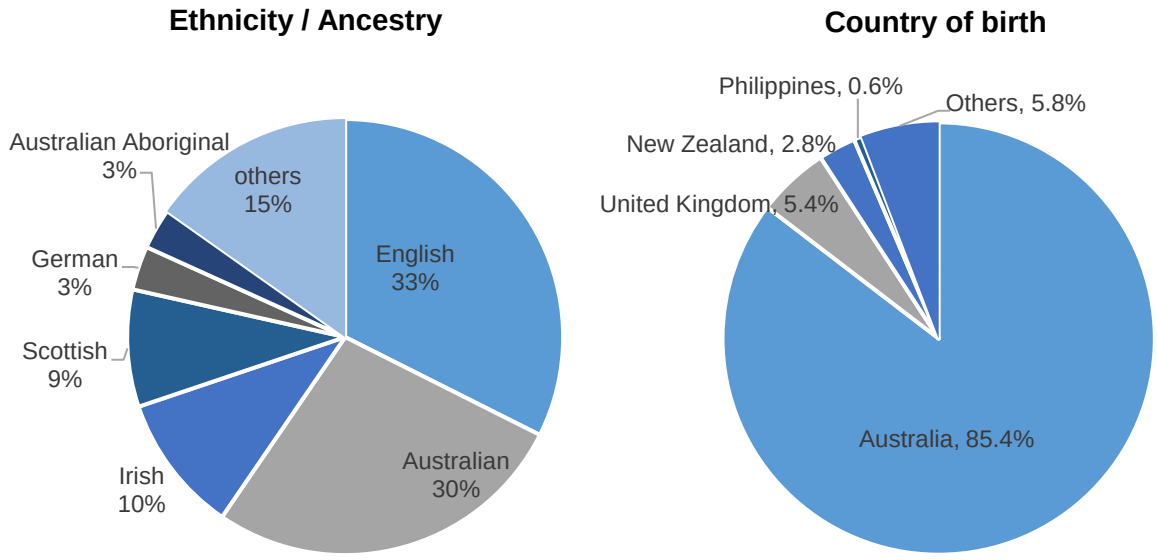
LGA	Decile	Score	Rank within Australia
Gold Coast	9	1,009	442
Byron	9	1,027	463
Tweed	7	967	339

[6] Andrew Taylor 2020, 'Byron Bay is full of them': Border closures a boon for regional tourism', Sydney Morning Herald, accessed 16 November 2020 <https://www.smh.com.au/national/byron-bay-is-full-of-them-border-closures-a-boon-for-regional-tourism-20200917-p55wpb.html>.
[7] Cameron Kusher 2020, 'Aussies ramp up searches for new neighbourhoods in wake of COVID-19', Realestate.com.au, accessed 16 November 2020 <https://www.realestate.com.au/insights/aussies-ramp-up-searches-for-new-neighbourhoods-in-wake-of-covid-19/>.
[8] .idcommunity 2020, 'Tweed Shire Council – Impact of COVID-19 on population growth', accessed 16 November 2020 <https://forecast.id.com.au/tweed/forecast-covid19-impact>.

5.2.1 Ethnicity

The cultural and ethnic makeup of a community has implications on health service utilisation and health service requirements. Certain ethnicities have a higher propensity to access private care, and some may have cultural reasons for having lower (or even higher) healthcare utilisation. Tweed Shire has an overwhelming majority of people born in Australia (85.4% of total) and of English & Australian origin (63%).

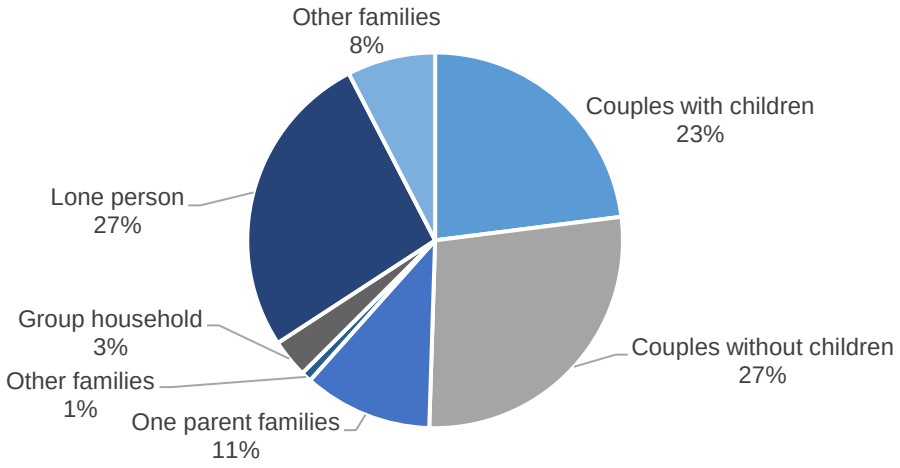
Figure 10 Ethnicity and Country of Birth Composition, Tweed Shire, 2021



5.2.2 Household Composition

The most common household type in the Tweed LGA is couples without children (27.5%), followed by Lone persons (26.6%).

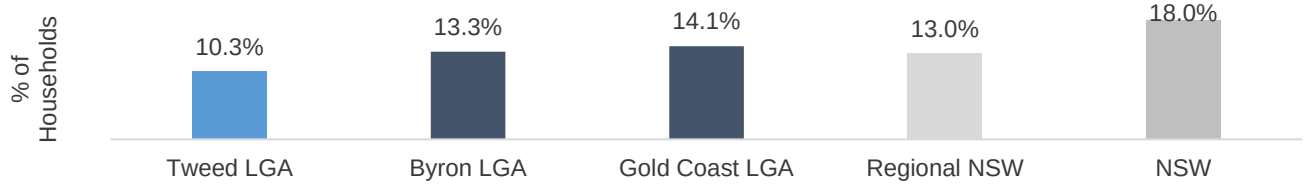
Figure 11 Composition of people living in, Tweed Shire, 2021.



5.2.3 Income

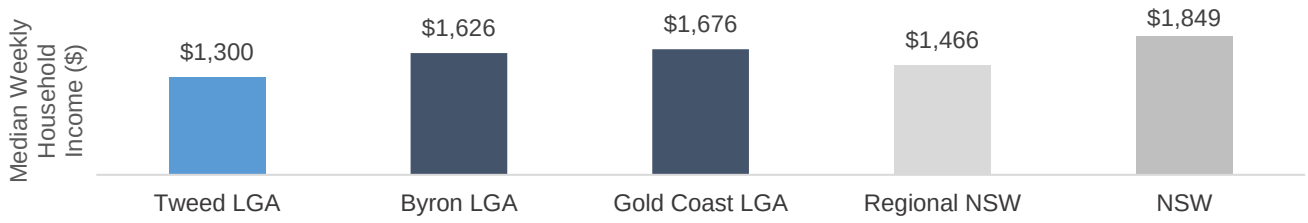
Personal income is a good indicator of the wealth distribution of an LGA and to do this, a benchmark of $1,750 gross income per week per person was used to signify high income individuals. In 2021, Gold Coast LGA had a percentage of 14.1%, followed by Byron (13.3%) and Tweed (10.3%), compared to the Regional NSW average of 13.0% and the NSW average of 18.0%.

Figure 12 Percentage of Individuals earning >$1,750/week, 2021, ABS



In terms of the Median Equivalised Weekly Total Household Income, the Tweed LGA is considerably lower than the Byron LGA and Gold Coast LGA, compared to the Regional NSW average of $1,466 and the NSW average of $1,849.

Figure 13 Median Equivalised Weekly Total Household Income (Pre-Tax), 2021, ABS



5.2.4 Unemployment

Unemployment rates for Tweed LGA have reduced steadily over the last 5 years, particularly in the Tweed Shire. It reached 2.9% currently at the lowest, and has recently been placed just below the Australian average, but higher than that of Regional NSW and the NSW average. For **underemployment** (those seeking more hours of work), Australia has an underemployment rate of 6.4% as of September 2023, which is 1.78 times its unemployment rate. Using the same ratio for the Tweed LGA, there would be just over **5,000 residents seeking more hours of work.**

Figure 14 Unemployment rate, 2011 to 2020, Source: ABS, Economy.id and www.atlas.id.com.au[9]

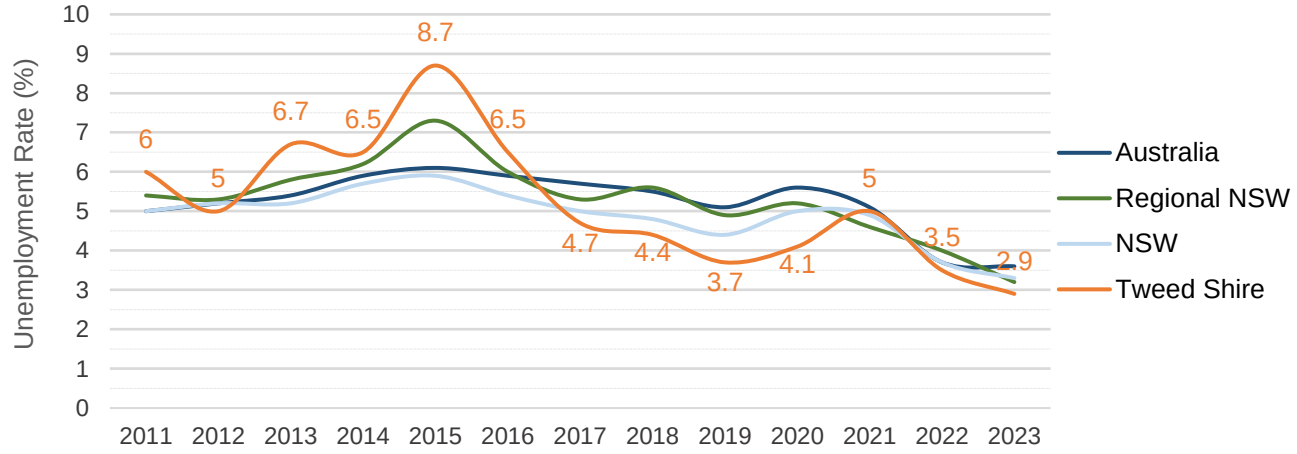


Table 5 Unemployment measures, Tweed Shire vs Regional NSW, NSW and Australia. Source: ABS and Economy.id

Year	Tweed LGA		Tweed LGA	Regional NSW	NSW	Australia
	Unemployed	Labour Force	Unemployment Rate (%)			
2023	1,460	50,403	2.9	3.2	3.3	3.6
2022	1,731	49,310	3.5	4.0	3.7	3.7
2021	2,145	42,826	5.0	4.6	4.9	5.1
2020	1,847	44,971	4.1	5.2	5.0	5.6
2019	1,675	44,744	3.7	4.9	4.4	5.1
2018	1,955	44,278	4.4	5.6	4.8	5.5
2017	1,937	41,264	4.7	5.3	5.0	5.7
2016	2,729	42,020	6.5	6.0	5.4	5.9
2015	3,175	36,405	8.7	7.3	5.9	6.1
2014	2,551	39,297	6.5	6.2	5.7	5.9
2013	2,702	40,609	6.7	5.8	5.2	5.4
2012	2,075	41,259	5.0	5.3	5.2	5.2
2011	2,547	42,247	6.0	5.4	5.0	5.0

5.2.5 Availability of Jobs

5.2.5.1 Employed Locally

To understand the flow of the workforce, self-containment measures the proportion of resident workers who are employed within the boundary of their LGAs[10]. Variables that can dictate the level of self-containment include:

[9] Seasonally Adjusted unemployment rate, https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia/sep-2023#data-downloads & https://www.abs.gov.au/statistics/detailed-methodology-information/information-papers/improving-sa4-level-estimates-labour-force-survey-using-administrative-data-models

[10] https://economy.id.com.au/tweed/employed-locally

- Employment opportunities versus available skills/qualifications of local residents
- Transport options and commuting times
- Salary opportunities compared against house prices in the area
- Geographic features

The percentage of local residents working outside of their place of residence in Total Industries has increased in Byron, but decreased in Tweed between census periods 2016 and 2021. The percentage-point increase in Health Care and Social Assistance has increased by **1.3% in Tweed and remained steady in Byron**.

This highlights the growing outflow of workers from Tweed to other regions. Tweed LGA sees 36.4% employed externally, mainly in adjacent LGAs, in Health Care and Social Assistance Industry, while the remaining 63.6% of resident workers are employed locally in this industry.

Table 6 Employment self-containment by Industry and LGA, 2016 and 2021 ABS Census

LGA		2016		2021		Δ
	Industry	Total resident workers	% Employed externally	Total resident workers	% Employed externally	
Tweed	**Total Industries**	**35,664**	**38.5%**	**40,601**	**37.3%**	**-1.2%**
	Health Care and Social Assistance	5,579	35.1%	7,048	36.4%	**1.3%**
Byron	Total Industries	13,499	29.2%	16,648	29.5%	**0.3%**
	Health Care and Social Assistance	1,891	44.0%	2,344	44.0%	**0.0%**

Table 7 Resident workers employed in the region in 'Health Care and Social Assistance' industry, 2021

Location	Number
Tweed Shire Council	4,481
Byron Shire	1,312
Lismore City	3,197
Ballina Shire Council	2,160
City of Logan	8,911

5.2.5.2 Employment Capacity

Employment capacity is simply the number of local jobs in an industry, divided by the number of local residents employed (anywhere) in that industry[11]. It is a theoretical measure to understand if there are enough local jobs to cater for locals if they choose to return to work at their place of residence. A figure over 1.0 means there are more jobs available than residents employed in that industry, and under 1.0 means there are more residents employed than jobs available in that sector.

The Tweed Shire see a small theoretical employment capacity shortage in the Health Care and Social Assistance industry, with the key findings:

- A shortage of 27 local 'health care and social assistance' jobs in the Tweed LGA.
- A shortage of over 300 hospital jobs in the Tweed and Byron LGA
- Under 600 hospital jobs in the Gold Coast are filled by other LGAs

In summary, opportunities to provide local health care and social assistance employment in Tweed are limited. In comparison, more opportunities in the Byron LGA to reduce the skilled workforce outflows.

Table 8 Jobs to Workers Ratio, 2021, Source: Economy.id

LGA and Industry	Local jobs	Employed residents	Theoretical Shortage of Jobs	Ratio Local jobs to residents
Tweed Shire				
Hospitals	2,056	2,114	**58**	0.97
Medical and Other Health Care Services	1,992	1,889	**-103**	1.05
Residential Care Services	1,570	1,491	**-79**	1.05
Social Assistance Services	1,962	2,113	**151**	0.93
Total Health Care and Social Assistance	7,580	7,607	**27**	1.00
Total Industries	**39,253**	**44,953**	**5,700**	**0.90**
Byron Shire				
Hospitals	284	562	**278**	0.51
Medical and Other Health Care Services	1,041	943	**-98**	1.10

[11] https://economy.id.com.au/tweed/Employment-capacity

LGA and Industry	Local jobs	Employed residents	Theoretical Shortage of Jobs	Ratio Local jobs to residents
Residential Care Services	309	265	**-44**	1.17
Social Assistance Services	730	915	**185**	0.80
Total Health Care and Social Assistance	2,364	2,684	**320**	0.88
Total Industries	**19,697**	**18,400**	**-1,297**	**1.07**
Gold Coast City				
Hospitals	15,092	15,681	**589**	0.96
Medical and Other Health Care Services	15,267	16,618	**1,351**	0.92
Residential Care Services	7,472	6,836	**-636**	1.09
Social Assistance Services	11,046	12,313	**1,267**	0.90
Total Health Care and Social Assistance	48,876	51,448	**2,572**	0.95
Total Industries	**319,629**	**339,700**	**20,071**	**0.94**

5.3 Private Health Insurance and Healthcare Expenditure

The Private Health Insurance (PHI) coverage is a proportion of the number of people taking up PHI to the total population in the same area. The data published by the ABS is out-dated[12], therefore data from the Australian Prudential Regulation Authority data as well as the data published by phidu.torrens.edu.au[13] were used to calculate the PHI coverage. The figures for 2021 and 2022 are estimated based on the analysis of trends over time from 2013-2020. The insurance coverages in Byron, Tweed and NSW overall have been decreasing drastically since 2017. Similar trends are also projected into the future, with the increase in insurance premiums across the country.

Figure 15 Private Health Insurance Coverage (% Population), 2013-2022

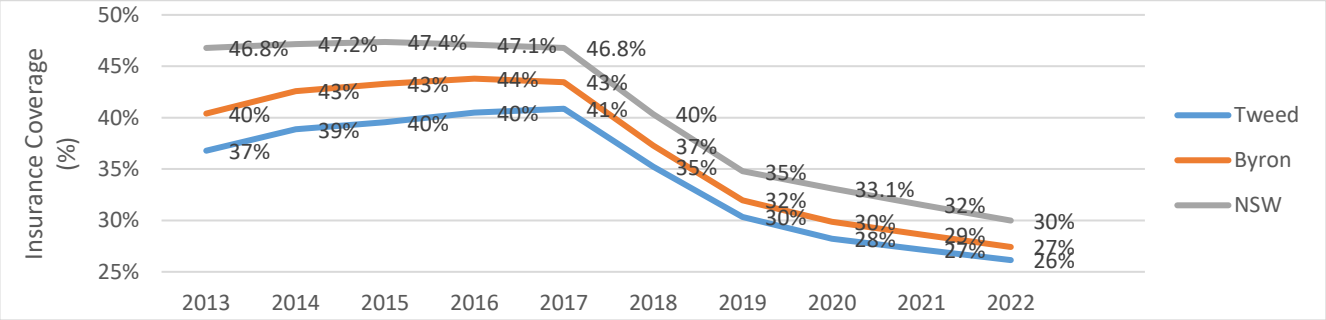


Table 9 Number of residents with PHI Hospital Coverage, by LGA (2013-2022)

LGA	2013	2014	2015	2016	2017	**2018**	**2019**	**2020**	**2021 estimate**	**2022 estimate**
Byron	12,831	13,736	14,205	14,627	14,778	12,873	11,091	10,925	9,926	9,556
Tweed	33,201	35,426	36,481	37,965	38,788	35,328	30,438	28,296	27,241	26,225

Healthcare expenditure for residents in Tweed has increased from $5,460 in 2019 to $6,357 in 2021. Although this figure is less than the NSW average, the growth rate of the percentage of total expenditure spent on healthcare over this period has been faster than the State average. It is also interesting to note that although total expenditure per household has only increased slightly, the total Net Savings in the Tweed LGA has more than doubled.

Table 10 Household expenditure per Household, with a focus on Health. Source: Economy.id

	2019				**2021**				**Change in Tweed** (2019 – 2021)
	Tweed		**NSW**		**Tweed**		**NSW**		
	$	% of total	$	% of total	$	% of total	$	% of total	
Health Expenditure	$5,460	5.4%	$6,767	5.6%	$6,357	6.2%	$7,515	6.2%	+$897

[12] https://www.abs.gov.au/ausstats/abs@.nsf/ViewContent?readform&view=productsbytopic&Action=Expand&Num=5.7.5

[13]Notes: the data are sourced from the Australian Taxation Office and the average of the Estimated Resident Population, 30 June 2019 and 30 June 2020, Australian Bureau of Statistics by PHIDU. The data only relate to those submitting a return, and count the income unit and not dependants covered under the policy. Therefore, if an individual with PHI submitted an income tax return but didn't complete the PHI section, they wouldn't be counted. Income units with a post box address are excluded from the analysis. Source: https://phidu.torrens.edu.au/current/maps/sha-aust/lga-single-map/aust/atlas.html

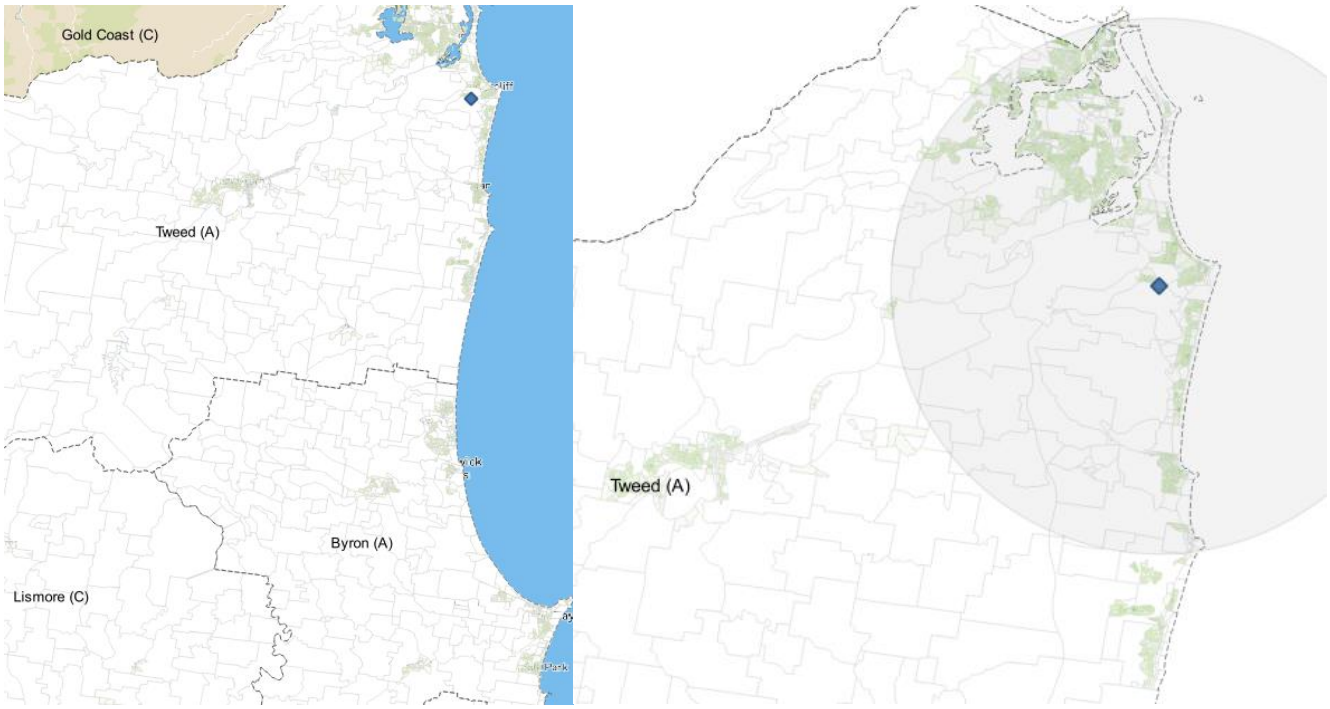
Total Expenditure	$101,767		$121,562		$102,015		$120,536		+$248
Net Savings	$11,288		$16,637		$26,361		$32,234		+$15,073

5.4 Population Densities and Drive-times

5.4.1 Densities

Whilst an overview of the LGA population has been studied, it is important to understand the population densities of the study catchment is to identify potential hot spots in the mismatch between population and supply. The proposed facility should consider the densities of the surrounding areas and understand where patients are travelling to for care if they are not receiving it locally. Approximately 35% of the Tweed LGA population resides within 10km radius of the proposed site, with over 67,000 residents and 32,000 dwellings

Figure 16 Population Density heatmap, Persons per square kilometre (Dark Green = Higher population densities (shown by ABS 2021 Meshblocks), Right: 10km Radius from Proposed Site

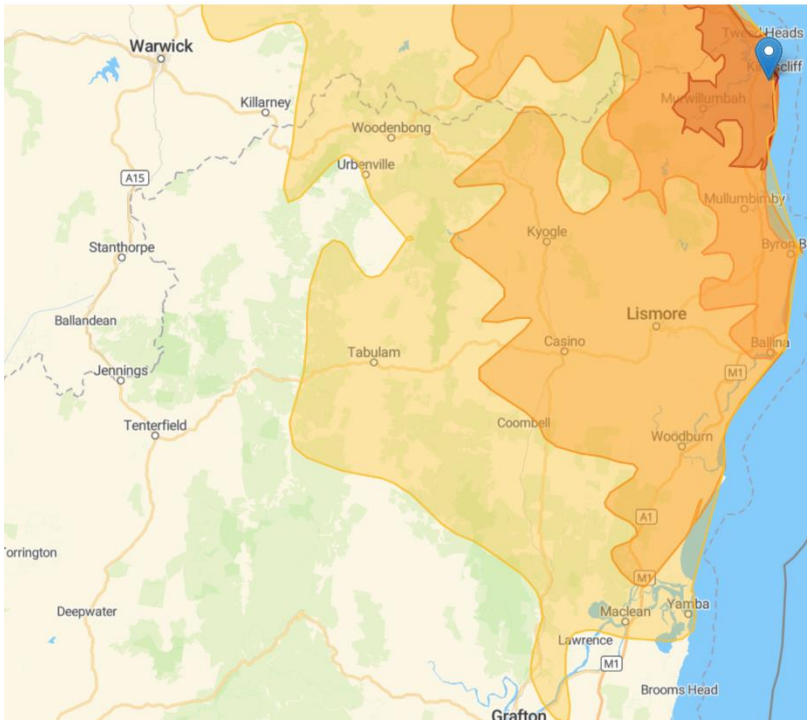


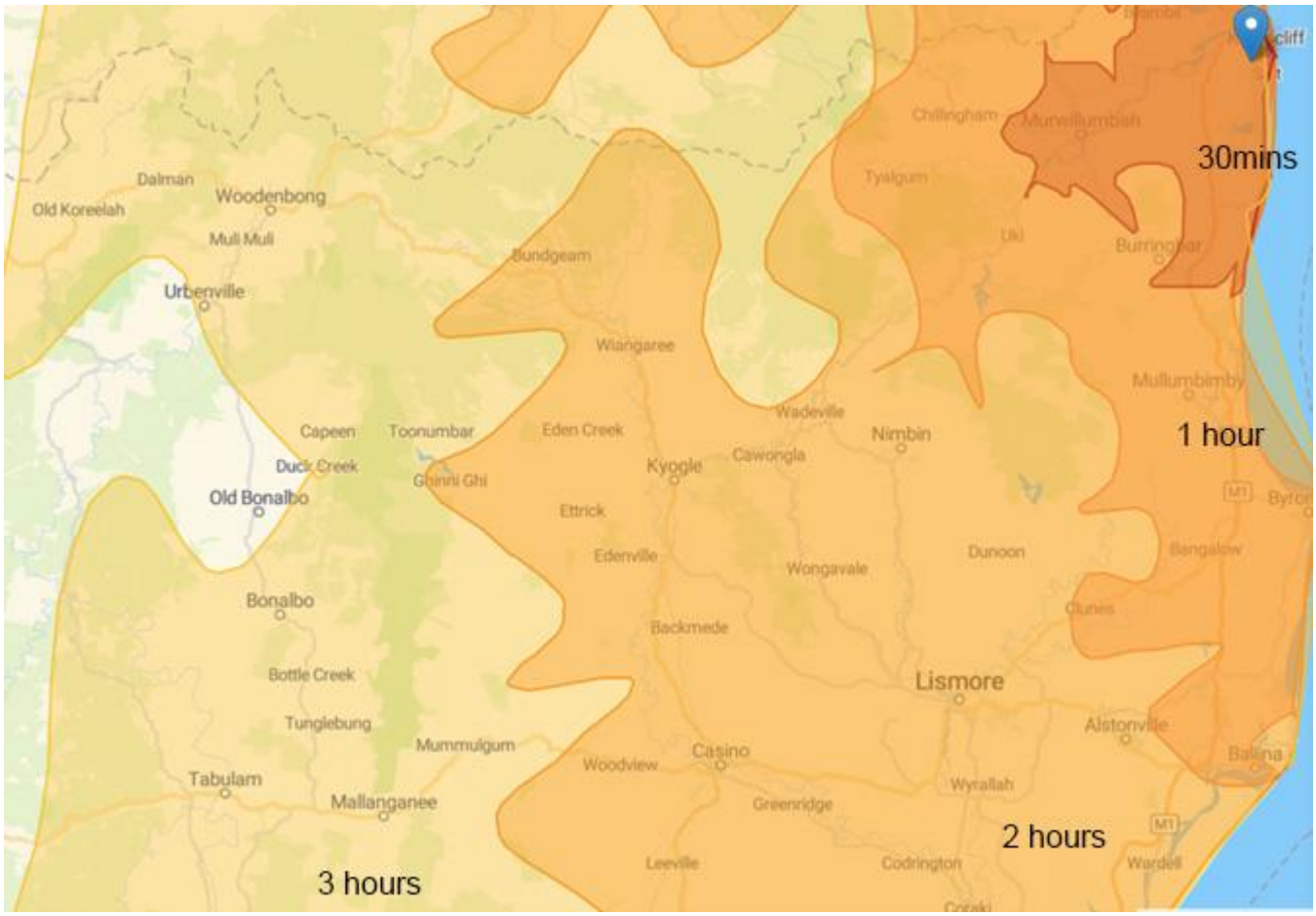
5.4.2 Drive-time Analysis

Drive-time analysis from the proposed site finds that there are (for NSW residents only):

- 97,000 residents (~70% of catchment), 45,500 dwellings within a 30-minute drive
- 174,000 residents, 82,000 dwellings within a 1-hour drive
- 243,000 residents, 112,500 dwellings within 2-hour drive

Figure 17 Drive-time Analysis (30 mins, 1 hour, 2 hours & 3 hours)

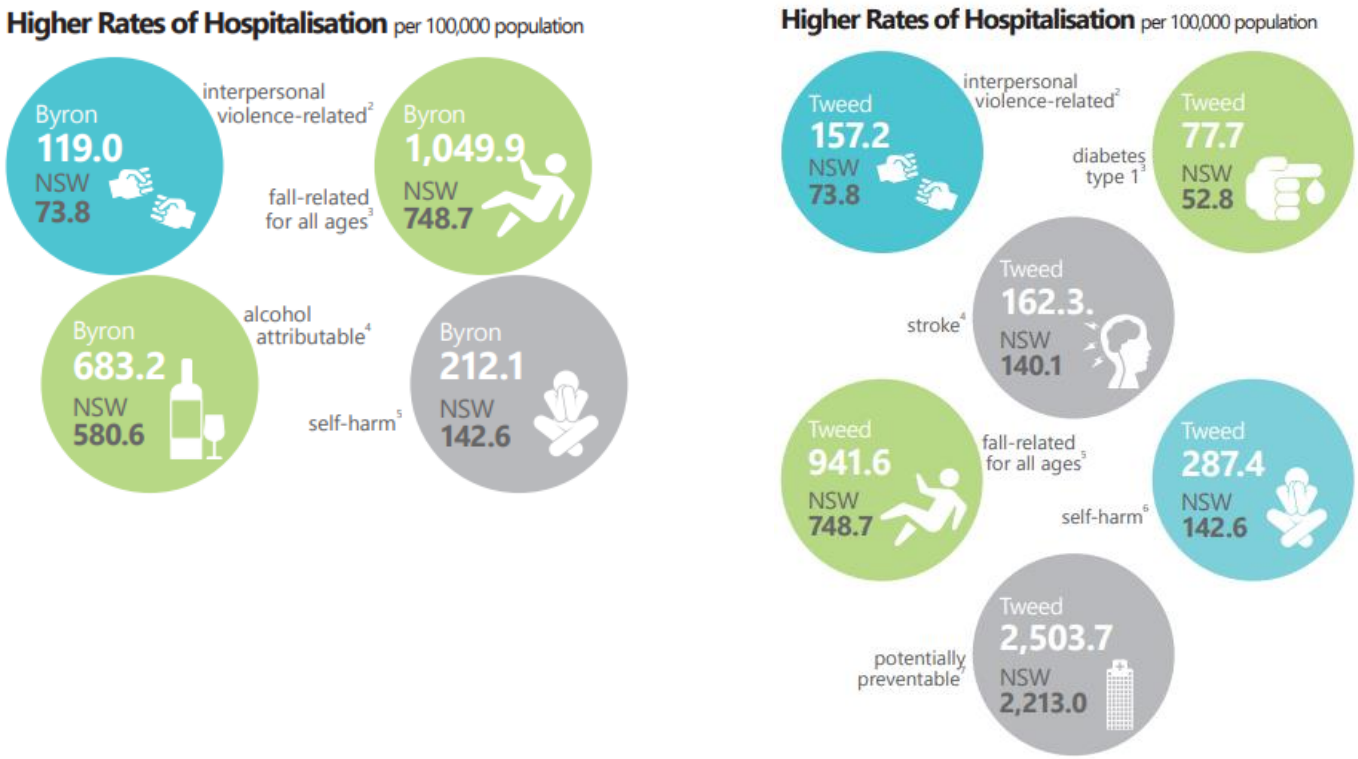




5.5 Rates of Hospitalisation

Rates of Hospitalisation per 100,000 population reflect the health profile in an area. In Byron and Tweed, some types of hospitalisation are higher than the NSW average, such as interpersonal violence-related, fall-related for all ages and self-harm hospitalisation. In the Byron LGA, the rate for alcohol-attributable hospitalisation is also higher than the NSW average. In Tweed, the rates for diabetes type 1, stroke hospitalisation and potentially preventable hospitalisation are higher than the NSW average.

Figure 18 Rates of Hospitalisation in Byron and Tweed



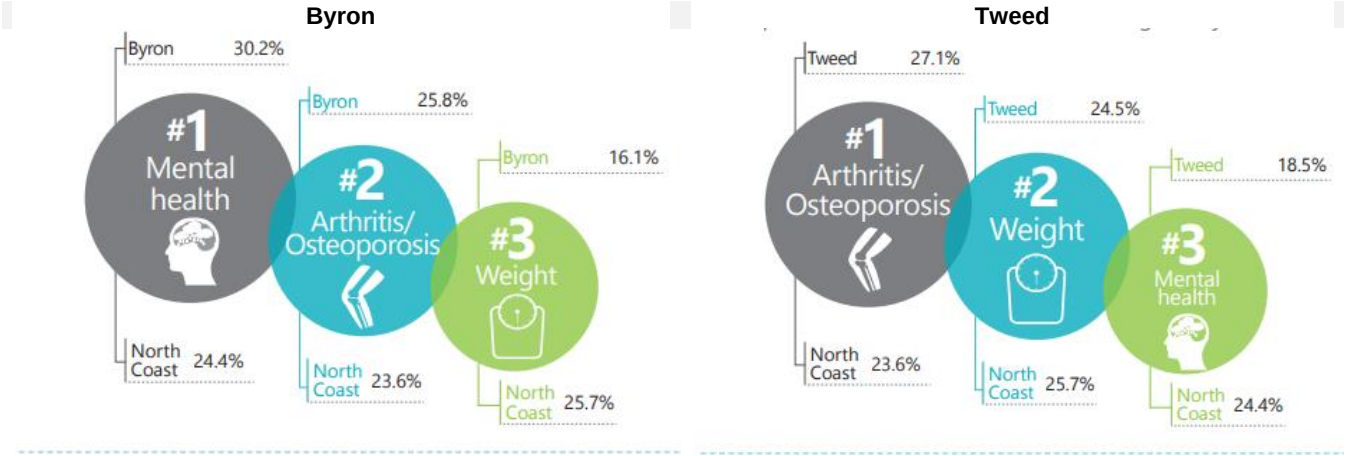
5.6 Local Health Needs

The local health profile plays an important role in influencing the overall local health needs in the area. Population ageing, mental health and drug and alcohol misuse are common health concerns in the Tweed and Byron communities.

5.6.1 Health Conditions

According to the 2018 Local Health Needs Community Survey (the Survey)[14], the three health challenges people face were Mental Health, Arthritis/Osteoporosis and Weight Management in Byron and Tweed, although the order of rank was slightly different between the two LGAs, with Mental Health tops in Byron and Arthritis/Osteoporosis tops in Tweed.

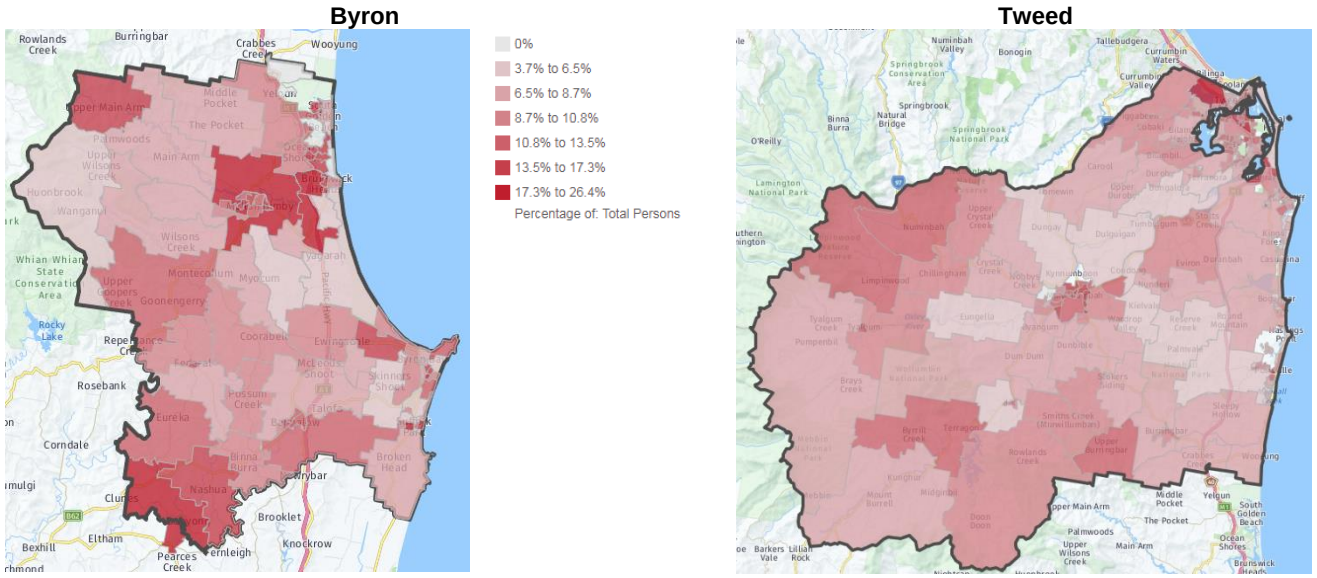
Figure 19 Top three health challenges in the Byron and Tweed LGAs, 2018 Local Health Needs Community Survey

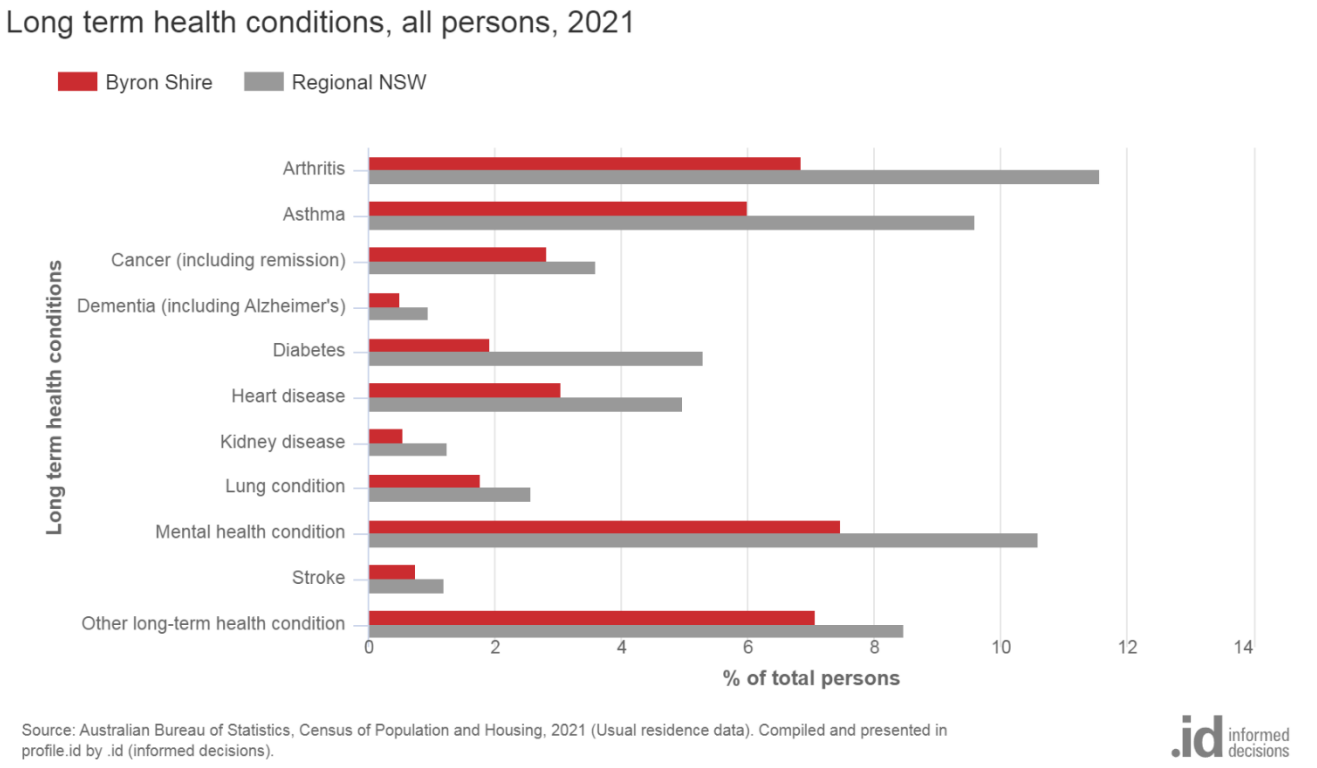


[14] https://hnc.org.au/wp-content/uploads/2019/06/2018ByronLGAFINAL-1.pdf

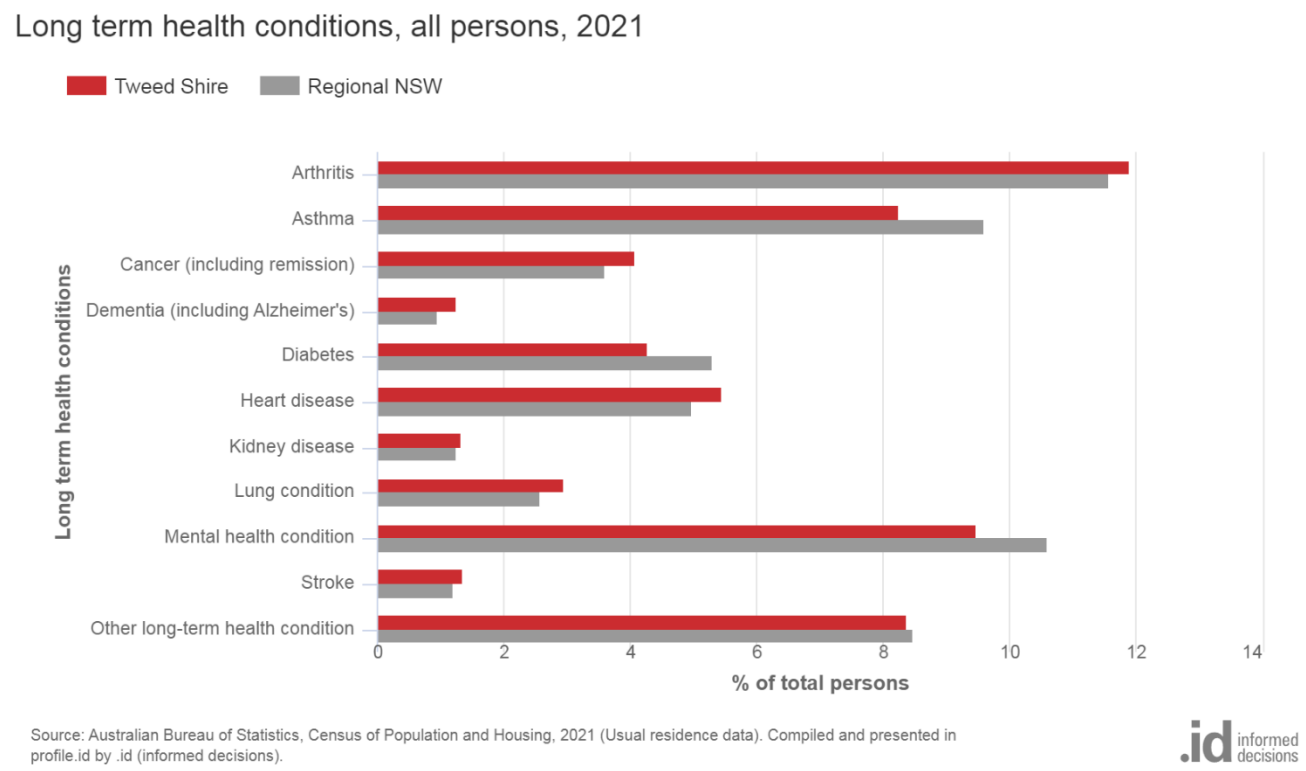
Mental Health issue stands as the most common long-term health condition in Byron and 2nd most common long-term health condition in Tweed, with on average 7.5% and 9.5% of the population suffering from mental health condition in Byron and Tweed Shire in 2021, respectively[15].

Figure 20 Percentage of Population suffer from Mental Health Condition, 2021





[15] https://abs.gov.au/census/find-census-data/quickstats/2021/LGA11350



In 2021, almost 2,550 people in Northern NSW were estimated to have cancer, which equates to around seven new diagnoses every day[16]

5.6.2 Access to Health Care

It was reported that the communities in both LGAs felt that additional services in **Hospital, Specialists, GP, Allied Health and Dental Services** are needed to meet health challenges in their community, with 41.6% and 36.6% of the respondents in Byron and Tweed felt that it was difficult to access Specialists, respectively. It was reported that 16.5% of residents in Byron LGA felt that it was difficult to access GP services and even a higher proportion of the residents in Tweed (20.4%).

Byron

41.6% of respondents said it was difficult to access Specialists^

Difficult to access	Byron	North Coast
1 Psychiatrist	**20.4%**	23.8%
2 Cardiologist	**18.7%**	19.2%
3 Orthopaedic Surgeon	**18.1%**	14.2%
4 Ophthalmologist	**12.1%**	10.4%
5 Endocrinologist	**10.6%**	9.4%

Top 3 Challenges:
1. Distance of travel - 59.9%
2. Cost - 53.3%
3. Long wait - 47.9%

Tweed

36.6% of respondents said it was difficult to access Specialists^

Difficult to access	Tweed	North Coast
1 Orthopaedic Surgeon	**19.1%**	14.2%
2 Cardiologist	**16.6%**	19.2%
3 Psychiatrist	**16.2%**	23.8%
4 Geriatrician	**13.5%**	7.3%
5 Oncologist	**9.8%**	7.4%

Top 3 Challenges:
1. Cost - 58.8%
2. Long wait - 50.2%
3. Distance to travel - 41.7%

Access to **Allied Health** and **Mental Health services** was reported to be difficult in both LGAs in the Survey, especially Mental Health Services, with more than half of the respondents in both communities and the cost and lack of services are the top challenges for accessing Mental Health Services.

Table 11 Access to Allied Health and Mental Health Services in the Byron LGA

[16] https://nnswlhd.health.nsw.gov.au/sites/default/files/inline-files/smaller_0.pdf

17.5% of respondents said it was difficult to access Allied Health Professionals^

Difficult to access	Byron	North Coast
1 Psychologist	30.9%	29.6%
2 Dentist	29.5%	38.1%
3 Physiotherapist	18.8%	20.6%
4 Exercise Physiologist	14.9%	8.6%
5 Social Worker	10.4%	10.0%

Top 3 Challenges:
1. Cost - 63.1%
2. Not covered by Medicare - 53.0%
3. Distance of travel - 27.1%

53.6% of respondents said it was difficult to access Mental Health Services^

Difficult to access	Byron	North Coast
1 Counselling	51.7%	45.2%
2 Doctor (GP) with knowledge in mental health	32.0%	38.0%
3 NSW Health community mental health	28.3%	33.1%
4 Youth-specific services	25.3%	16.2%
5 Psychiatry	20.8%	28.6%

Top 3 Challenges:
1. Cost - 60.9%
2. Lack of services - 42.4%
3. Stigma/shame - 34.9%

Table 12 Access to Allied Health and Mental Health Services in the Tweed LGA

23.5% of respondents said it was difficult to access Allied Health Professionals^

Difficult to access	Tweed	North Coast
1 Dentist	32.3%	38.1%
2 Psychologist	26.2%	29.6%
3 Physiotherapist	23.0%	20.6%
4 Podiatrist	17.6%	10.2%
5 Optometrist	13.6%	14.1%

Top 3 Challenges:
1. Cost - 70.2%
2. Not covered by Medicare - 55.3%
3. Long wait - 35.2%

52.0% of respondents said it was difficult to access Mental Health Services^

Difficult to access	Tweed	North Coast
1 Counselling	42.1%	45.2%
2 Doctor (GP) with knowledge in mental health	32.6%	38.0%
3 NSW Health community mental health	30.2%	33.1%
4 Psychiatry	22.6%	28.6%
5 Youth-specific services	13.6%	16.2%

Top 3 Challenges:
1. Cost - 46.2%
2. Lack of services - 33.9%
3. Quality of services - 24.7%

5.7 MBS Utilisation

Utilisation of non-hospital Medicare-subsidised services, such as GP, allied health, specialist and diagnostic imaging, varies between regions due to a range of factors such as burdens of disease, health care preferences, population growth and accessibility of services (availability, costs and service options).

5.7.1 Benchmarking

The utilisation trends of the immediate population catchment and surrounding areas are shown below for each service, the 'Services per 100' gives an indication of how many consultations or procedures occur for that population in the year 2021-2022 (i.e. 855 per 100 capita represents on average 8.55 GP outpatient attendances per person in Tweed Valley in 2021-2022). **Tweed Valley experiences more MBS services per capita** across each service type compared to Richmond Valley - Coastal and the NSW average.

Table 13 MBS Utilisation rates by SA3 region, 2021-2022

Service and Area (SA3)	Services per 100 people	Medicare benefits per 100 people ($)	No. of patients	No. of services	Average Services per patient	Average Provider Fee ($)
Allied Health Attendances						
Richmond Valley - Coastal	113	8,392	33,324	99,200	2.98	74.11
Tweed Valley	139	9,361	43,528	134,575	3.09	67.58
NSW	94	6,418	2,964,719	7,773,318	2.62	68.28
Diagnostic Imaging						
Richmond Valley - Coastal	101	15,714	33,960	88,433	2.60	155.68
Tweed Valley	121	20,854	39,798	118,006	2.97	171.68

Service and Area (SA3)	Services per 100 people	Medicare benefits per 100 people ($)	No. of patients	No. of services	Average Services per patient	Average Provider Fee ($)
NSW	108	16,866	3,106,299	8,753,347	2.82	156.17
GP attendances						
Richmond Valley - Coastal	808	40,205	83,970	707,488	8.43	49.79
Tweed Valley	855	42,179	92,152	830,484	9.01	49.34
NSW	765	36,533	7,393,108	62,528,376	8.46	47.76
Specialist attendances						
Richmond Valley - Coastal	101	9,161	30,157	88,557	2.94	90.63
Tweed Valley	120	10,481	34,771	116,766	3.36	87.20
NSW	111	10,150	2,800,936	9,152,877	3.27	91.44

5.7.2 Trends

There has been an increase in all types of MBS services between 2013-2014 and 2021-2022, with the **GP attendances experiencing the highest growth** in both areas. Shifts towards ambulatory models of care and an ageing population are reasons for the greater utilisation per capita of MBS services. **Richmond Valley - Coastal** saw a higher growth overall in MBS utilisation than Tweed Valley during this period (a growth rate of 27% versus 24%).

Table 14 Change in MBS Utilisation, 2014 - 2022

Service and Area (SA3)	Services per 100 people		
	2013-14	2021-2022	8-year increase
Richmond Valley - Coastal			
Allied Health attendances (total)	93	113	20
Diagnostic Imaging (total)	96	101	5
GP attendances (total)	636	808	172
Specialist attendances (total)	100	101	1
Tweed Valley			
Allied Health attendances (total)	115	139	24
Diagnostic Imaging (total)	103	121	18
GP attendances (total)	688	855	167
Specialist attendances (total)	101	120	19

5.7.3 Forecast

The MBS utilisation rates for each SA3 area were applied to their corresponding official NSW LGA projected population profile. Two scenarios could be made:

- Low – where 2018 utilisation rates were used up to 2040 (i.e., no consideration of trends or ageing profile; however, **this is not recommended)**
- High – where historical rate changes were applied to project to 2040 (i.e., historical increasing rate of utilisation remains steady into the future, as well as considerations of the trends in ageing population)

The projected number of services was calculated for each MBS service based on the high scenario, as the low scenario has no consideration of population trends or ageing profile. This was then converted to a Key Planning Unit (KPU) through

common operational assumptions (Activity/Days of Operation per Year / Sessions per Day). The results are discussed in the Demand Modelling Chapter.

6. Supply Analysis

A supply analysis provides information on what health facilities currently exist, where they are located, and which specialty services are being provided. Supply is representative of 'what-is' and highlights where existing capacities are in place and who the key competitors to this proposed facility may be.

This analysis has been performed by analysing a vast range of licensing databases and implementing geospatial technologies to quantify and visualise capacity densities and distances.

6.1 Key Measures

Table 15 Key Measures

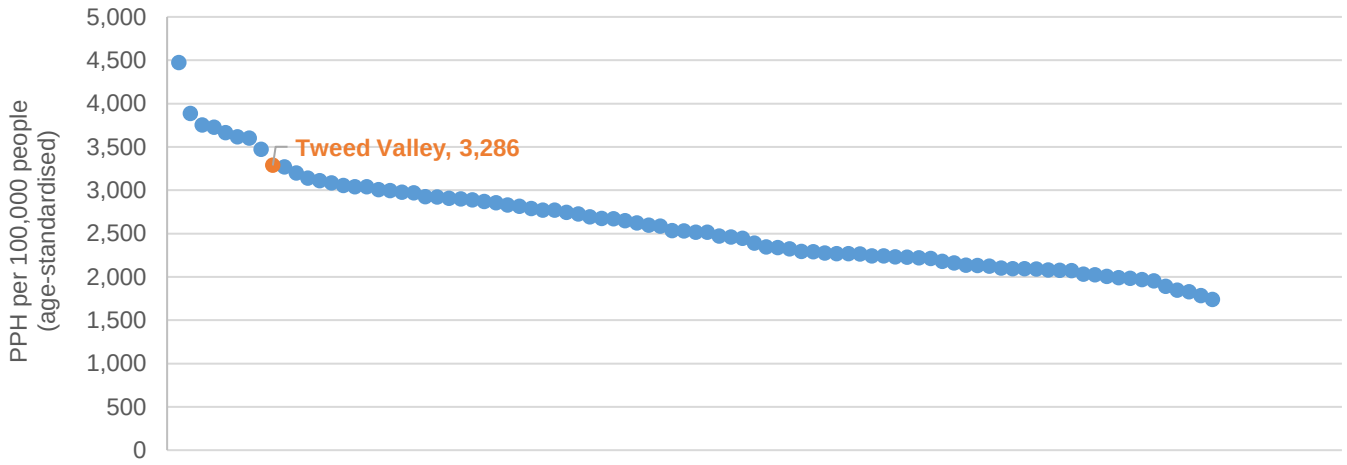
Measure	Byron + Tweed LGAs	NSW	Australia
Public Beds (2020/21)	~565	20,910	63,590
Private Beds (2016/17)	23	8,500*	34,339
Public to Private Bed Ratio	24.56:1	2.46:1	1.85:1
Population (2023)	136,888	8,207,936	26,473,055
Population with Private Health Insurance (PHI) (2021)	39,221	2,713,982	8,308,427
% Population with PHI[17]	28.6%	33.1%	31.3%
Public Beds per 1,000 Capita	4.13[18]	2.55	2.40
Private Beds per 1,000 Capita	0.17	1.04	1.30
Private Beds per 1,000 Capita with PHI	0.59	3.13	4.13
Average Percentage of Private Patients in Public Hospital	8% (2013) 11% (2015)	16%	14%

**As reported by AIHW, estimated to be ~9,500 including 'Private free-standing day hospital facilities' using pro-rata Australian totals*

6.2 Potentially Preventable Hospitalisations

Potentially preventable hospitalisations (PPH) acts as a proxy measure of primary care effectiveness. They represent certain hospital admissions that potentially could have been prevented by timely and adequate health care in the community. Tweed Valley (SA3) was ranked the 9th worst out of 89 NSW SA3 regions in 2018 for PPH per 100,000 (age standardised), which has worsened since 2014 where it was ranked 15th. The PPH rate per 100,000 increases from 2,770 to 3,286 for Tweed Valley over this 4-year period. This implies that there are opportunities to invest in primary care services and also to improve the interface between admitted and non-admitted health care within the region.

Figure 21 Total PPH per 100,000, each marker represents a SA3 region of NSW



[17] *https://phidu.torrens.edu.au/current/maps/sha-aust/lga-single-map/aust/atlas.html*
[18] *The catchment of The Tweed Hospital is wider than Byron and Tweed LGAs*

6.3 Strategy and Policy

6.3.1 Northern NSW LHD (NNSWLHD)Strategic Plan

The NNSWLHD's vision is "A Healthy Community Through Quality Care", underpinned by the NNSWLHD Strategic Plan 2019 – 2024. This Strategic Plan provides an overarching framework for working together with the community and service partners to deliver quality health services to residents of Northern NSW. Priority items that most align with the vision of this proposed development are highlighted.

Priority: Value, Develop and Empower Our People

- Develop our workforce
- Establish a vibrant learning culture
- Establish a culture of safety
- Develop a culture of mutual respect
- Promote staff engagement

Priority: Our Community Values, Our Excellent Person-Centred Care

- Focus on patient safety first
- Deliver on-time treatment
- Improve patient and carer experience
- Improve access to mental health services
- Improve health literacy
- Deliver responsive health services
- Deliver eHealth for improved health information
- Promote healthy communities in Northern NSW
- Plan our health infrastructure and technology for the future

Priority: Empowering Aboriginal Health

- Work alongside Aboriginal communities, Aboriginal Medical Services and other service partners to put in place the Reconciliation Action Plan.
- We will continue to work in partnership to provide culturally safe health care.
- We will develop an Aboriginal health 'dashboard' to allow us to check our region's performance.
- We will further develop our Aboriginal workforce, enhance employment and career opportunities and implement the:
    - NNSW LHD Aboriginal Workforce Plan.
    - Aboriginal Cadetship Program including the Aboriginal Nursing Cadetship.
- We will strengthen the Aboriginal partnership agreement with our partners:

Priority: Integration Through Partnerships

- Work with community as our partners in health
- Enhance collaboration and integrated care with our service partners
- Progress regional planning with service partners
- Promote eHealth for integrated care

Priority: Effective Clinical and Corporate Accountability

- Further cultivate dynamic and responsible leadership
- Effective governance and accountability
- Use resources wisely
- eHealth for improved health intelligence

Priority: Champions of Innovation and Research

- Develop the NNSW LHD Research Strategic Plan
- Promote a 'research active workforce'
- Establish a robust governance structure for research
- Develop and support a culture of innovation
- Redesign health services and deliver more integrated and responsive community care

6.3.2 Northern NSW LHD Clinical Services Plan

The most recently published Clinical Services Plan for the NNSWLHD has the following priorities for service development

Figure 22 NNSWLHD Clinical Services Plan 2013-2018

Key Priorities for Facilities and Services 6.1 Tweed Byron Health Service Group [131]	
	• Implement Clinical Service Plans for The Tweed Hospital and Byron Shire to ensure optimal health care is provided to the catchment population
	• Increase networking of services between The Tweed Hospital and Murwillumbah District Hospital
	• Examine options for development of a Renal Dialysis Satellite Unit in the Tweed Byron Health Service Group where home-based dialysis is unsuitable
	• Work with North Coast NSW Medicare Local to increase access to medical specialists through GPs with Specialist qualifications and to a range of community based services across the Tweed Byron Health Service Group
	• Work towards the provision of access to out of hours Community Health Services (e.g. generalist community nursing) across the Health Service Group
	• Increase access to Medical Specialists in respiratory, palliative care, gerontology and an Infectious Diseases Specialist and Microbiologist with antimicrobial surveillance and stewardship
	• Further develop the clinical governance model across the Health Service Group
	• Work with NSW Ambulance and Community Transport to develop a coordinated approach to inter-hospital transport processes between The Tweed Hospital, community transport services and Ambulance Services
	• Recruitment of a Stroke Care Coordinator for the Tweed Byron Health Service Group
	• Consider strengthening the role of Murwillumbah District Hospital in the Tweed Byron Health Service Group Surgical Network
Cross Border Networking	• Work with Gold Coast Hospital and Health Service to: ○ Improve service coordination and improve access to tertiary services ○ Strengthen emergency referral pathways with particular focus on transfer arrangements ○ Coordinate cross border transport of patients in consultation with NSW and QLD Ambulance ○ Formalise protocols and procedures for the management of trauma patients across the Tweed Byron Health Service Group and with Gold Coast University Hospital ○ Redesign the Midwifery Early Discharge Program to improve access for residents of South East Queensland who give birth at The Tweed Hospital; and those being discharged from Queensland services
	• Improve coordination between AMRS and Emergency Management Queensland (EMQ)

Key Priorities for Facilities and Services	
	• Improve repatriation of trauma patients for rehabilitation from Queensland Hospitals
	• Develop admission and transfer policies and protocols to provide an appropriate level of care for women who present for obstetrics care with high body mass index (BMI)
	• Establish formal consultation mechanisms in order to plan for the integration of the northern sector paediatric services within the Queensland Children's Hospitals outreach and referral network
	• Service Coordination Sub-Committee (including appropriate clinicians) is to form a working party to review the provision of Neonatal Intensive Care and Birthing Services to residents of NNSW LHD in the new Gold Coast University Hospital, to identify gaps and develop joint actions to improve transfer and discharge arrangements
The Tweed Hospital	
	• The staged implementation of The Tweed Hospital Clinical Services Plan to meet increasing demand from residents of the catchment
	• Increase ambulatory care, acute/post-acute care, ComPacks, HITH and chronic disease management to reduce avoidable admissions and readmissions
	• Develop a Midwifery led birthing service for suitable mothers with normal risk pregnancies, ante-natal care in community settings, early discharge and home visiting
	• Increase investment in post-acute and continuing care, in community rehabilitation and chronic disease management
	• Develop services to meet the needs of an ageing population including specialist geriatric medicine, specialist stroke services, Geriatric Evaluation Management (GEM), dementia care and Mental Health Service for Older People (MHSOP)
	• Improve access to Cancer and Cardiology Services for residents of the Tweed Byron Health Service Group
	• Work more closely with RACFs to prevent avoidable admissions and presentations to the ED and admissions; consider increasing and formalising Nurse Practitioner positions in Aged Care across the Health Service Group

6.3.3 South East QLD urban footprint and health service provisions

Queensland Government plans to shape the future South East Queensland (SEQ) region by unlocking underutilised land in the Urban Footprint areas[19]. This may have an impact on future patient flows in and out of the catchment area, given its proximity to SEQ. Meanwhile, it is worthwhile noting that Queensland (QLD) health provisions mainly service the QLD population and not northern NSW. In addition, this is overlayed with the strong population growth of QLD. Therefore, it is estimated that the impact on the requirement in the Northern NSW area would be minimal, as QLD Health would need to continue to meet the increasing demand from the QLD population.

The South East QLD Urban Footprint identifies land within which urban development needs to 2046 can be accommodated to ensure efficiency of infrastructure servicing, economic feasibility and health services provisions with the aim to improve health and wellbeing and overall liveability for all South East Queenslanders. The Queensland Health and Hospitals Plan has also identified the growing health demand from the ageing population compounded by pressures on primary, aged and disability care[20], and invests various resources including:

[19] https://planning.statedevelopment.qld.gov.au/__data/assets/pdf_file/0019/83242/seq-regional-plan-shapingseq-update-2023-high-res.pdf

[20] https://www.health.qld.gov.au/__data/assets/pdf_file/0022/1161571/v15_SC2200194-Health-Budget_ONLINE.pdf?%20utm_medium=website&utm_source=qh_www_home_page&utm_campaign=dh-WWW-HOME&utm_term=&utm_content=2022_23_budget_mrec_QH_pdf

- new infrastructure and more beds
- a larger workforce
- a focus on mental health; and
- innovative reforms to our health system
- Satellite Hospital Program, with new facilities in rapidly growing communities across South East Queensland (Caboolture, Kallangur (Pine Rivers), Tugun (Gold Coast), Ripley (Ipswich), Bribie Island, Eight Mile Plains (South Brisbane) and Redlands)

In addition, more expansions have been planned across South East Queensland, such as

- LOGAN HOSPITAL – $530 million expansion with around 112 additional beds.
- PRINCESS ALEXANDRA HOSPITAL – $350 million expansion with around 249 additional beds.
- QEII HOSPITAL – $465 million expansion with around 112 additional beds.
- ROBINA HOSPITAL – lease arrangement with around 114 additional beds.

Considering the health services provisions in QLD as a whole[21]:

- QLD hospital beds per 1,000 population (2.49 public beds and 1.22 private beds) compared to NSW (2.55 public beds and 1.04 private beds)
- QLD ratio of public to private bed (2.04), compared to NSW (2.46)
- 20% of beds available for same-day in public hospitals (excluding psychiatric) in QLD, compared to 9% in NSW

It is estimated that the Urban Footprint is going to have the highest concentration of both population growth & health services in SEQ, and the impact on the demand from the identified catchment areas in Northern NSW would be relatively small.

6.4 Licensed Hospitals

There are 12 public hospitals[22], various community health centres[23] and other facilities in the NNSWLHD, providing a diverse range of public healthcare. The figures and tables below provide insight into health service capacities, specialties, and distances to the proposed site.

To give an indication of **private bed densities and coverage**, a buffer of 10km is displayed around each private hospital in the region. There are obvious high private bed densities within the Brisbane CBD and Gold Coast region, however as demonstrated in the graphic below, there are wide-spread areas of relatively low density to the south and south-west of Gold Coast.

[21] Hospital resources 2017–18: Australian hospital statistics, Data - Australian Institute of Health and Welfare (aihw.gov.au)

[22] Ballina District Hospital, Bonalbo Multi-Purpose Service, Byron Central Hospital, Casino and District Memorial Hospital, Grafton Base Hospital, Kyogle Multi-Purpose Service, Lismore Base Hospital, Maclean District Hospital
Murwillumbah District Hospital, Nimbin Multi-Purpose Service, The Tweed Hospital, Urbenville Multi-Purpose Service

[23] Ballina Community Health, Banora Point Child and Family Health, Bonalbo Community Health, Byron Ambulatory Care Unit, Casino Community Health, Coraki Campbell HealthOne, Evans Head HealthOne, Goonellabah Child and Family Health Centre, Grafton Ambulatory Care – Community and Allied Health, Iluka Community Health, Kingscliff Community Health, Kyogle Community Health, Lismore Community Health, Maclean Community Health, Murwillumbah Community Health, Nimbin Community Health, Pottsville HealthOne
Tweed Heads Community Health, Urbenville Community Health and Yamba Community Health

Figure 23 Licensed Hospitals and 10km Radius marker for Private Hospitals (Red = Public, Orange = Private)

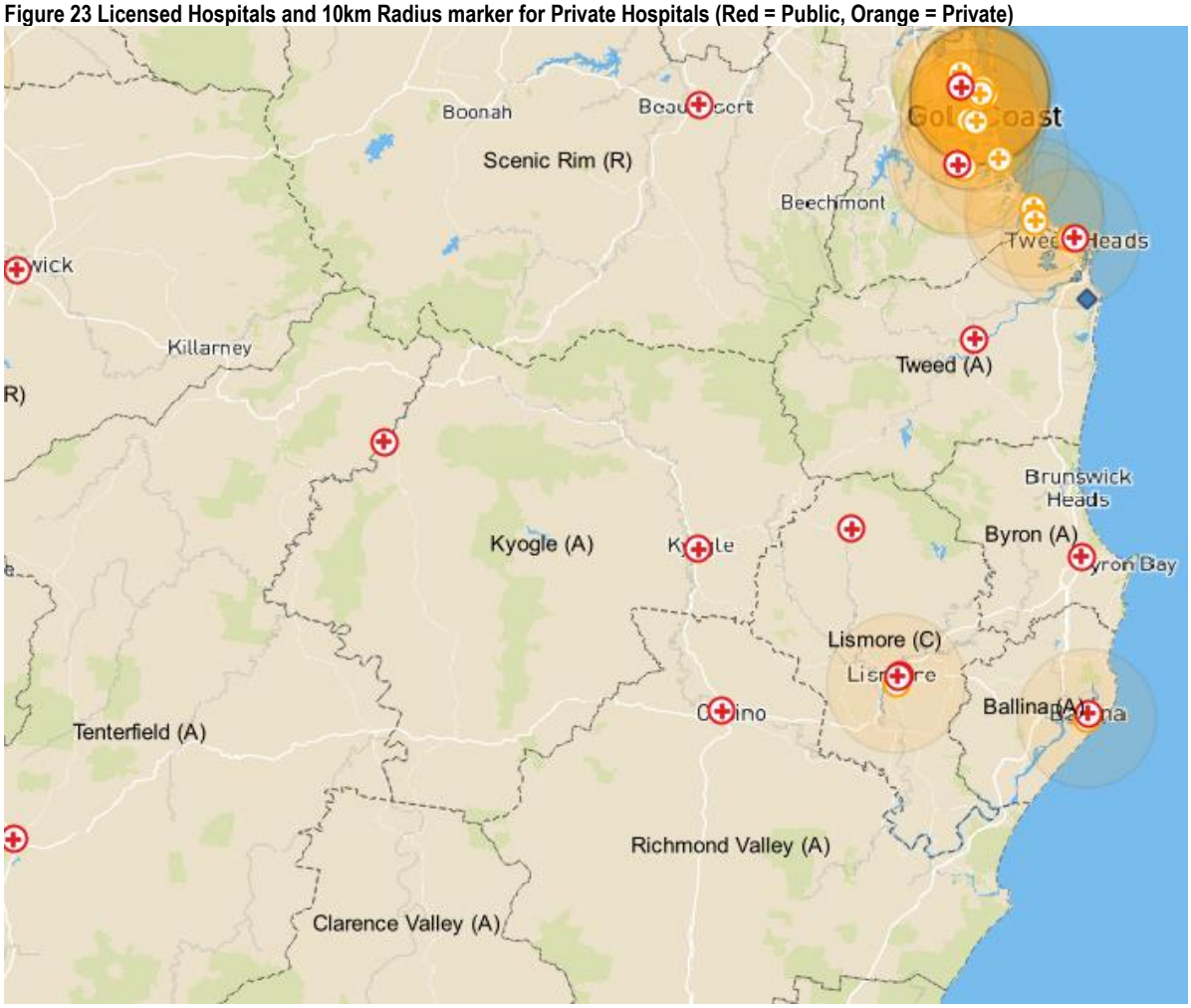


Figure 24 Public Hospitals, available beds as reported by AIHW

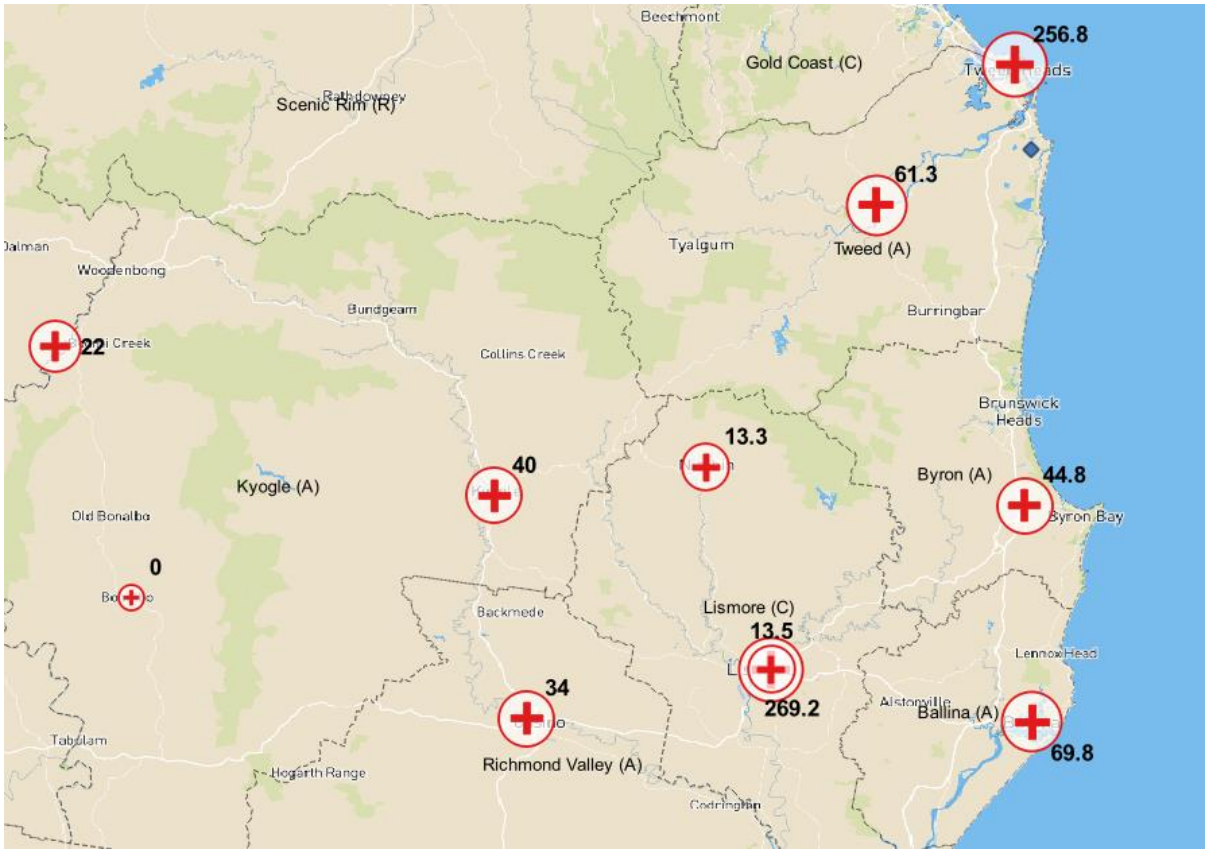


Table 16 List of Licensed Hospitals within 30km of Proposed Site

Name	Sector	State	Type	Beds / Capacity	Dist. (km)	Licensee	Specialties/Classes
(New) The Tweed Hospital	Public	NSW	Overnight	430 in-patient beds, 42 Emergency Treatment spaces 12 operating theatres	-		Emergency, Paediatrics & Adolescent, Rehabilitation, Geriatrics, Maternity, Neonatal & Special Care Nursery, ICU, Cardiac Services, Renal, Mental Health, Drug & Alcohol, Renal Dialysis, Radiotherapy, Chemotherapy, Medical Imaging service, integrated Cancer Care service, on-site Pathology services, Aboriginal Health Service (Bugalwena), HARP (HIV and Related Programs) and Oral Health services.
Tweed Day Surgery	**Private**	NSW	Day	17 recovery beds, 23 chair discharge lounge, 3 theatres, 2 procedure rooms	10.0	Tweed Surgicentre Pty Ltd (Healthscope)	Dental, ENT, Gastroenterology & Endoscopy, Gynaecology, Ophthalmology, Oral & Maxiollofacial Surgery, Orthopaedic, Pain Management Clinic, Urology, General Surgery
(Old) The Tweed Hospital	Public	NSW	Overnight	210 beds, 6 operating theatres	10.1	-	Emergency, General Medicine & Surgery Specilised surgery (ENT, Thoracic & Vascular), Orthopaedics, Renal, Urology, Obstetrics & Gynaecology, ICU and coronary care units, Mental Health, Aboriginal Health
John Flynn Private Hospital	**Private**	QLD	Overnight	361	15.0	Owned & operated by Ramsay Health Care	Emergency, Cardiac Services, General & Orthopaedic Surgery, Cancer Services, Maternity, Paediatrics, Renal Dialysis, Day Surgery, Rehabilitation.
Currumbin Clinic	**Private**	QLD	Overnight	104	17.0	Operated by Healthe Care Australia	Mental Health Care, Centre of Excellence for Mental Health
Murwillumbah Hospital	Public	NSW	Overnight	70, 4 cubicles and 4 recliner chair day surgery unit	19.2	-	Emergency Department, Operating Suite, Day Surgery, Medical and Surgical Inpatient Units, Women's Ambulatory Care Unit, Paediatrics, Rehabilitation
Miami Day Hospital	**Private**	QLD	Overnight	3 theatres	26.6	Privately Owned	Urology, Endovascular Surgery, Microsurgery, Pain Management, Fluoroscopy Services, Plastic Surgery

Name	Sector	State	Type	Beds / Capacity	Dist. (km)	Licensee	Specialties/Classes
Robina Procedure Centre	**Private**	QLD	Day	Unknown	28.9	My Eye Specialist (privately owned)	Ophthalmic Surgery, Endoscopy, IVF & Fertility Services
Robina Private Hospital	**Private**	QLD	Overnight	90	29.9	Operated by Healthe Care Australia	Mental Health, Medical and Rehabilitation, Interventional Pain Procedures, Endoscopy, Oral Maxillofacial Surgery, Orthopaedics
Robina Hospital	Public	QLD	Overnight	403	29.9	-	Emergency & Trauma, Paediatrics, Medical & Surgical, Mental Health
Byron Central	Public	NSW	Overnight	43 + 20 Non-Acute mental health	41.4	-	Emergency services, mental health, birthing and maternity services, ambulatory and allied health services.

6.5 The Tweed Hospital

Tweed Hospital is a regional referral Level 5 base hospital. It provides acute and emergency care, surgical services, women's care and newborn services, intensive and coronary care units, Mental Health inpatient facilities, Aboriginal Health and Allied Health Outpatient Clinics. Patient admissions from 2012 to 2017 highlight the service profile and activity volumes for each service grouping. Using a crude average length of stay, it can be seen the Tweed Hospital is running close to (or in excess) of its capacity.

Table 17 Number of Patient Admissions at The Tweed Hospital, AIHW

Service Grouping	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17
Childbirth	1,524	1,526	1,406	1,247	1,346	1,135
Medical (emergency)	13,722	13,891	14,250	15,041	15,306	15,900
Medical (non-emergency)	8,843	8,364	8,863	9,154	8,661	8,670
Mental health	531	649	661	715	802	691
Other acute (emergency)	250	279	247	255	246	314
Other acute (non-emergency)	1,336	1,087	1,291	1,396	1,513	1,692
Other subacute and non-acute	120	176	256	281	94	186
Palliative	137	212	215	82	257	375
Rehabilitation	85	114	8	12	0	0
Surgical (emergency)	1,191	1,591	1,440	1,439	1,518	1,621
Surgical (non-emergency)	3,091	2,996	3,403	3,484	3,306	3,283
Grand Total	**30,830**	**30,885**	**32,040**	**33,106**	**33,049**	**33,867**

The Tweed Hospital has recently been struggling to meet recommended waiting time guidelines for elective surgeries. These non-urgent and semi-urgent elective surgeries could be catered for in the private sector, especially with non-urgent elective wait times stretching for 6-8 months on average over the past few years. The Median waiting time in some non-urgent elective surgeries at the Tweed Hospital is over one year, such as **Ophthalmology, ENT and Orthopaedic** surgeries.

Table 18 Waiting Time in non-urgent elective surgery in the Tweed Hospital by Surgical Specialty

Surgical Specialty	2011 –12	2012 –13	2013 –14	2014 –15	2015 –16	2016 –17	2017 –18	2018 –19	2019 –20	2020 –21	2021 –22
Ophthalmology	939	942	868	857	922	951	972	790	795	946	791
Ear, nose and throat surgery	485	560	600	643	544	468	500	307	320	497	503
Orthopaedic surgery	494	576	418	478	428	405	386	420	449	448	410
Urology	105	108	100	109	99	100	106	108	132	187	319
General surgery	231	250	284	299	237	240	246	224	258	258	297
Gynaecology	143	175	204	221	211	226	241	223	232	280	273
Vascular surgery	102	97	142	173	191	209	247	270	281	283	269
Other surgery	168	202	300	173	90	119	104	129	227	321	141
Paediatric surgery							72	77	41	83	116
Plastic surgery	49	74	56	50	42	42	40	63	70	75	57

Table 19 The Tweed Hospital Elective Surgery Median Waiting Time By Urgency Type[24]

Row Labels	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18	2018–19	2020–21	2021–22
Non-urgent elective surgery										
Median waiting time (days)	132	203	202	210	217	233	195	148	241	199
% within recommended time	91%	95%	96%	91%	89%	100%	98%	88%	83%	91%
Semi-urgent elective surgery										
Median waiting time (days)	64	55	51	48	37	43	33	46	44	48
% within recommended time	78%	93%	98%	96%	98%	100%	99%	86%	94%	86%
Urgent elective surgery										
Median waiting time (days)	18	16	14	15	13	12	8	12	18	16
% within recommended time	82%	97%	100%	100%	100%	100%	100%	100%	100%	100%

[24] https://www.aihw.gov.au/reports-data/myhospitals/hospital/h0125

6.6 New Tweed Valley Hospital development

Recently, the NSW Government has invested $723.3 million and is building a new Tweed Valley Hospital at 771 Cudgen Road, Cudgen to replace the existing Tweed Hospital facility. The new facility will almost double the capacity of the current facility, helping to service the increasing demand for healthcare services in the Tweed-Byron region.

The new Tweed Valley Hospital will offer a wide range of medical, surgical and mental health services with enhanced inpatient, Emergency Department, renal dialysis, radiotherapy, chemotherapy services and enhanced ambulatory care services including more outpatient clinics. It will provide more than 190 new beds and 16 new Emergency Department treatment spaces and offer new and expanded local health services. In total, it provides an estimate of 430 overnight and day-only beds. The Emergency Department will provide 24-hour acute care and trauma services for adults and children, with 42 treatment spaces. The Critical Care Unit will provide quality care for critically ill or injured patients, as well as post-operative intensive care to patients who have had complex surgery. It will also include 12 operating theatres, an increase of five from the existing Tweed Hospital and more recovery spaces.

There will be comprehensive maternity and neonatal services at the new hospital, including modern birthing suites and a Special Care Nursery for newborns requiring specialist clinical care. In addition, the community will be supported with a broad range of mental health services, including inpatient care, hospital in-reach services and community mental health services. A comprehensive Medical Imaging service will provide an expanded diagnostic and interventional radiology service, a new interventional cardiology service and a new integrated cancer care service. There will be a satellite medical imageing service located in the Emergency Department, and on-site pathology services. A range of outpatient and community health services such as prevention, diagnosis, treatment and rehabilitation services will be provided for patients in the hospital and in the community.

A range of clinical services will be provided from the Health Hub, also located on the new Tweed Valley Hospital campus, providing specialist outpatient services including the Aboriginal Health Service (Bugalwena), HARP (HIV and Related Programs) and Oral Health services.

The Tweed Valley Hospital will be a state-of-the-art hospital with improved healthcare services, and become a major referral hospital for elective and emergency surgery at the heart of the network of hospitals and health facilities across the Tweed-Byron region. It will operate as part of the public health network with Byron Central Hospital, Murwillumbah District Hospital and community health and other out-of-hospital services.

Once the new hospital is operational, it is likely that the existing hospital site will be redeveloped and adapted into a 'vibrant commercial precinct' that may include some medical services[25]. These services will likely include the services that will not be relocated to the new hospital including The Tweed Clinical Education and Research Institute, Breast Screen Services, Oral

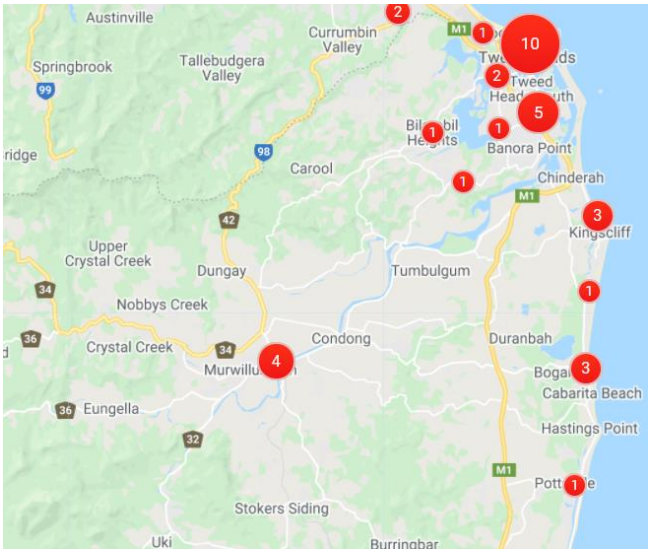
[25] Tweed Shire Council 2020, 'Local Stategic Planning Statement-2020', accessed 10 November 2020 < https://www.tweed.nsw.gov.au/Controls/Planning/Documents/Local%20Strategic%20Planning%20Statement%202020.pdf>

Health and Community Health Centre[26]. Preliminary planning is still underway and the future of the old hospital is yet to be confirmed. The development will provide the community access to more health services closer to home. It will reduce the need for 5,000 patients to travel outside the region each year to receive treatment.

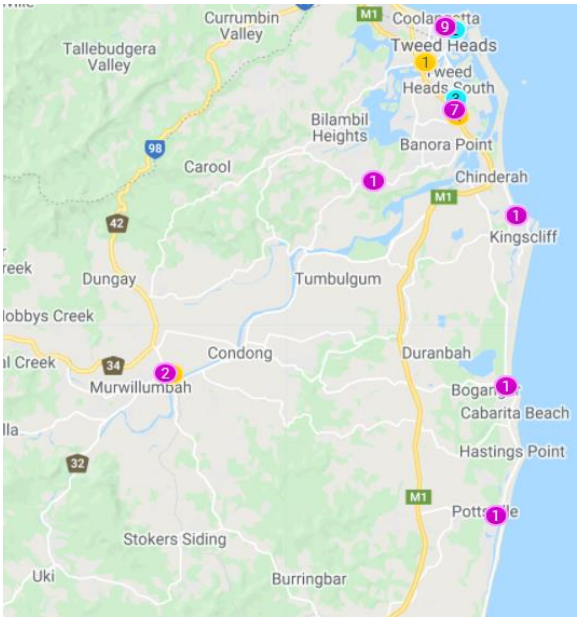
6.7 Outpatients Clinics

Specialists

General Practice

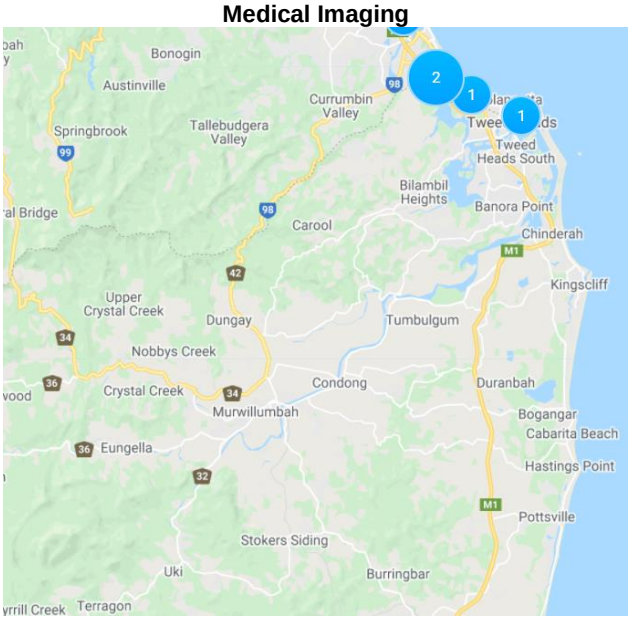


Allied Health



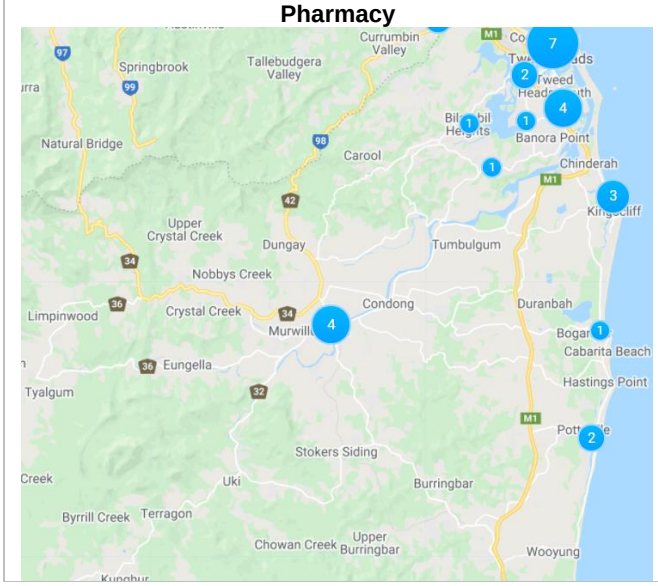
(Purple Physiotherapy, Blue Optometry, Yellow Dietetics)

Medical Imaging



[26] Tweed Valley Weekly 2018, 'Exclusive Hospital Report: Everything you need ot from the EIS', accessed 10 November 2020 <http://www.tweedvalleyweekly.net.au/exclusive-hospital-report-everything-need-eis/>

Pharmacy



The vast majority of outpatient services are located near Tweed Heads and Coolangatta.

There is limited capacity along the coast towards and past Kingscliff.

Within the primary catchment, there are only 44 GP practices (15 in Byron and 29 in Tweed LGA) in total. There are large underserviced areas to the south and southwest, indicating that patients are travelling to receive primary care.

The GP FullTime Equivalent (FTE) per 1,000 population is an indicator of the GP supply. The Byron LGA has a slightly higher GP density than the Tweed LGA: the GP FTE per 1,000 population is 1.6 for Byron LGA and 1.1 for Tweed LGA, compared to 1.1 in North Coast and 1.2 in NSW[27].

General Practitioners (GPs)[7]

	Byron	North Coast
GP Full Time Equivalent (FTE) per 1,000 population	1.6	1.1
Practices	15	180
GPs (total number)	78	845
GP (FTE)	50.8	557.3

General Practitioners (GPs)[8]

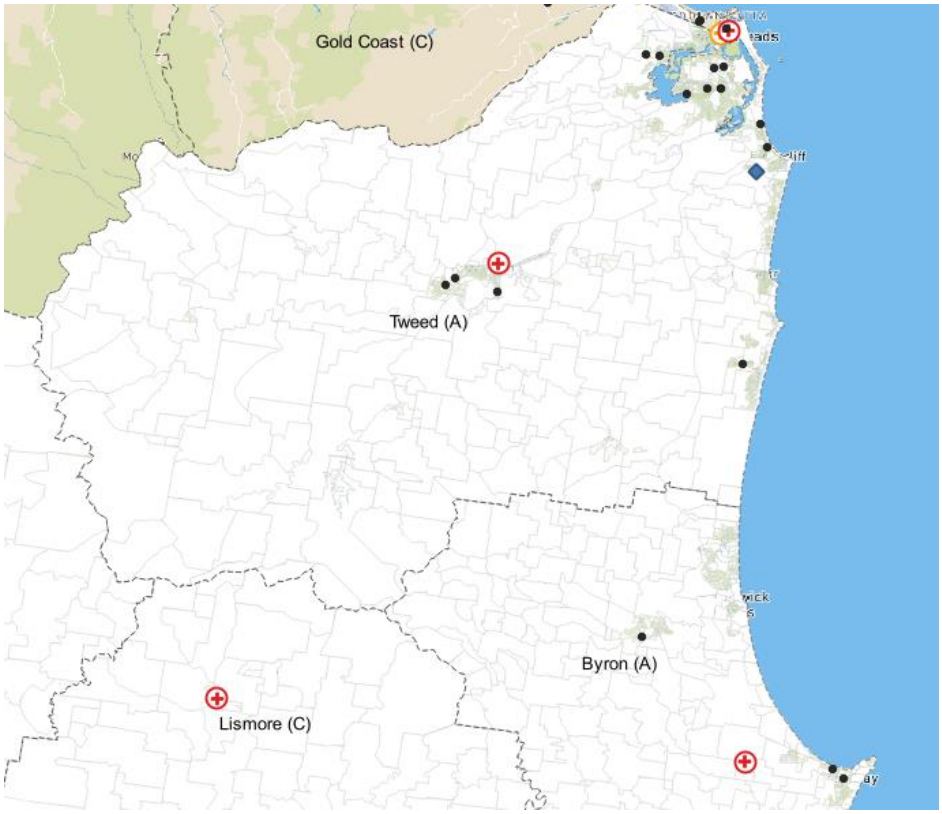
	Tweed	North Coast
GP Full Time Equivalent (FTE) per 1,000 population	1.1	1.1
Practices	29	180
GPs (total number)	153	845
GP (FTE)	102	557.3

6.8 Aged Care

Residential Aged Care facilities follow a similar distribution pattern, highlighting a low supply south and southwest of Tweed Heads. The COVID-19 pandemic impacted the health and wellbeing of people using aged care, particularly those in residential aged care. People in residential aged care have been disproportionately affected by COVID-19 infection during the COVID-19 pandemic period. 75% of all COVID-19 related deaths up to 5 March 2021) were among people in residential aged care[28].

Residential Aged Care demand is projected to steadily decrease over the next 20 years, due to the shift in the model of care to keep patients at home for as long as feasibly possible.

[27] General Practice Workforce providing Primary Care services in Australia (health.gov.au)
[28] Department of Health and Aged Care 2023, https://www.gen-agedcaredata.gov.au/Topics/Care-needs-in-aged-care



6.9 Mental Health Services in the Northern Rivers

NNSWLHD has two **Acute Adult Inpatient Mental Health Inpatient Units**, one **Child and Adolescent Mental Health Inpatient Unit** and one **Older Persons Mental Health Inpatient Unit**. All Units provide intensive psychiatric care for people who are experiencing mental illness and/or mental disorder. or Lismore (Tallowwood (Adult Unit), Lilli Pili (older persons) or Kamala (children and adolescents)). There are no private psychiatric units in the Northern Rivers.

The Northern NSW Local Health District covers the Northern coastal area of NSW from the Queensland border including Tweed, Murwillumbah and Byron Bay in the north to Grafton in the south, and inland to Lismore, Casino, Kyogle, Bonalbo, Urbenville, Grafton and Maclean.

6.9.1 Hospital / Inpatient Care

NNSWLHD has two Acute Adult Inpatient Mental Health Inpatient Units, one Child and Adolescent Mental Health Inpatient Unit and one Older Persons Mental Health Inpatient Unit. All Units provide intensive psychiatric care for people who are experiencing mental illness and/or mental disorder. **There are no private psychiatric units in the Northern Rivers.**

Acute Adult Inpatient Mental Health Inpatient Units		
	Tweed Heads Kurrajong	25 bed inpatient mental health unit co-located with The Tweed Hospital, including 5 bed observation unit
	Lismore Tallowwood	24 bed unit at Lismore Base Hospital, including 8 beds in the observation unit
Child and Adolescent Mental Health Inpatient Unit		
	Kamala – Lismore (Child and Adolescent Unit)	8 beds in Kamala, providing children and young people mental health inpatient care
Older Persons Mental Health Inpatient Unit		
	Lilli Pili – Lismore (Older Persons Unit)	a 12-bed unit for older and more frail people requiring mental health admission, situated on the Lismore Mental Health campus.
Sub-Acute Unit		
	Tuckeroo – Byron Bay	A 20 bed Sub-Acute Unit for people who need a lower level of support than that provided by the acute hospital units in Tweed and Lismore.

6.9.2 Community Mental Health Services (CMHS)

Community mental health services are provided to people who are living in the community, who may have been discharged from hospital or may not have needed hospital care.

- **Tweed/Byron** Mental Health Services: based at Tweed Heads and is located on The Tweed Hospital campus. Services are also provided from Murwillumbah. Byron Central Hospital also has a CMHS team
- **Richmond** Mental Health Services: based at Lismore and is located on the Lismore Base Hospital campus. Services are also provided from Ballina, Casino, Kyogle, Lismore and Nimbin Community Health Centres.
- **Clarence Valley** Mental Health Service: based at Grafton and located on the Grafton Base Hospital campus

6.9.3 Community Managed Organisations (CMOs)

There are various Local Community Managed Mental Health Services providing a range of services including accommodation support services, disability support services and/or community and centre-based rehabilitation programs[29].

[29] Full list can be found via https://www.nnswlhd.health.nsw.gov.au/sites/default/files/inline-files/Mental%20Health%20Services%20in%20the%20Northern%20Rivers%20-April%202021.pdf

7. Demand Modelling

7.1 Methodology

The health service demand investigations for the Project have been conducted by applying age and gender specific per capita rates for current and future years to the population projections.

Per capita rates for a full range of service types have been developed from comprehensive and up-to-date health service utilisation data available from advanced health systems around the world. To be incorporated, these health systems must fulfil defined criteria that enable them to be the benchmarking standard, including satisfactory health access, and sound clinical outcomes and costs. These gold-standard reference populations include data from Australia, the United States and Europe and are adjusted by region-specific burden of disease measures; the data is regularly updated as more current data becomes published.

The reference files applied to the primary catchment population calculate a number of measure variables, such as overnight episodes, same day episodes and consultations, converting them to beds, places and consultations using stay periods. This demand is adjusted for standard health service operational measures more suited to the local health system, enabling the investigation of projections by various categories, including age group, sex, service type, service mode, specialty and case mix.

The Primary catchment includes **Tweed and Byron LGAs**, with a secondary catchment of the **remaining LGAs of Northern NSW LHD.** Based on the patient flows analysis, it is assumed that the primary catchment includes 90% of the local residents in the area and the secondary catchment includes 20% of the local population, given the patient outflow/inflow analysis.

7.2 Summary by Service Types

This section provides an overview of the findings from the Demand modelling, followed by detailed demand projection for each service type:

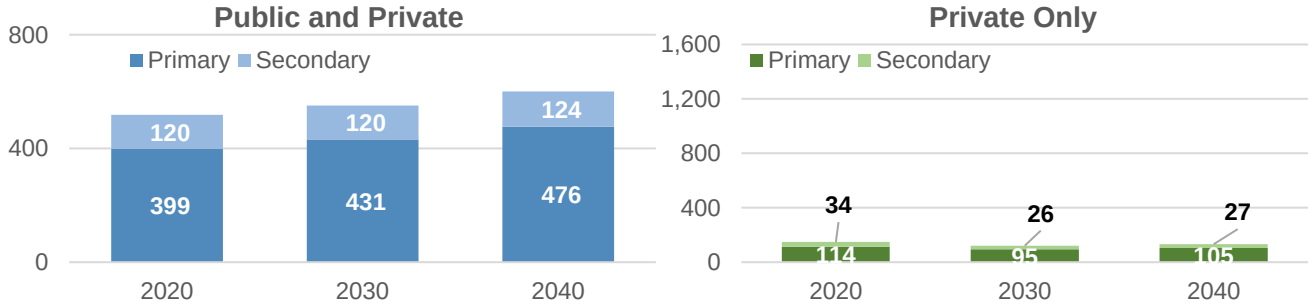
- **The Acute Overnight Bed** Demand for the total of Private and Public beds is projected to increase and is heavily skewed towards **Adult Medical and Surgical services**.
- **Acute Same Day Place**: as technology and techniques improve, there has been a rapid transition from overnight care to same day care. Demand for Same-Day services is expected to more than double over the next 15 years.
- Demand for **Non-Acute care** shows steady growth across the catchments, due to the increasingly aged population.
- **Outpatient**: additional 93 MBS-funded consultation rooms are projected across Allied Health, GP and Specialist services, with the increase in **GP services** being the highest.
- **Operating Theatre (OT):** the demand for OTs is projected to increase by 12 in the primary and secondary catchments.
- **Medical Imaging:** Ultrasound, X-Ray and CT modalities are projected to have the greatest demand by volume by 2040.

7.3 Acute Care

Demand modelling of health service utilisation data from advanced health systems indicates that more admitted acute patient care episodes can be delivered safely using a same day or short stay model. The projected ageing population of the proposed facility's catchments will experience a greater prevalence of chronic diseases and same day or short-day care models can assist patients to be stabilised in purpose designed environments using systemised protocols, without an extended stay in hospital. More simple and routine surgical and procedural care will also be delivered on a same day basis.

The modelled demand projections of the primary catchment show that the acute overnight bed demand increase is in line with the population growth projections, as well as the patterns of ageing population described in detail in Section 4.

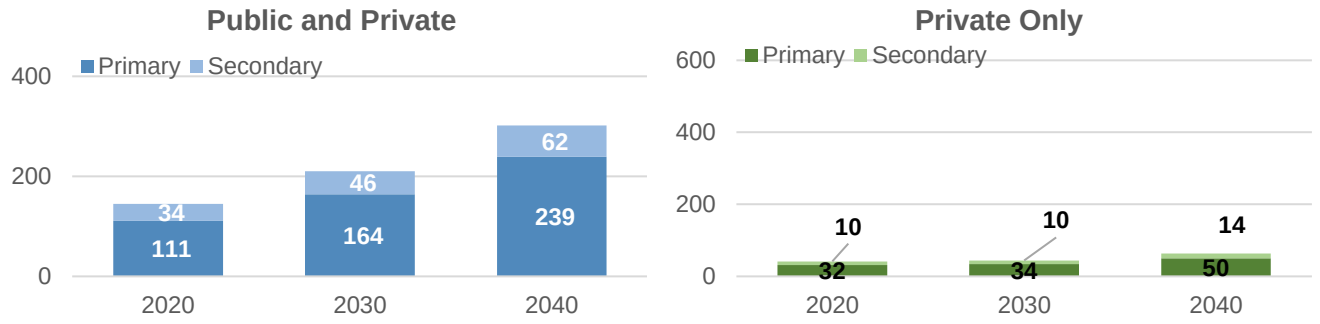
Figure 25 Acute Overnight Bed Demand, Public and Private, Primary & Secondary Catchment, 2020-2040



As the shift occurs towards treating more conditions in a same day setting owing to advances in technology, models of care and fiscal conservatism, it can be seen that the demand for same day places will double in Acute Same Day Places in the primary catchment area from 2020 to 2040.

In terms of the private demand for inpatient beds, the demand for private overnight beds is seeing a decreasing trend as a result of both the decrease in PHI coverage rate in the catchment area and the shift from overnight to same day or short stay model. However, the demand for private same day beds is expected to increase for this reason, despite the overall decreasing trend in PHI coverage. The private acute services component of this same day demand is expected to increase from 42 to 67 places in the primary and secondary catchments over the next 20 years.

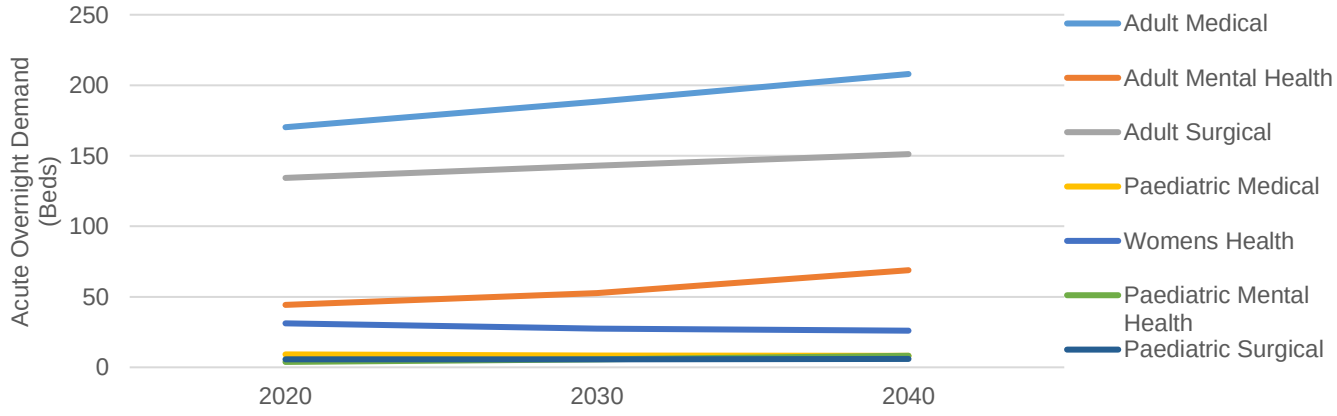
Figure 26 Acute Same Day Care Place Demand, Public and Private, Primary & Secondary Catchment, 2020-2040



7.3.1 Acute Overnight Care

Acute overnight bed demand is heavily skewed towards **Adult Medical and Surgical services**, with a growing component of **mental health** over the next 20 years.

Figure 27 Acute Overnight Bed Demand, By Service Mode, Primary Catchment, 2020 to 2040



The Acute Overnight Bed Demand by top speciality in the primary catchment for Private Public Total and Private Component is displayed in the table below. The PHI coverage rate in the primary catchment is applied to the 2020 Total demand to derive the Private Component in the same year. The trend of PHI coverage rate is assumed to continue until 2025, expected to reach 22% in 2025 and remain steady from then onwards.

Table 20 Acute Overnight Bed Demand, By Specialty, Primary Catchment, Total and Private, 2020 to 2040

Acute Overnight Beds	Private & Public Total			Private Component		
	2020	2030	2040	2020	2030	2040
Orthopaedics	47	49	51	13	11	11
Psychiatry	41	50	66	12	11	15
Respiratory Medicine	33	33	32	9	7	7
GI Surgery	24	25	24	7	6	5
Neurology	23	24	28	7	5	6
Gastroenterology	21	25	28	6	6	6
Cardiology	19	17	14	5	4	3

Acute Overnight Beds	Private & Public Total			Private Component		
	2020	2030	2040	2020	2030	2040
Urology	15	17	19	4	4	4
Obstetrics	15	12	9	4	3	2
Neurosurgery	14	17	18	4	4	4
Unspecified Subspecialty Medicine	12	15	16	3	3	4
Cardiothoracic Surgery	12	14	15	3	3	3
Neonatology	11	12	13	3	3	3
Haematology	11	12	13	3	3	3
Unspecified Subspecialty Surgery	10	11	12	3	3	3
Dermatology	9	12	14	3	2	3
Interventional	9	10	12	2	3	5
Immunology & Infections	8	14	21	2	1	1
Oncology	7	4	3	2	2	2
Vascular Surgery	7	7	8	2	2	3
Alcohol and Other Drugs	7	9	12	2	2	2
ENT; Head & Neck	6	7	8	2	2	2
Plastic Surgery	6	8	10	2	1	~0
Tracheostomy	6	3	2	1	1	1
Gynaecology	5	4	3	1	1	2
Renal Medicine	5	6	7	1	1	1
Endocrinology	4	3	4	1	1	1
Diagnostic GI	4	4	3	1	1	1
Breast Surgery	2	2	3	~0	~0	~0
Ophthalmology	1	1	2	~0	~0	~0
Pain Management	1	1	1	~0	~0	~0
Rheumatology	1	1	0	~0	~0	~0
Transplantation	1	1	2	~0	~0	~0
General Dentistry	0	1	1	~0	~0	~0
Rehabilitation	0	1	1	~0	~0	~0
Burns	0	0	0	~0	~0	~0
Dialysis	0	0	2	~0	~0	1
Total*	**399**	**431**	**476**	**114**	**95**	**105**

*Including rounding errors

7.3.2 Acute Same Day Care

Same-Day services, along with Outpatient services, are amongst the fastest growing service types in Australian healthcare. The transition from overnight care to same day care has been rapid and as technology and techniques improve, an increasing number of procedures can be safely performed in a same day setting. Same Day services include those that admit and discharge a patient within a 24-hour period, and may be measured through treatment chairs, post-op recovery bays and other day-based settings. Given the rapid transition from overnight care to same day care, it is expected that a higher percentage (10%) in the private component in Acute Same Day care than the private component in over night care

Figure 28 Acute Same Day Place Demand, By Service Mode, Primary Catchment, 2020 to 2040

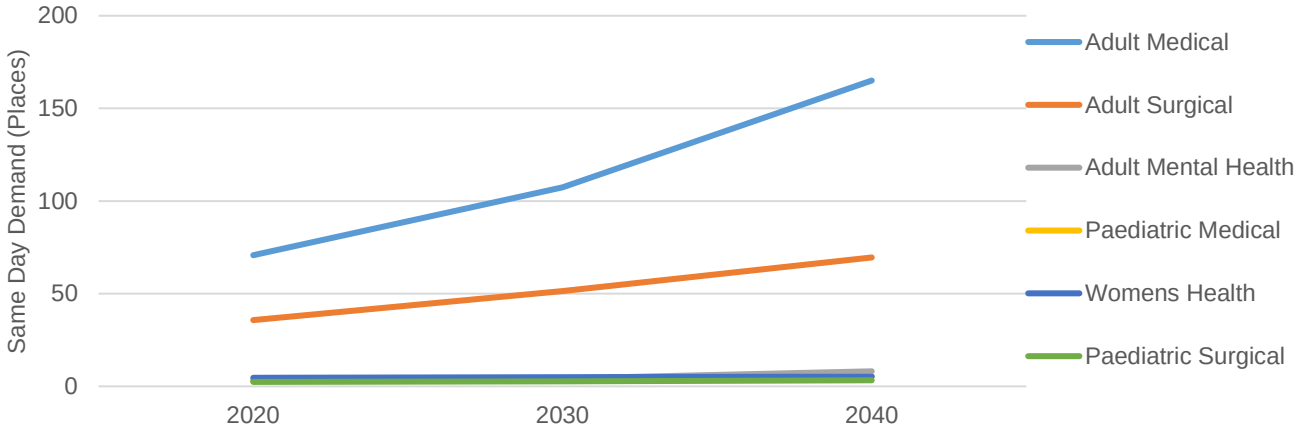


Table 21 Acute Same Day Place Demand, By Service Mode, Primary Catchment, Total and Private, 2020 to 2040

Acute Same Day Places	Private & Public Total			Private Component		
	2020	2030	2040	2020	2030	2040
Dialysis	29	39	49	8	9	11
Chemotherapy	10	18	29	3	4	6
Ophthalmology	9	14	20	3	3	4
Diagnostic GI	8	10	12	2	2	3
Unspecified Subspecialty Medicine	7	10	13	2	2	3
Orthopaedics	7	12	17	2	3	4
GI Surgery	5	7	11	1	2	2
Haematology	4	8	15	1	2	3
Plastic Surgery	3	5	6	1	1	1
Gynaecology	3	4	4	1	1	1
Gastroenterology	3	5	6	1	1	1
Cardiology	3	5	9	1	1	2
Neurology	3	5	12	1	1	3
Urology	2	3	5	1	1	1
Psychiatry	2	3	3	1	1	1
ENT; Head & Neck	2	2	3	1	~0	1
General Dentistry	2	2	2	1	~0	0
Neurosurgery	1	2	3	~0	~0	1
Respiratory Medicine	1	2	4	~0	~0	1

Acute Same Day Places	Private & Public Total			Private Component		
	2020	2030	2040	2020	2030	2040
Interventional	1	1	2	~0	~0	~0
Alcohol and Other Drugs	1	1	4	~0	~0	1
Renal Medicine	1	1	2	~0	~0	~0
Obstetrics	1	1	1	~0	~0	~0
Dermatology	1	1	1	~0	~0	~0
Unspecified Subspecialty Surgery	1	1	1	~0	~0	~0
Oncology	1	1	1	~0	~0	~0
Vascular Surgery	1	1	1	~0	~0	~0
Breast Surgery	~0	~0	1	~0	~0	~0
Immunology & Infections	~0	~0	1	~0	~0	~0
Endocrinology	~0	~0	2	~0	~0	~0
Total*	**111**	**164**	**239**	**32**	**34**	**50**

*Including rounding errors

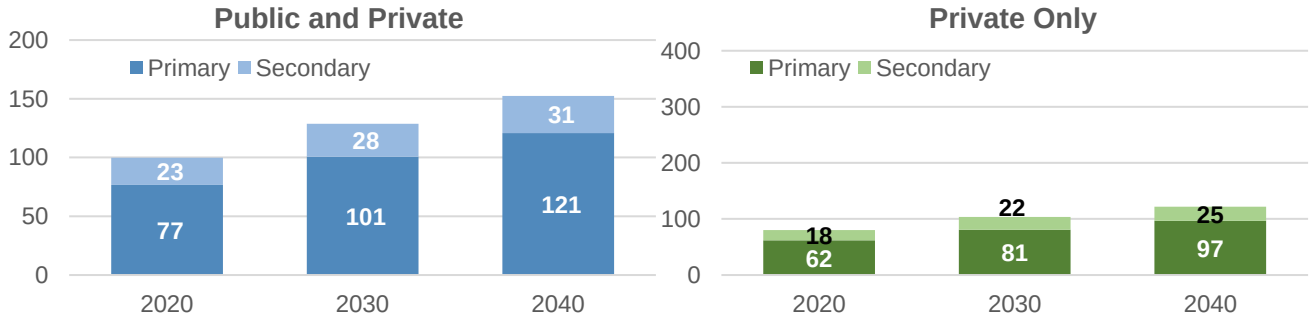
7.4 Non-Acute Care

Non-Acute care service shows steady growth across the catchments, due to the increasingly aged population and more effective and intensive rehabilitation therapies for chronic illness and disability.

Table 22 Non-Acute Overnight Bed Demand, By Service Mode, Primary Catchment, Total and Private, 2020 to 2040

Non-Acute Beds	Private & Public Total			Private Portion		
	2020	2030	2040	2020	2030	2040
Rehabilitation	77	101	121	62	81	97
Long Stay Care	52	67	79	15	19	23

Figure 29 Rehabilitation Beds, Primary and Secondary Catchment, Public and Private split, 2020 to 2040



7.5 Outpatient MBS Services

The MBS utilisation rates for each SA3 area were applied to their corresponding official NSW LGA projected population profile. As the Low Scenario does not consider the trends or ageing profile; it is not recommended. Therefore, the projected number of services was calculated for each MBS service based on the high scenario. This was then converted to a Key Planning Unit (KPU) through common operational assumptions (Activity/Days of Operation per Year / Sessions per Day. This identifies the need for at least an additional 93 MBS-funded consultation rooms across Allied Health, GP and Specialist services, with the changes in **GP consultation rooms** being the highest, 37 in Tweed Valley and 23 in the Byron LGA.

Table 23 Demand requirements for MBS Services, LGA, 2022 to 2040

MBS Service	2022		2040		
	Services	KPU	Services	KPU	KPU increase
Tweed Valley LGA					
Allied Health	138,979	28	178,083	36	8
Diagnostics	121,867	25	156,156	32	7
GP	**857,659**	**131**	**1,098,977**	**168**	37
Specialist	120,587	24	154,516	31	7
Byron LGA					
Allied Health	41,395	9	62,482	13	4
Diagnostics	36,902	7	55,700	11	4
GP	**295,225**	**45**	**445,617**	**68**	23
Specialist	36,954	8	55,779	11	3

7.6 Operating Theatres

Operating theatre demand is classified into either Elective or Emergency and performed in the setting of Overnight or Same Day operating theatres. For this facility, services will be performed out of **elective** operating theatres (and likely in a **same day** setting). Therefore, focus should be placed on **Elective theatres**, especially **Same Day setting.**

It is projected that the Demand for Elective Theatre will increase from 23 in 2020 to 35 in 2040 in both the public and private sector. By 2040, close to 90% of elective surgeries will be for Adult Surgical cases, increasing from 84% in 2020**.** Paediatrics and Women's Health will contribute to equivalent of 3 elective operating theatres in the primary catchment by 2040.

Figure 30 Elective Theatres, Primary and Secondary Catchment, Public and Private split, 2020 to 2040

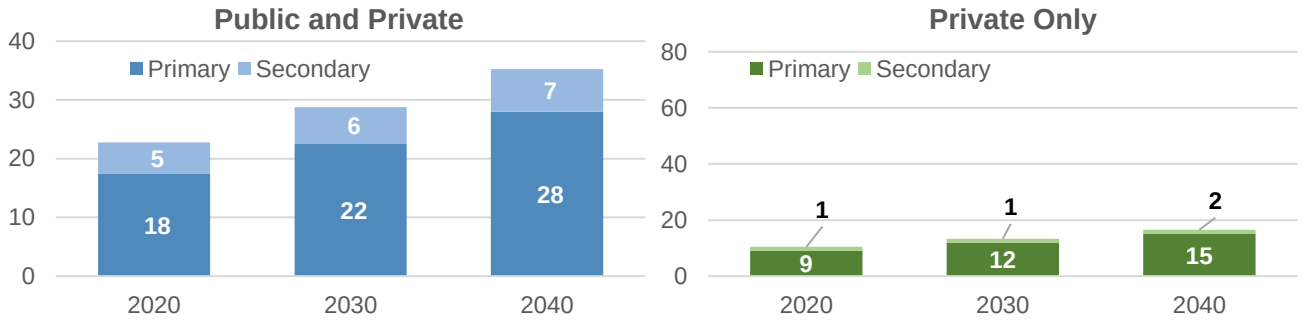


Table 24 Elective Theatre (Same Day) Demand, Primary Catchment shown by Specialty, 2020-2040

Same Day Elective Theatres	Private & Public Total			Private Component		
	2020	2030	2040	2020	2030	2040
Ophthalmology	1.5	2.4	3.3	1.1	1.7	2.3
Orthopaedics	1.3	2.1	2.9	0.9	1.5	2.0
Diagnostic GI	1.0	1.4	1.7	0.7	1.0	1.2
GI Surgery	0.8	1.2	2.0	0.6	0.8	1.4
Gynaecology	0.8	0.8	0.9	0.6	0.6	0.6
Plastic Surgery	0.7	1.0	1.4	0.5	0.7	1.0
Interventional	0.4	0.6	0.8	0.3	0.4	0.6
General Dentistry	0.3	0.3	0.3	0.2	0.2	0.2
ENT; Head & Neck	0.3	0.5	0.6	0.2	0.4	0.4
Urology	0.3	0.4	0.6	0.2	0.3	0.4
Vascular Surgery	0.1	0.2	0.4	0.1	0.1	0.3

Same Day Elective Theatres	**Private & Public Total**			**Private Component**		
	2020	**2030**	**2040**	**2020**	**2030**	**2040**
Breast Surgery	0.1	0.1	0.2	0.1	0.1	0.1
Neurosurgery	0.1	0.1	0.1	0.1	0.1	0.1
Gastroenterology	0.1	0.1	0.2	0.1	0.1	0.1
Cardiothoracic Surgery	0.1	0.1	0.1	0.1	0.1	0.1
Total	**7.9**	**11.3**	**15.5**	**5.5**	**7.9**	**10.9**

Table 25 Elective Theatre (Overnight) Demand, shown by Specialty, 2020-2040

Overnight Elective Theatres	**Private & Public Total**			**Private Component**		
	2020	**2030**	**2040**	**2020**	**2030**	**2040**
GI Surgery	2.1	2.5	2.8	0.8	1.0	1.1
Orthopaedics	1.9	2.1	2.1	0.8	0.8	0.8
Interventional	0.9	1.2	1.4	0.4	0.5	0.6
Cardiothoracic Surgery	0.9	1.1	1.3	0.4	0.4	0.5
Urology	0.6	0.7	0.9	0.2	0.3	0.4
Neurosurgery	0.6	0.7	0.8	0.2	0.3	0.3
ENT; Head & Neck	0.4	0.4	0.4	0.2	0.2	0.2
Obstetrics	0.4	0.4	0.4	0.2	0.2	0.2
Gynaecology	0.4	0.3	0.3	0.2	0.1	0.1
Vascular Surgery	0.3	0.3	0.4	~0	~0	~0
Plastic Surgery	0.3	0.3	0.4	~0	~0	~0
Endocrinology	0.2	0.3	0.3	~0	~0	~0
Breast Surgery	0.2	0.2	0.2	~0	~0	~0
Unspecified Subspecialty Surgery	0.1	0.2	0.2	~0	~0	~0
Diagnostic GI	0.1	0.1	0.1	~0	~0	~0
Ophthalmology	0.1	0.0	0.0	~0	~0	~0
Haematology	0.0	0.1	0.1	~0	~0	~0
Neonatology	0.0	0.1	0.1	~0	~0	~0
Transplantation	0.0	0.1	0.1	~0	~0	~0
Total	**9.5**	**11.1**	**12.3**	**3.4**	**3.8**	**4.2**

7.7 Medical Imaging

Medical Imaging demand for the primary catchments demonstrating similar strong projections from 2020 to 2040. By 2040, the greatest demand by volume are the Ultrasound, X-Ray and CT modalities.

Table 26 Projected demand of Medical Equipment, Primary Catchment, 2020 to 2040

Medical Imaging and Procedural Care	**Total Public and Private**		
	2020	**2030**	**2040**
Ultrasound	35	50	65
X-Ray	11	13	14
Computed Tomography	4	5	6
Mammography	4	4	3

Medical Imaging and Procedural Care	Total Public and Private		
	2020	2030	2040
Magnetic Resonance	3	4	4
Gamma Camera	2	2	2
Angiography	2	2	3
Radiation Therapy	1	1	1
Positron Emission Tomography	1	1	1

8. Gap Analysis

A gap analysis identifies areas of undersupply or oversupply, by comparing demand profiles with the current supply of the catchment. These gaps can be derived from key planning units (beds, rooms etc.) or from activity (utilisation rates, treatments per capita etc.) for a known population profile over the next 15-20 years.

This analysis provides key areas of investment that take into consideration the competitor profile, population size and structure as well as evolving market utilisation trends. This gap analysis summarises the findings of both the Supply Capture and Demand Modelling, highlighting areas of oversupply or undersupply over the next 20 years.

8.1 Primary Catchment Gap Analysis

8.1.1 Hospital

Results from gap analyses of acute hospital bed and operating theatre services are displayed in the tables below, taking into account the staged expansion of the Tweed Valley Hospital.

Although the overall demand is lower supply currently and into the future, the Gap in the private component is still considerably large due to the low supply in Inpatient Beds, Same Day Places and Elective OT in the private sector.

Table 27 Public and Private Gap Analysis

Service Type	Supply		Demand (Primary)		Demand (Secondary)		Gap (Primary & Secondary)	
	2020	+ Planned (New Tweed Valley Hospital (TVH))	2020	2040	2020	2040	2020	2040
Public & Private								
Inpatient Beds	**398** (240 Tweed, 70 Murwillumbah, 65 Byron Central, 23 Tweed Day Surgery)	**+190** Tweed Expansion	399	476	*120*	*124*	**+76**	**+313**
Same Day Places			111	239	*34*	*62*		
Elective OT	**14** 7 TVH, 2 Murwillumbah, 5 Tweed Day Surgery	+5 Tweed Expansion	18	28	*5*	*7*	**+4**	**+16**
Private Only								
Inpatient Beds	**23**	-	114	105	*34*	*27*	**167**	**173**
Same Day Places			32	50	*10*	*14*		
Elective OT	**5**	-	9	15	*1*	*2*	**5**	**12**

As mentioned in the preceding sections, the South East QLD Urban Footprint and future hospital expansion plans could have an impact on the health services requirement in the catchment areas. However, the planned health expansions are likely to be consumed by the growing populations from South East QLD. The magnitude of the impact on the identified catchment areas might be relatively small.

8.1.2 Rehabilitation

Table 28 Public and Private Gap Analysis

Service Type	Supply		Demand (Primary)		Demand (Secondary)		Gap (Primary & Secondary)	
	2020	+ Planned	2020	2040	2020	2040	2020	2040
Rehabilitation	~16 Tweed Hospital^, 24 Murwillumbah	0	77	121	*23*	*31*	**60**	**112**

^ Estimated off concept plans

The NNSWLHD 2013-2018 CSP indicates that the LHD has a rehabilitation service self-sufficiency of 87%, with 49% of the care occurring at Ballina and Murwillumbah. The only private rehabilitation provider in the LHD is St Vincent's Private Hospital Lismore, located in the secondary catchment and is a 100km drive from Tweed Heads.

There are opportunities to also provide Day Rehabilitation services and Hydrotherapy, leverageing off the primary care and allied health component of the precinct.

8.1.3 Outpatient MBS Services

A growing and ageing population, coupled with greater utilisation of ambulatory services, results in a **growing outpatient gap** over the next 20 years. There is an undeniable trend towards ambulatory and community healthcare, which will require ongoing investment of outpatient services and an expanding role of General Practitioners and Allied Health Practitioners.

The Gap for MBS Outpatient Services are expressed as to a Key Planning Unit (KPU), or consultation rooms. There is **a gap of at least an additional 93 MBS-funded consultation rooms** across Allied Health, GP and Specialist services, with the requirements in **GP consultation rooms** being the highest, 37 in Tweed Valley and 23 in the Byron LGA. There is potential to target existing clinics, such as a Physiotherapy/Sports Medicine and GP clinic, to relocate their practice to this site. There is also a functional relationship that could be built with the aged care service as well as rehabilitation service.

As explained in earlier sections, the low Scenario does not consider the population growth and age-sex structure change, therefore, it is not recommended to proceed with the estimation based on this scenario. The following Gap analysis is based on the projected population growth and age-sex structure change as described in the Population and Demographics Chapter.

Table 29 Gap for MBS Services, LGA, 2022 to 2040

MBS Service	2022		2040		
	Services	KPU	Services	KPU	KPU increase
Tweed Valley LGA					
Allied Health	138,979	28	178,083	36	8
Diagnostics	121,867	25	156,156	32	7
GP	857,659	131	1,098,977	168	37
Specialist	120,587	24	154,516	31	7
Byron LGA					
Allied Health	41,395	9	62,482	13	4
Diagnostics	36,902	7	55,700	11	4
GP	295,225	45	445,617	68	23
Specialist	36,954	8	55,779	11	3

There is potential to target existing clinics, such as a Physiotherapy/Sports Medicine and GP clinic, to relocate their practice to this site. There is also a functional relationship that could be built with the aged care service as well as rehabilitation service.

8.1.4 HR Profile

Using NSW HR profile averages and comparable projects, the following estimated HR profile is shown by staged acute bed capacity.

Table 30 Estimated HR profile (Full-Time Equivalent - FTE), NSW averages

Division	50 beds	100 beds	150 beds	200 beds
Salaried MO	30	60	90	120
Nurses	115	230	345	460
Allied Health & Diagnostic	55	110	165	220
Admin	50	100	150	200
Domestic/Support	35	70	105	140
Total Staff (FTE)	**285**	**570**	**855**	**1,140**

8.1.5 Essential Workers

The Essential Worker / Affordable Housing criteria (Department of Communities and Justice) was applied to the estimated HR profile to evaluate the potential Essential Worker accommodation requirements.

Table 31 Estimated Essential Workers

	50 beds	100 beds	150 beds	200 beds
Salaried MO	-	-	-	-
Nurses (40%)	46	92	138	184
Allied Health & Diagnostic (10%)	5	11	16	22
Admin (70%)	35	70	105	140
Domestic/Support (70%)	28	56	84	112
Total Staff (100% requirement)	**114**	**229**	**343**	**458**
Total Staff (50% requirement)	**57**	**115**	**172**	**229**
Total Staff (25% requirement)	**29**	**57**	**86**	**115**

Criteria

Affordable housing is available to households within very low, low and moderate incomes bands.

Definitions of income bands are in accordance with the *Environmental Planning and Assessment Act 1979*, the *Affordable Rental Housing State Environmental Planning Policy 2009*, Clause 6 (1) and the *State Environmental Planning Policy No 70 – Affordable Housing (Revised Schemes)* Clause 8.

Income bands are based on median incomes in the proportions as per Table 1.

***Table 1**: Income bands by % of median income*

Income bands	% of median income
Very Low	50% median
Low	50% - 80% median
Moderate	80% - 120% median

***Table 4**: Household income eligibility limits for rest of NSW: 2020/21*

Household Type	Very Low	Low	Moderate
Single	$25,100	$40,200	$60,200
Single + 1	$32,600	$52,300	$78,300
Single + 2	$40,100	$64,400	$96,400
Single + 3	$47,600	$76,500	$114,500
Single + 4	$55,100	$88,600	$132,600
Couple	$37,700	$60,300	$90,300
Couple + 1	$45,200	$72,400	$108,400
Couple + 2	$52,700	$84,500	$126,500
Couple + 3	$60,200	$96,600	$144,600
Couple + 4	$67,700	$108,700	$162,700

8.2 Medihotel

Globally, with increased pressure on existing healthcare services and limited resources available, there has been a growing interest in developing models of care to facilitate a seamless transition at the acute care to primary care interface. They provide supervised overnight accommodation for self-caring, low acuity patients who require some acute hospital services, but are not acute enough to require 24 hours inpatient care.

The non-quantifiable benefits of patient hotels include:

- Providing high quality patient care in a setting which feels less like a hospital and more of a hotel, adding to patient comfort and expediting discharge
- These hotels are usually located in close geographic proximity to the hospitals, enabling higher level of surveillance and monitoring if the need arises
- Not use up the limited resources of a hospital when not required
- Provide facilities for a family member or carer as required

Case studies which highlight this to some extents are:

- An 80-bed patient accommodation hotel is being built in W.A which is aiming to offset up to 4,500 patients a year from the adjacent public hospital
- A study by the NHS UK has found that building a 30-bed patient hotel costs 20% less than building a new hospital ward of similar capacity.

In conclusion, although the clinical benefits in terms of patient health outcomes are inconclusive based off the available literature to date, there are indications of economic benefits. With burgeoning costs of healthcare delivery and ageing population worldwide, alternative models of care that preserve health outcomes while cutting costs, like patient hotels, will start becoming more popular.

Using the average acute bed to supported accommodation bed ratio of a range of east coast hospitals, the estimated medihotel profile would be **16 medihotel beds per 100 acute beds.** It should be noted that whilst the bed and accommodation capacities may be outdated (2013) study, the ratios are in keeping and used for benchmarking.

Table 32 Benchmarking exercise

Hospital	Beds	Estimated Accommodation Beds
Armidale Hospital	99	18
Calvary Mater Newcastle	195	59
Canberra Hospital	672	116
Coffs Harbour Health Campus	292	30
Greenslopes Private Brisbane	631	58
Mater Hospital (Brisbane)	323	58
John Hunter Newcastle	796	105

A site-specific benchmarking exercise has been performed with the Canberra Hospital profile. This hospital offers Residential Accommodation Services for short-term stays. The service provides on-campus, hostel-style accommodation in Building 5 that includes twin, single or (limited) family rooms, supplied linen that is changed weekly, shared shower, kitchen, cooking, dining, living and laundry facilities & access to staff cafeteria if required

Table 33 Pricing benchmark to the Canberra Hospital

Room fees	Nightly Rates (GST exempt)
Single Room	$43.00
Second person 5 years & older	$17.00
Children under 5 years	$0.00
Double room	$60.00

9. Health Precincts

9.1 Private Hospital Co-location

There has been a long-standing tradition of co-existing private and public hospital systems in Australia, with the provision of private health services afforded to fee-paying private patients. Until the 1970s however, the for-profit private hospitals were often small and run by individual medical practitioners. Over the last four decades, there has been an expansion in this industry and developments have seen several large for-profit corporations enter the market.

Under certain contracts with the Federal Government, the private sector delivers both clinical and non-clinical services to some public patients in various public hospitals, resulting in a blurring of boundaries between the public and private sector.

The interface between the public and private services occurs when the public and private facilities are in geographic proximity to one another. In Australia, there were an upward of 50 co-located facilities by 2013. Research increasingly points toward major benefits that arise from co-location of private facilities on public sites through complementary provision of services and economies of scale. A few of these benefits include:

- Reduced duplicity of services provided between private and public sectors
- Increased patient choice and scope of service provision
- Economies of scale leading to increased efficacy and efficiencies from co-sharing of infrastructure, given the high operating costs involved with healthcare, as well as more streamlined operating efficiency in fields such as pathology, radiology, laundry, catering and communal parking
- Decreased staff attrition arising from attracting and retaining senior and experienced staff members because of their ability to work across both public and private facilities simultaneously
- Increased productivity and cost efficiency from increased market competition amongst corporations and institutions creating a healthily competitive market system
- Provision of revenue to the public sector through leasing and sharing of capital infrastructure and operating costs;
- Increased reach in providing additional private facilities in non-metropolitan areas which may be unable to support a private facility independently.

With the changing nature of healthcare delivery in Australia and the emergence of for-profit healthcare providers, along with the benefits afforded to all parties involved, this hybridisation of public and private facilities will remain a growing trend nationally and lead to better health outcomes for the community.

9.2 Education and Research

The majority of universities are located north of the border, concentrated around Gold Coast and Brisbane. Southern Cross University (Lismore Campus) is the only university south of the border in the NNSWLHD, with limited health courses available (exercise sciences and physiology).

When looking at the level of qualification of the Tweed healthcare workforce, it can be seen that it lags behind the State average for Bachelor or higher degrees (43.2% vs 50.1% of total workforce). There are opportunities to provide greater access to Bachelor or Higher degrees for the Healthcare workforce in the primary catchment.

Figure 31 Primary and Secondary University Campuses, Source: Universities Australia.

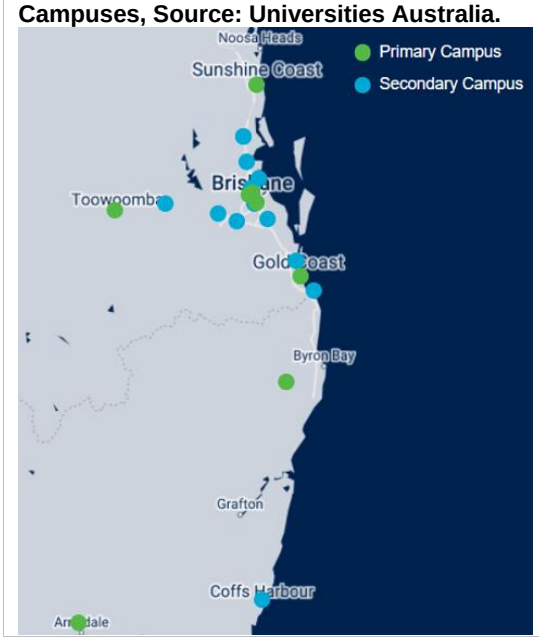


Figure 32 Percentage of Healthcare Workforce by level of qualification, Tweed vs NSW, 2021 Census

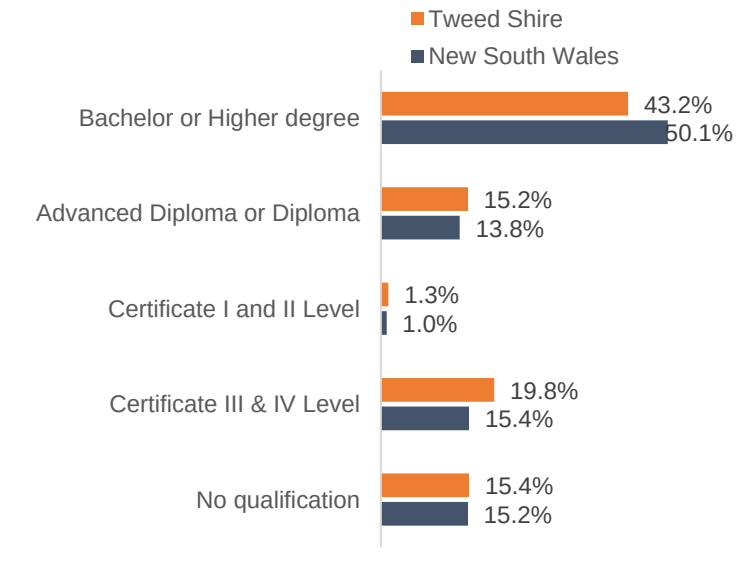


Table 34 Closest Universities and available Healthcare courses

University Campus	Distance from TVH	Medical & Dental	Nursing	Allied Health
Southern Cross University – Gold Coast Campus	15km		Nursing (Grad. Cert)	Psychological Science, Podiatry, Sport and Exercise Science, Osteopathic Studies, Occupational Therapy, Biomedical Sciences
Bond University	33km	Medical		Biomedical, Exercise and Sport Sciences, Health Sciences, Occupational Therapy, Dietetics, Psychology
Griffith University	53km	Medical, Dental	Nursing	Biomedical, Exercise Science, Medical Lab, Nutrition, Occupational Therapy, Paramedicine, Pharmacology, Pharmacy, Physiotherapy, Psychology, Social Work)
Southern Cross University – Lismore Campus	105km			Allied Health (Osteopathic Medicine, Human Sciences, Exercise Sciences and Exercise Physiology)

Health and Education precincts are not a new concept; however, they are gaining traction in recent years. A selection of Australian health precincts is shown below with their health, education and research components. The most similar precinct in terms of size and scope would be Sunshine Coast Health Precinct.

Table 35 Sample Health Precincts

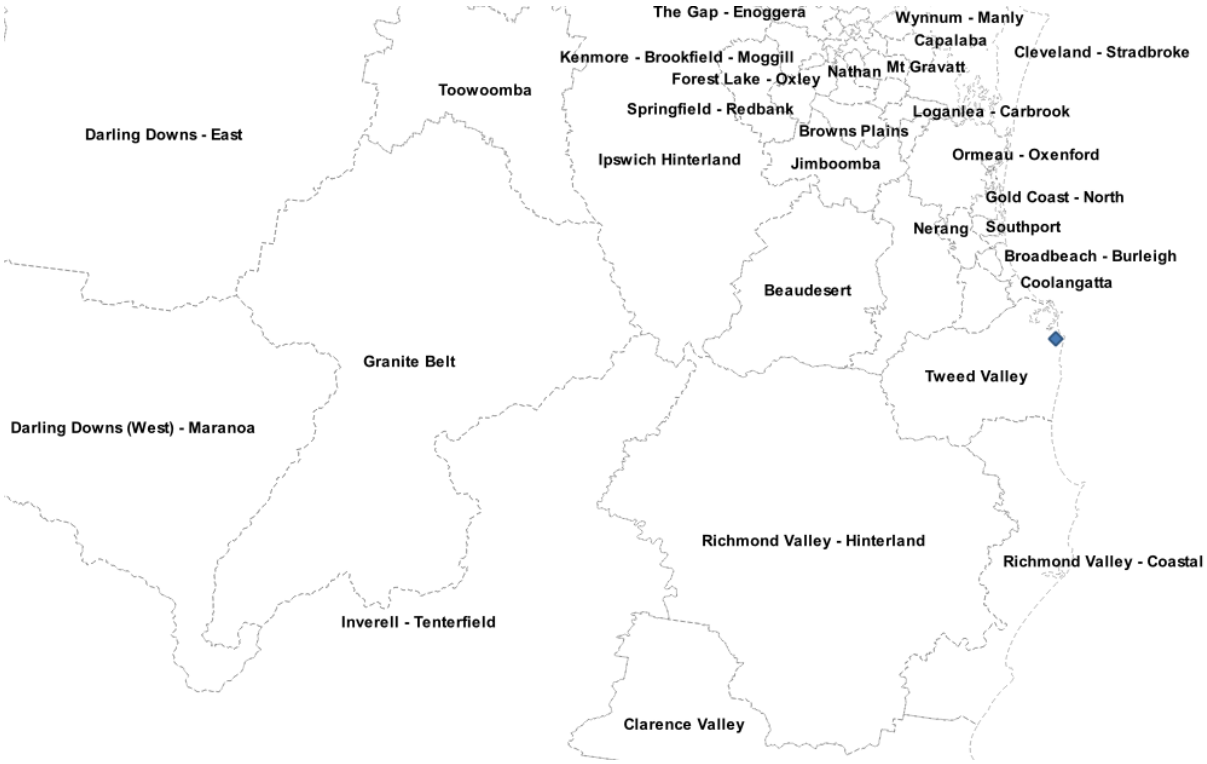
Precinct	Health	Education	Research
Gold Coast Health and Knowledge Precinct	750 bed public hospital + 340 bed private hospital	Griffith University ~10,000 health and sciences students	Medical Manufacturing (ADaPT) Biomedical Research Genetic Research AI / Technology Research
Cairns Health and Innovation Precinct	633 bed public hospital	178 Medical Students	Health Technology Internet of Things Research
Randwick Health and Education Precinct	4 hospitals (>1000 public and private beds)	UNSW 'Health Translation Hub' 50,000 students	Biomedical Robotics Neuroscience
University of Canberra Health Precinct	140 bed public rehabilitation hospital + GP Superclinic + Student-led Clinics + 150 bed aged care facility	University of Canberra campus	University of Canberra research and training facility
Sunshine Coast Health Precinct	450 bed public hospital (expanding to 738) + 200 bed private hospital	Sunshine Coast Health Institute: USC, TAFE Queensland and Griffith University	Research Labs and Medical Training
Liverpool Health and Academic Precinct	~900 bed public hospital + planned Private hospital co-location	Primary School, Secondary School, TAFE and Western Sydney University	Centre of Excellence for Cancer and Translational Research and Health Technology Advanced Manufacturing
Westmead Health Precinct	4 hospitals	10,000 students (Sydney and Western Sydney University)	4 medical research institutes

There are obvious operational synergies through co-location of health, education and research entities, however they also provide an economic boost (direct and indirect benefits from investments), attracting skilled workforce (specialists looking to gain teaching experience), attracting patients (seeking specialised or state-of-the-art therapies) and attracting migrants (looking to relocate to areas with high quality healthcare).

10. Appendix

10.1 Geographic Boundaries

SA3 Boundaries



LGA Boundaries

10.2 Potentially Preventable Hospitalisations

Table 36 Potentially Preventable Hospitalisations (PPH) per 100,000, ordered by worst to best performing SA3 regions in NSW

SA3 Name	PPH per 100,000	SA3 Name	PPH per 100,000
Bourke - Cobar - Coonamble	4,475	Blacktown - North	2,515
Mount Druitt	3,886	Canterbury	2,473
Wagga Wagga	3,755	Lake Macquarie - West	2,462
Griffith - Murrumbidgee (West)	3,727	Orange	2,447
Moree - Narrabri	3,665	Botany	2,393
Broken Hill and Far West	3,619	Leichhardt	2,348
Upper Hunter	3,604	Richmond Valley - Coastal	2,339
Tumut - Tumbarumba	3,472	Wollongong	2,325
Tweed Valley	3,286	Warringah	2,295
Tamworth - Gunnedah	3,269	Port Macquarie	2,290
Richmond Valley - Hinterland	3,200	Gosford	2,278
Campbelltown (NSW)	3,142	Hornsby	2,268
Dapto - Port Kembla	3,111	Kiama - Shellharbour	2,268
Kempsey - Nambucca	3,085	Fairfield	2,266
St Marys	3,058	Lake Macquarie - East	2,245
Dubbo	3,042	Kogarah - Rockdale	2,243
Goulburn - Mulwaree	3,041	Wollondilly	2,234
Inverell - Tenterfield	3,009	Carlingford	2,229
Upper Murray exc. Albury	2,997	Manly	2,223
Young - Yass	2,979	Parramatta	2,214
Lower Murray	2,973	Sydney Inner City	2,182
Bathurst	2,928	Rouse Hill - McGraths Hill	2,162
Coffs Harbour	2,923	Eastern Suburbs - South	2,135
Albury	2,907	Dural - Wisemans Ferry	2,132
Merrylands - Guildford	2,902	Queanbeyan	2,126
Armidale	2,891	Hurstville	2,104
Clarence Valley	2,870	Port Stephens	2,096
Maitland	2,857	Pittwater	2,094
Lower Hunter	2,832	Blue Mountains	2,092
Wyong	2,816	Sutherland - Menai - Heathcote	2,081
Blacktown	2,790	Snowy Mountains	2,078
Bringelly - Green Valley	2,771	Ryde - Hunters Hill	2,073
Liverpool	2,771	Ku-ring-gai	2,034
Richmond - Windsor	2,746	Hawkesbury	2,025
Taree - Gloucester	2,727	Chatswood - Lane Cove	2,008
South Coast	2,694	Strathfield - Burwood - Ashfield	1,994
Lachlan Valley	2,677	Cronulla - Miranda - Caringbah	1,983
Lithgow - Mudgee	2,671	Shoalhaven	1,970
Great Lakes	2,650	Baulkham Hills	1,954
Bankstown	2,624	Eastern Suburbs - North	1,893
Penrith	2,598	Southern Highlands	1,848
Camden	2,586	Canada Bay	1,829
Auburn	2,537	Pennant Hills - Epping	1,787
Newcastle	2,531	North Sydney - Mosman	1,741
Marrickville - Sydenham - Petersham	2,516		