

6) Appendix F

Dural Health Market Assessment 2022
prepared by
Health Projects International

Dural Health Hub Market Assessment

Final
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Health Projects International Pty Limited

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1. About HPI

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 HPI, as a Lead Consultant has 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 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 standards frameworks.

1.2 Services

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

These 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 practice and state-of-the-art methodology 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 the 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

The Dural Health Hub is well positioned to provide key undersupplied private healthcare services to the surrounding areas. There are currently no licensed hospitals within a 5km radius of the proposed site, and no acute healthcare services at all north of Dural. This lack of hospital bed supply forces residents to outflow to higher supplied areas (such as Norwest and Hornsby) which results in a large number of these patients travelling past Dural.

Persons over the age of 65 on average utilise healthcare four times as much as those under 65. This higher utilisation of healthcare is compounded by the fact that the population profile of the area is aging, growing and life expectancies are increasing. This effect accelerates the demand for outpatient care and same day medical and surgical interventions, which without further investment will overstretch existing healthcare facilities recovering from extensive COVID-19 elective surgical delays.

Models of care are shifting away from large acute admitted hospitals to community-cantered multi-disciplinary health hubs with same-day medical and surgical capacity. This decentralised model provides care closer to home in a more efficient and economic setting, with larger tertiary hospitals freeing up capacity to cater for higher acuity patient loads.

In aggregate terms, there will be an **undersupply in the primary catchment of same day places of 122 places by 2025, increasing to 307 by 2035**. In addition, based on analysis of Medicare utilisation in the area and the population growth profile, there is sufficient demand to require **six additional GP consultation rooms every year to cater for residents located within 15 minutes' drive of the site**.

The gap analysis in this report has shown significant undersupply of acute, diagnostic and outpatient services and has conservatively captured only a portion of this gap to account for brownfield and greenfield growth in the surrounding locality.

The Project Space Estimate Summary for Dural Health Hub is listed in the report and demonstrates an indicative gross area requirement of **11,118 m²** for all departments and circulation. The planned service profile includes:

- Day Surgery and Operating Theatres
- Short Stay Surgical Beds
- GP Medical Centre
- Specialist consultation rooms
- Pathology collection
- Medical Imaging
- Allied Health

Five main variables were used to assess the viability of a health services facility on the site. These include:

- **Population and demographics:** Population size, structure, demographic and growth over 20 years
- **Availability of clinicians:** To support referrals and to attract specialists, it is important to understand the supply and movement of the medical workforce.
- **Demand for healthcare:** A population-driven demand study of the likely catchment of the facility to quantify the current and future demand.
- **Competitors:** Understanding the density of private healthcare in the catchment and competitor profiles.
- **Synergies:** The facility plays a role in a greater strategic piece of the puzzle, leveraging synergies with the public hospital system, education, research or other.
- **Location:** The location of the facility is important to its success, with factors such as zoning, proximity, visibility and synergy with surrounding areas.

Measure	Outcome	Supports health services facility
Population and demographics	High growth area with an aging population	Yes
Availability of clinicians	A maturing health system with current primary care and allied health availability of clinicians. Benefits from the high availability of specialist clinicians in Norwest and Hornsby, and reinforced by planned development at Rouse Hill	Partial
Demand for private healthcare	High growth area with a population that has a 67% private health hospital coverage (much greater than the state average of 47%)	Yes
Competitors	No existing competitors within a 5km radius	Yes



Synergies	Not directly co-located with a public hospital but within the wider catchment of the planned Rouse Hill public hospital.	Partial
Location	Proximity to the Round Corner Town Centre and high visibility and accessibility from a major road (Old Northern Road).	Yes

The proposed \$300m Rouse Hill hospital (public) is expected to have a positive impact on the healthcare provision in the area and presents a raft of opportunities for the region as a whole – with work scheduled to start by early 2023. Rouse Hill Hospital is not directly competing with the proposed health services facility as it focuses on public healthcare and also has a large focus on overnight services instead of same day.

The investment from the public sector highlights the chronic undersupply of acute hospital beds in the region but does not address the private acute bed gap. The increase in public service provision brings a new cohort of service providers, physicians, nurses, and allied health staff that promote the health service maturity and further investment in the region.

The Visiting Medical Offers (VMOs) will largely be based out-of-area, which results in a flow of staff across the region that could be attracted to provide private healthcare services. This flow of workforce provides the proposed health services facility a wide selection of VMOs to attract and potentially fill consulting, procedural and surgical suites. The public system can often (but not always) be seen as a first mover in healthcare and provides confidence in the market for further private investment, this is a prime example here where the public sector has unlocked this corridor for further private healthcare investment.

The ongoing impacts of COVID-19 has resulted in the public sector relying on the private sector to pick up the elective surgical caseload that is currently experiencing wait-time blowouts. There will be ongoing collaboration between the private and public sector to alleviate these pressures through these decentralised private same day hospital models.



3. Project Overview

3.1.1 Project Objective

HPI has been engaged to perform a market assessment and service profiling for a health services facility at the proposed site location (679 – 685 Old Northern Road, Dural). The HPI Facility Planning Division will specify the facility’s space requirements according to the Australasian Health Facility Guidelines (AusHFG) and standards.

This report is structured into the following:

- Population and Demographics (Understanding population size, density, structure, growth, utilisation, socioeconomic and demographic drivers)
- Supply (Geospatial review of existing supply, competitor profiling and licensed hospitals)
- Demand (Population-driven demand of the primary catchment)
- Gap (Comparison of supply and demand, with a review of potential demand of outflow of residents)
- Facility Specification (Identification of potential facility services and the approximate built area required in accordance with AusHFG)

3.2 Project Scope

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

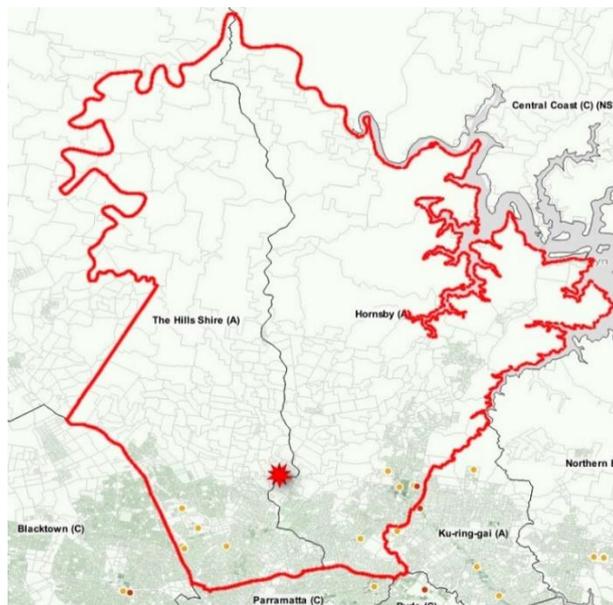
- Medical outpatients (Specialist and General Practice),
- Allied Health outpatients
- Acute Same Day places/beds
- Radiology and Pharmacy

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

3.3 Study Catchment

The study for healthcare demand has been determined through likely catchments of the proposed health services facility. Local Government Areas (LGAs) 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 the Hornsby Shire and The Hills Shire LGAs**, due to the fact that the Dural Health Hub site is located on the boundary of both LGAs. Neighbouring areas have been assessed to understand the likelihood of inflows considering the supply profile and demand growth of these areas, an example of this is the northern region outflow capture analysis, which is discussed in Section 7.2 Outflow Capture of this report.



red line indicates outline of catchment as defined by the aggregated full extent of both Hornsby Shire and The Hills Shire LGAs



Dural Health Hub site



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3.4 Report Sources

This report uses both publicly available sources for supply and socioeconomic analysis, as well as HPI's proprietary demand modelling software. The key sources used in the creation of this analysis include (but are not limited to) AIHW, ABS, NSW Department of Planning and Environment for all population projections, HealthDirect, Profile.ID, Australasian Health Facility Guidelines.



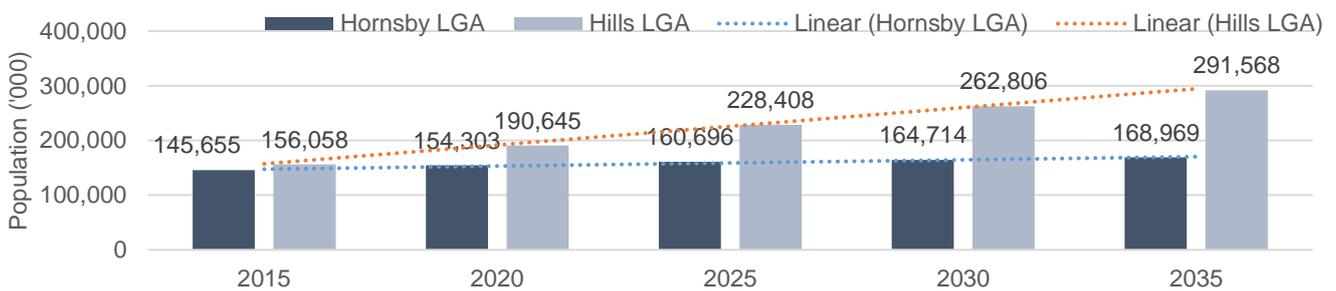
4. Population and Demographics

4.1 Population

Population profiles, both in size and structure, provide key insights into demand drivers for healthcare within the primary 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 15-20 years.

Over the past 5 years, The Hills Shire and Hornsby Shire LGAs have grown by 35,000 and 8,500 residents respectively. The compound annual growth rate (CAGR) of 4.1% in The Hills Shire LGA is one of the largest in NSW, with Hornsby Shire LGA experiencing a slower growth rate of 1.2% annually.

Figure 1 Population projections, 2015-2035, Hornsby Shire and The Hills Shire LGAs (NSW DPE Projections)



A comparison is made below to highlight the differences in population size, structure and growth profiles of the study catchment and the rest of NSW. This provides both specificity and sensitivity in demand profiling for all in scope service types.

While the **Hornsby Shire LGA** is expected to accommodate an **additional 15,000 residents** over the next 15 years, the adjoining **The Hills Shire LGA** is expected to experience **growth of 100,000 residents** in the same period. The Hills Shire LGA will expect to grow at a rate over double the State’s average (2.9% vs 1.3%), whilst the Hornsby Shire LGA will grow at half of the State’s average (0.6% vs 1.3%). When viewing this as a population age structure, Hornsby Shire is expected to grow in the proportion of residents over the age of 65 at a slightly faster rate than The Hills Shire and NSW averages.

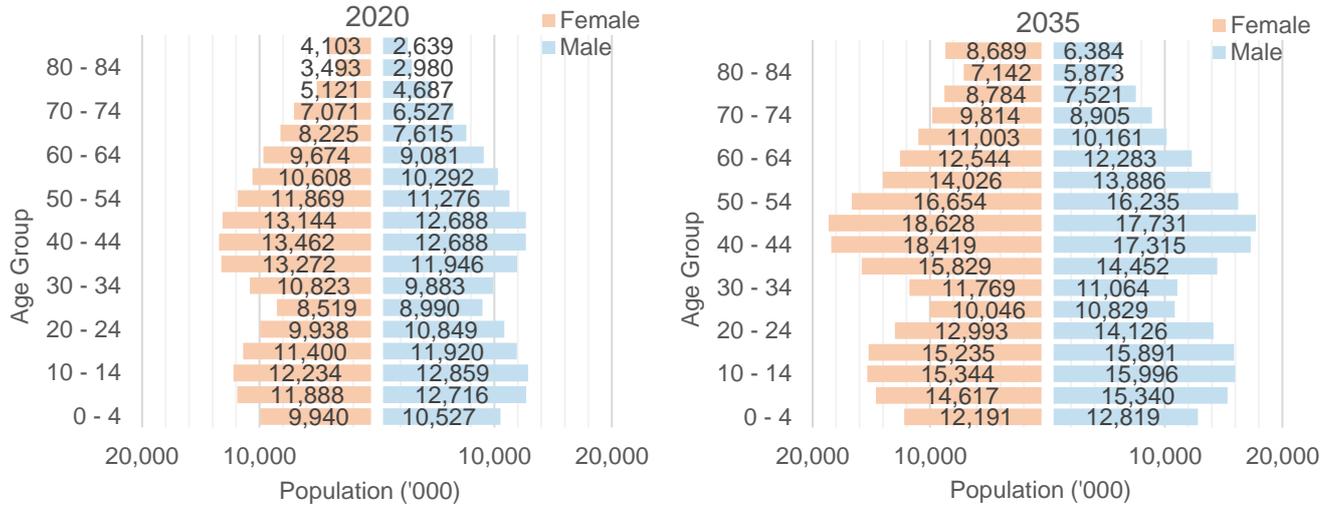
Table 1 Population change, Total and Proportion over 65, 2020-2035

Catchment	Total Population			% over 65		
	2020	2035	CAGR	2020	2035	Change
Hornsby Shire LGA	154,303	168,969	0.6%	17%	21%	+4%
The Hills Shire LGA	190,645	291,568	2.9%	14%	17%	+3%
NSW	8,278,547	9,974,485	1.3%	17%	20%	+3%

There are clear implications of this aging population profile on healthcare utilisation and burden of disease profiles. The demand modelling takes the age and gender composition of this primary catchment to quantify the services required to support this population. For example, the large composition of those in the older cohorts will influence the utilisation of rehabilitation, oncology, cardiology and so on.



Figure 2 Age and Sex Population Profile, 2020 Current and 2035 Projected, Hornsby Shire and The Hills Shire LGAs





4.1.1 Key Suburbs

Demand modelling has been performed on NSW Department of Planning and Environment population projections for Hornsby Shire and The Hills Shire LGAs. Looking more granularly at suburb projections, Profile.ID projections from 2020-2040 give a sense of suburb-specific growth profiles. Dural is located in Hornsby Shire’s ‘North Western’ district, which is expected to grow +10% between 2020 and 2040 (CAGR 0.5%).

Figure 3 Hornsby Shire Population Projections (Source: Community and Cultural Facilities Strategic Plan (2021) using Profile.ID data)

Districts	Suburbs	2020 population		2040 population			
		No. of people	% Hornsby Shire (nearest 1)	No. of people	Change 2020-2040 (no.)	(%)	% Hornsby Shire (nearest 1)
Central	• Asquith	6,379	4%	9,207	+2,828	+44%	5%
	• Hornsby	24,566	15%	35,961	+11,395	+46%	19%
	• Hornsby Heights	6,445	4%	6,625	+180	+3%	4%
	• Mount Colah/Mount Ku-ringai	10,058	6%	11,024	+966	+10%	6%
	• Normanhurst	5,588	4%	6,030	+442	+8%	3%
	• Wahroonga	4,730	3%	5,637	+907	+19%	3%
	• Waitara	7,654	5%	9,333	+1,679	+22%	5%
	Central subtotal	65,420	42%	83,817	+18,397	+28%	46%
North Eastern	• Berowra	4,894	3%	5,246	+351	+7%	3%
	• Berowra Heights-North Eastern Rural Balance (incl. Cowan, Brooklyn, Dangar Island, Milson's Passage, Peat Island)	6,466	4%	6,557	+91	+1%	4%
	• Brooklyn	650	<1%	699	+49	+8%	<1%
	North Eastern subtotal	12,010	8%	12,502	+492	+4%	8%
North Western	• Arcadia - North Western Rural (incl. Berrilee, Canoelands, Fiddletown, Forest Glen, Glenorie, Maroota, Laughtondale, Singletons Mill, Wisemans Ferry)	3,896	2%	4,002	+106	+3%	2%
	• Dural	5,727	4%	6,298	+571	+10%	3%
	• Galston - Middle Dural	3,581	2%	4,362	+781	+22%	2%
	North Western subtotal	13,204	8%	14,662	+1,458	+11%	8%
Southern	South Eastern:						
	• Beecroft - Cheltenham	10,290	7%	11,446	+1,156	+11%	6%
	• North Epping	4,732	3%	4,889	+157	+3%	3%
	• Pennant Hills	7,975	5%	9,433	+1,458	+18%	5%
	• Thornleigh	8,955	6%	10,634	+1,679	+19%	6%
	• Westleigh	4,579	3%	4,771	+192	+13%	3%
	<i>South eastern sub-district subtotal</i>	<i>36,531</i>	<i>23%</i>	<i>41,173</i>	<i>+4,642</i>	<i>+13%</i>	<i>22%</i>
	South Western:						
	• Castle Hill	5,917	4%	5,624	-293	-5%	3%
	• Cherrybrook	18,680	12%	21,378	+2,698	+14%	12%
	• West Pennant Hills	4,167	3%	4,945	+778	+19%	3%
	<i>South western sub-district subtotal</i>	<i>28,764</i>	<i>18%</i>	<i>31,947</i>	<i>+3,183</i>	<i>+11%</i>	<i>17%</i>
Southern subtotal	65,295	42%	73,120	+7,825	+12%	40%	
Hornsby Shire total		155,929		184,101	+28,172	+18%	

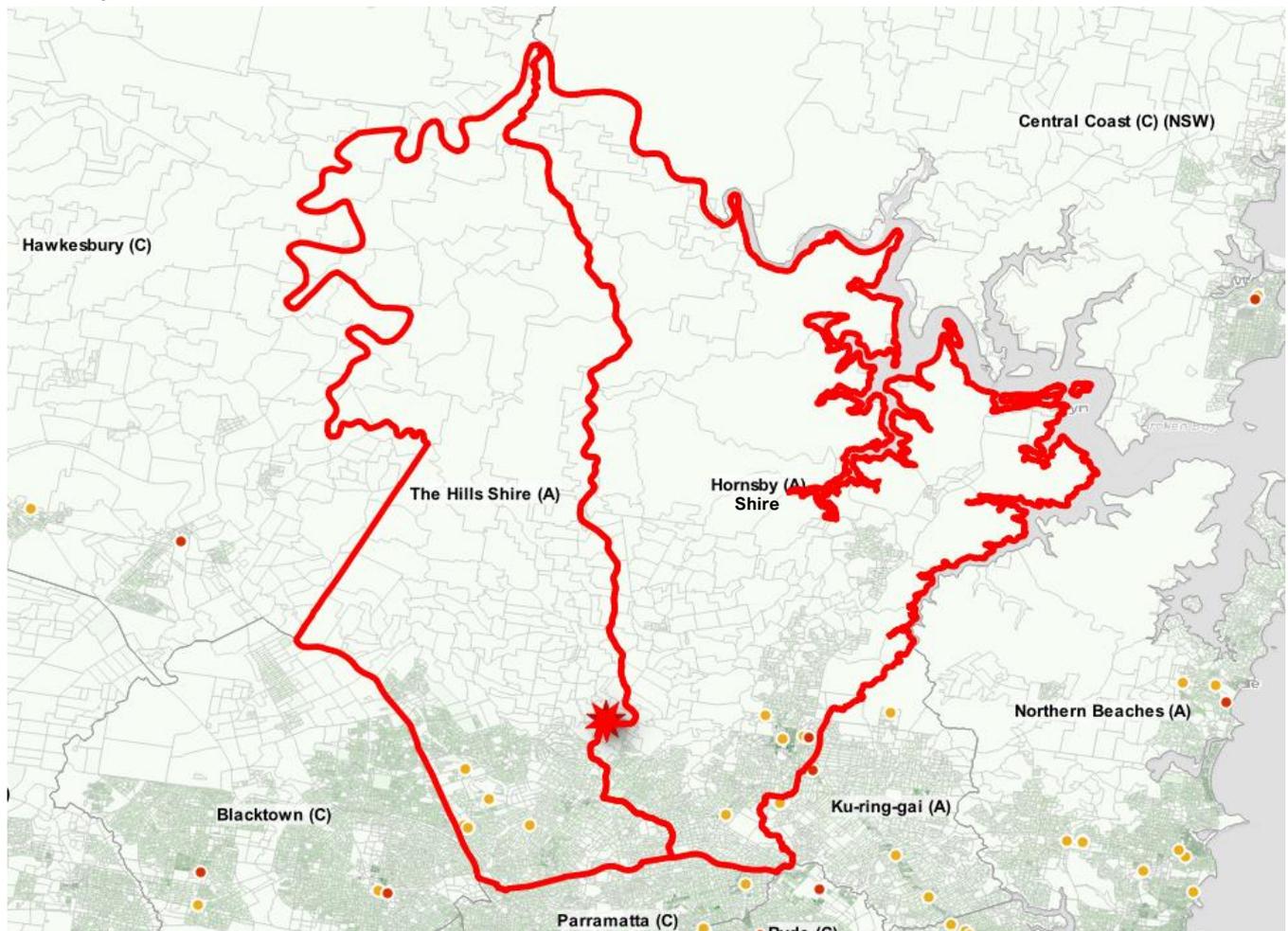
4.2 Population Densities

Whilst an overview of the total LGA population has been studied, it is important to understand the population densities of the study catchment to identify potential hot spots in mismatch between population and supply. Positioning of the health services facility should consider the densities of the surrounding areas and understand where patients are travelling to attend care if they are not receiving it locally.

The proposed location of the proposed health services facility is situated on the fringe of higher population regions to the north of The Hills Shire suburbs and is well positioned to take advantage of the urban sprawl towards the north and west of the LGA. This urban sprawl is enhanced by the recently completed Metro line and Norwest corridor investments. At the time of this report, there are no licensed hospitals to the north of this proposed site, only a handful of independently run medical centres or sole practitioners.

This catchment to the north of Dural is poorly serviced for inpatient beds, as well as same day and outpatient services as shown by the lack of competition in the Supply chapter. The proposed health services facility has the potential to intercept the outflow of patients from northern areas of the primary catchment, providing high-quality private health care closer to home for this cohort.

Figure 4 Population Density heatmap, Persons per square kilometre (Dark Green = Higher population densities), shown by ABS 2016 Meshblocks



The gap analysis section of the report will highlight the service needs of this population and what potential profile could be provided at the site to match the needs of the serviceable population, which includes Hornsby Shire and The Hills Shire LGAs.



4.3 Utilisation Trends

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 burden of disease, health care preferences, population growth and accessibility of services (availability, costs and service options).¹

The utilisation trends of the immediate population catchment (Dural-Wisemans Ferry SA3 area) 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 2020-21. In all services, Dural-Wisemans Ferry utilises MBS services at a greater rate than the NSW average but is closer aligned to adjacent regions.

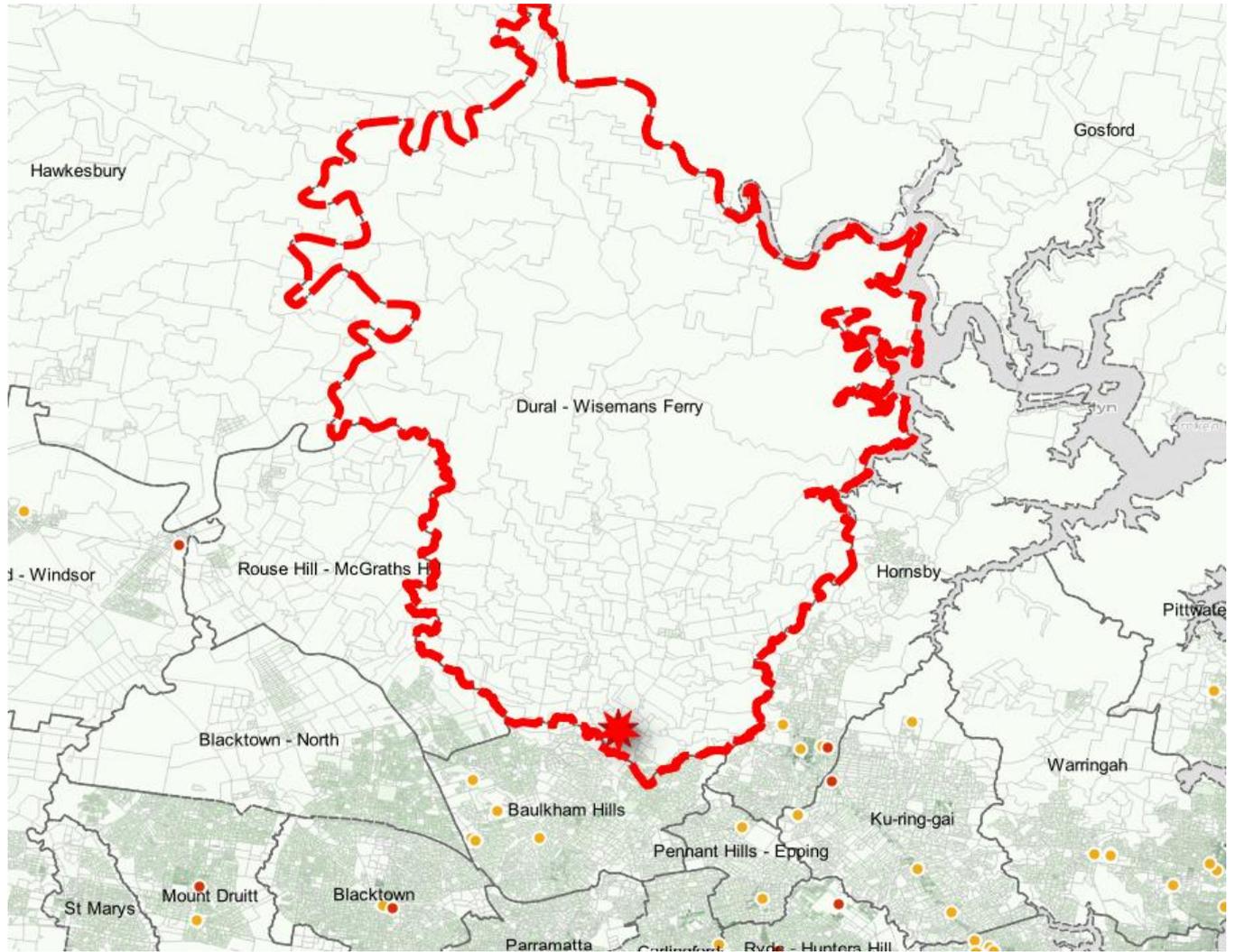
By reviewing the supply of the SA3 area catchment against the Medicare Benefits Schedule (MBS) activity, it can be clearly seen that this population is flowing out of the catchment to receive care. The growth in demand due to population growth and aging will result in greater outflow of service provision for the local population. These older cohorts would benefit from local services due to potential limitations in mobility and vehicle usage.

Table 2 MBS Utilisation rates by SA3 region, 2020-21 (MBS)

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						
Dural - Wisemans Ferry	110	7,582	11,922	30,488	2.6	91
Blacktown	105	6,441	55,589	151,994	2.7	70
Hornsby	109	7,623	36,712	94,574	2.6	92
Ku-ring-gai	110	8,221	55,624	140,298	2.5	103
NSW	102				2.6	80
Diagnostic Imaging						
Dural - Wisemans Ferry	140	21,570	12,971	38,883	3	173
Blacktown	128	18,651	61,618	184,943	3	150
Hornsby	105	15,618	33,982	91,139	3	175
Ku-ring-gai	115	17,866	52,567	146,848	3	185
NSW	118				2.9	166
GP attendances						
Dural - Wisemans Ferry	798	42,864	25,954	221,948	9	58
Blacktown	816	41,218	126,762	1,179,728	9	51
Hornsby	682	35,574	77,881	593,488	8	56
Ku-ring-gai	622	33,056	111,406	795,111	7	62
NSW	683	35,173	6,982,277	56,107,905	7.9	56
Specialist attendances						
Dural - Wisemans Ferry	156	14,256	12,112	43,411	4	158
Blacktown	112	10,137	47,507	161,459	3	133
Hornsby	132	12,454	33,069	114,696	3	163
Ku-ring-gai	160	16,019	55,718	204,182	4	178
NSW	116	10,586	2,885,965	9,676,647	3.3	144

¹ AIHW 2022, Medicare-subsidised GP, allied health and specialist health care across local areas: 2021-21, Available at: <https://www.aihw.gov.au/reports/primary-health-care/medicare-subsidised-health-local-areas-2020-21/data>

Figure 5 Dural-Wisemans Ferry SA3 boundary



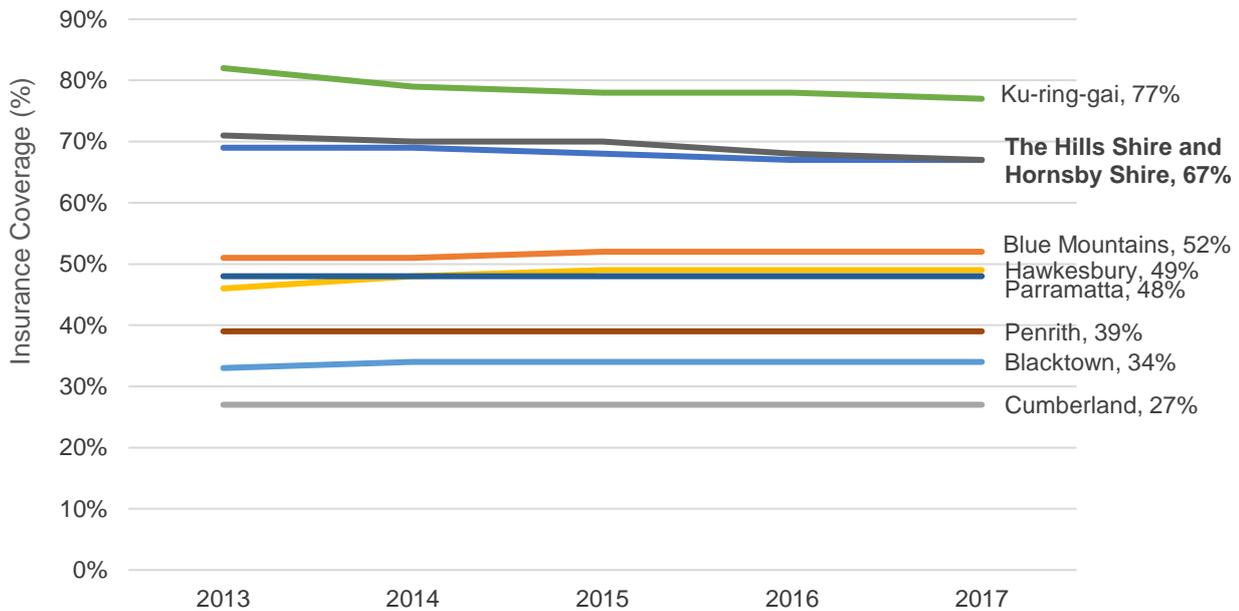


4.4 Private Health Insurance

In 2017, NSW had a private health insurance hospital coverage of 47.2% and a general coverage (Extras) of 57.1%. The primary catchment of The Hills Shire and Hornsby Shire LGAs had a **private health hospital coverage of 67%**. The coverage of adjacent regions had the following: Blacktown 34.0%, Blue Mountains 52%, Cumberland 27%, Hawkesbury 49%, Ku-ring-gai 76%, Parramatta 48%, and Penrith at 39%.

The hospital coverage rates declined in NSW by 1% likely due to growing premium costs and reduced government subsidy. The Hills Shire and Hornsby Shire LGAs saw a minor reduction in coverage over the past 4 years, at 4% and 2% respectively, however still consistently remains higher than other neighbouring LGAs, apart from Ku-ring-gai.

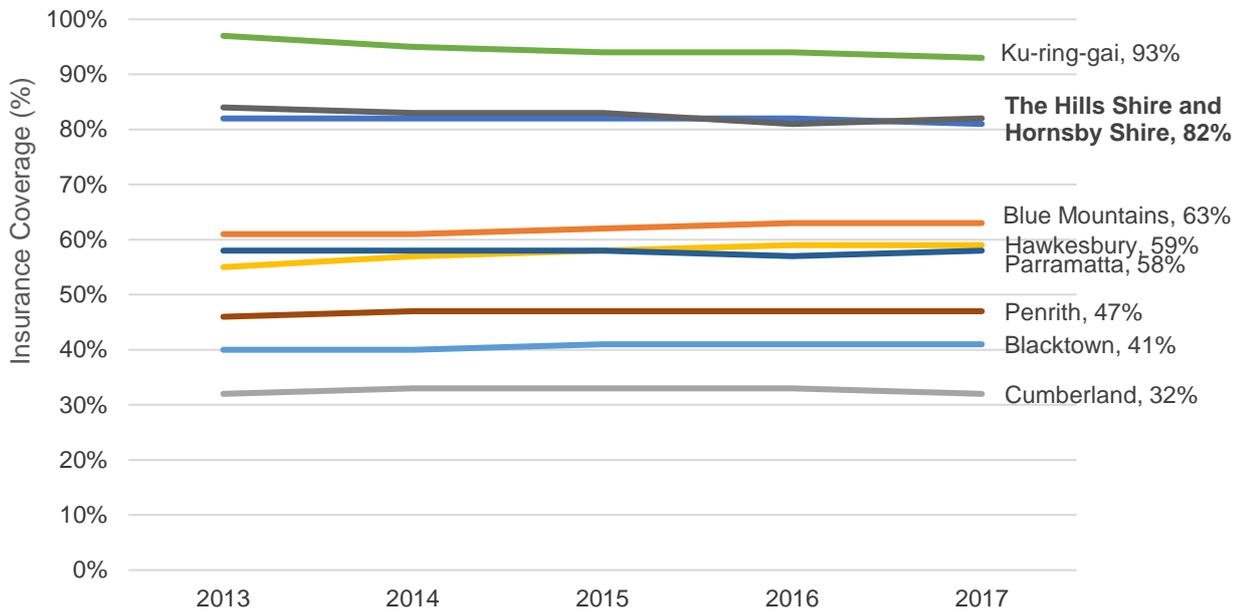
Figure 6 Private Health Insurance Hospital Coverage in the LGAs of North and West Sydney 2013-2017 (ABS, APRA)



In 2017, private health insurance general coverage was 57% of the population; general coverage (or extras cover) is for non-hospital health care claims other than doctor visits. The coverage levels for the LGAs of Northern and Western Sydney display a similar distributional pattern and trend as hospital coverage. The general coverage was higher for areas which also had a higher private health cover. **The Hills Shire and Hornsby Shire LGAs have on average a general health insurance coverage of 82%.**



Figure 7 Private Health Insurance General Coverage in the LGAs of Northern and Western Sydney 2013-2017 (ABS, APRA)



4.5 Socioeconomic

Socioeconomic factors can also dictate how healthcare is utilised, a study of measures used to quantify socioeconomic status have been used and discussed below.

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) is based on the ABS Census and a **higher IRSAD score indicates a higher socio-economic status** for the LGA.

Table 3 Key LGA by Index of Relative Socio-economic Advantage and Disadvantage, (IRSAD), 2016 (ABS)

LGA	Score	Rank
Blacktown	993	
Blue Mountains	1042	
Cumberland	959	
Hornsby Shire	1115	20th in Australia
Hawkesbury	1014	
Ku-ring-gai	1166	1st in Australia
Parramatta	1063	
Penrith	988	
The Hills Shire	1133	13th in Australia

The IRSAD results in the 2016 Census show that Ku-ring-gai LGA has the highest score in the country, with The Hills Shire LGA coming in at 13th and Hornsby Shire LGA at 20th. This represents a **greater opportunity to capture not only a fast-growing area but also one that is socioeconomically advantaged relative to neighbouring areas** and the entire state.

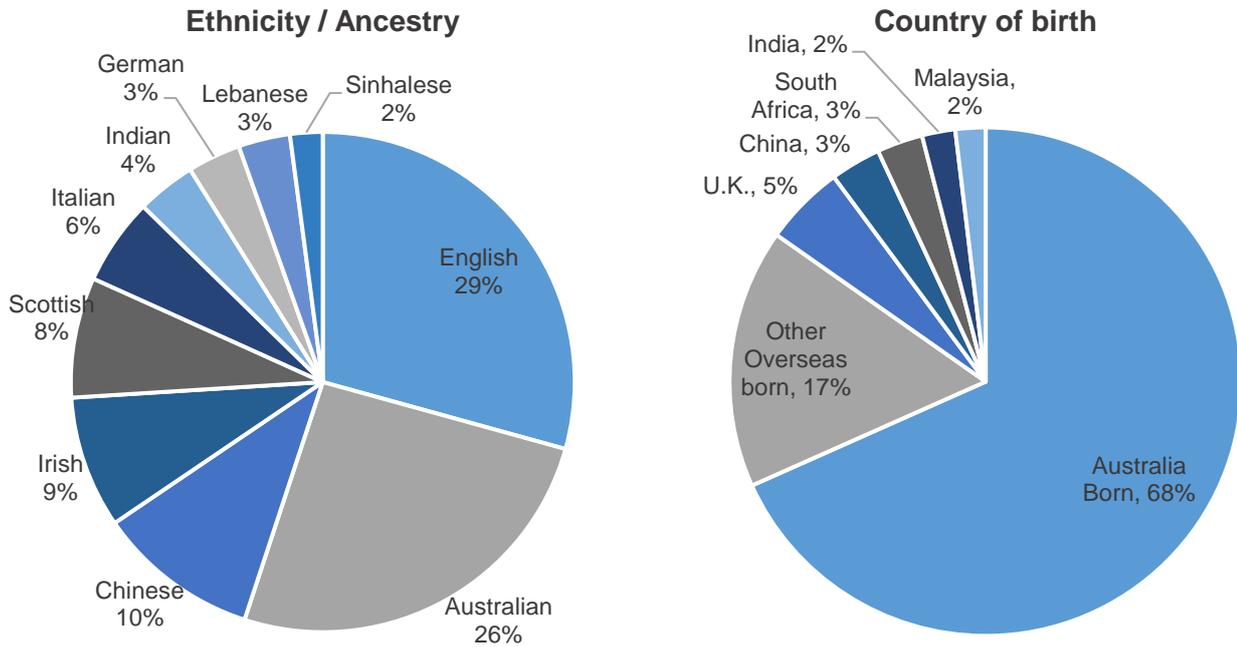
4.5.1 Ethnicity

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.

Within the suburb of Dural, the largest group by ethnicity (ancestry) are those of English descent (29%), followed by Australian (26%). The next largest groups include those of Chinese ancestry (10%), Irish (9%) and Scottish (8%) descent. People born overseas constituted 32% of the Dural population in 2016 as compared to 37% in the Hornsby Shire LGA.



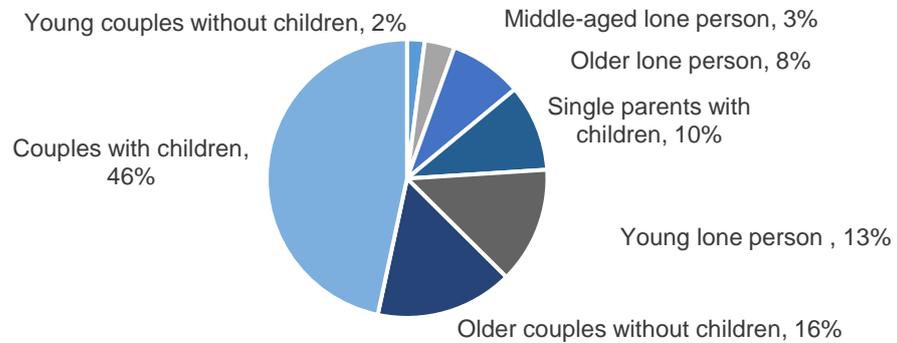
Figure 8 Ethnicity and Country of Birth Composition, Dural, 2016 Census (ABS)





The largest group of households in Dural in 2016 were couples with children, at 46%. Older couples without children made up the second largest majority at 16% of the households. The smallest demographic group in Dural based on households was young couples that had no children, and they made up only 2% of the households in Dural.

Figure 9 Composition of people living in Dural, 2016 (ABS)



4.5.2 Income

Household income is a good indicator of the wealth distribution of a suburb and to do this, a benchmark of \$3,000 gross income per household was used to signify high income households. A comparison is made between Dural, Castle Hill, Hornsby and Parramatta – a selection of suburbs within the west and north west regions of Sydney. The highest percentage of households earning more than \$3,000 per week was in Dural, with 32% of the households, while the lowest percentage of people in this category was in Hornsby, at 17%.

Figure 10 Percentage of Households earning >\$3,000/week across select Suburbs, 2016 (ABS)



When comparing the levels of full-time employment between this same cohort, the figures are much more closely aligned, with all 4 falling between 60-63%. It is important to consider that these figures are crude rates and are not age and sex standardised rates.

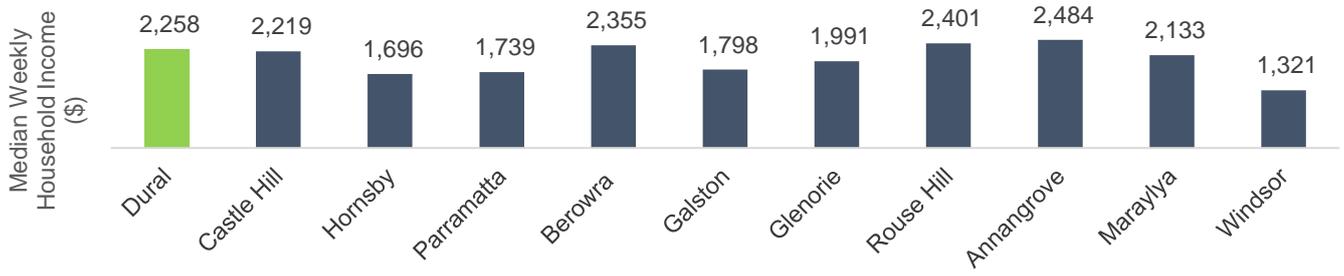
Figure 11 Employment Status (% Full-Time Employed) across select Suburbs, 2016 (ABS)



Dural is amongst the top 4 of its surrounding suburbs in terms of median weekly pre-tax income, at \$2,258 (Australian average is \$1,438). The highest median income was found in Annangrove (\$2,484), followed by Rouse Hill and Berowra. Over the last 5 years, the average weekly household income of the Hornsby Shire and The Hills Shire LGAs had increased by 3.2% per annum.



Figure 12 Median Weekly Household Income (Pre-Tax) in Key Suburbs, 2016 (ABS)





5. Supply Analysis

A supply analysis provides information on what health services 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 health services facility may be.

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

5.1 Licensed Hospitals

There are thirteen licensed hospitals and day surgery centres within a 10 km radius around the proposed health services facility site. Of these, seven are hospitals with a total of over 1,400 overnight beds. The closest private hospital to the proposed site is The Hills Private hospital, nearly 7 km away, while the closest public hospital is the Hornsby Ku-ring-gai hospital which is over 10 km away. **No day surgeries or hospitals occur with a 5 km radius and none to the north of Dural; therefore this presents as a suitable opportunity to tap into the patient outflow from these areas.**

Table 4 List of Licensed Hospitals, ordered by Distance to Dural Health Hub site (NSW Health)

Name	Sector	Type	Beds	Distance (km)
The Hills Private Hospital	Private	Overnight	111	6.8
Lakeview Private Hospital (previously Hospital For Specialist Surgery)	Private	Overnight	78	7.3
The Hills Clinic	Private	Overnight	59	7.8
Pennant Hills Day Surgery	Private	Day	-	7.9
Mt Wilga Private Rehabilitation Hospital	Private	Overnight	119	8.4
Norwest Private Hospital	Private	Overnight	277	9.1
Norwest Endoscopy and Day Surgery	Private	Day	-	9.1
Genea Bella Vista	Private	Day	-	9.1
Madison Day Surgery	Private	Day	-	9.2
Radiation Oncology Centres Wahroonga	Private	Day	-	9.9
Sydney Adventist Hospital	Private	Overnight	524	9.9
The San Day Surgery	Private	Day	4	10.3
Hornsby Ku-Ring-Gai Hospital	Public	Overnight	250+	10.5

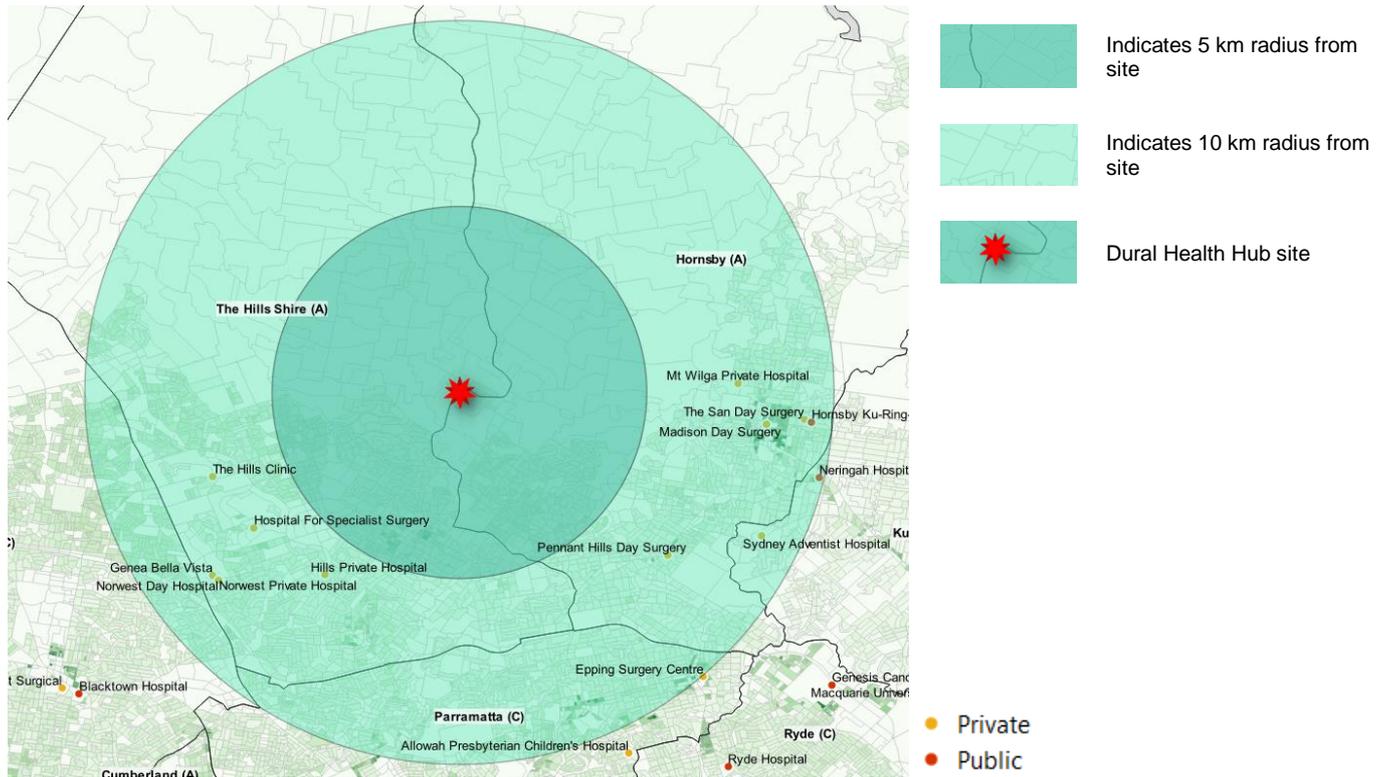


Figure 13 No Licensed Hospitals within a 5 km radius

5.1.1 Competitor Profiles

With the Dural Health Hub’s proposed scope of services in mind, a selection of key competitor profiles has been outlined below.

SAN Day Surgery Hornsby

The San Day Surgery Hornsby (originally Hornsby Day Surgery Centre) was purchased by Adventist HealthCare Limited in December 2001. It was first opened in 1986, as the first purpose-built day surgery unit in NSW, and the first private unit to be licensed in NSW.

The San Day Surgery Hornsby is a multi-specialty day surgery with two theatres fully equipped with the latest technology, and a theatre for minor surgical procedures. Their clients include adults and children over the age of 2 years requiring a variety of day surgical procedures including Ophthalmology, Plastic & Cosmetic, Hand, Oral & Dental, and Gynaecological Surgery.

The San Day Surgery Hornsby is fully certified by Global-Mark to AS / NZS ISO 9001 incorporating the Standards for Safety and Quality in Health Care.

Pennant Hills Day Surgery

Pennant Hills Day Surgery is a same day medical facility comprising 980 m² of floor space and includes three operating theatres, two patient recovery areas and various supporting medical functions. It is one of the largest gastroenterological practices in New South Wales with 9 proceduralists.

The consulting rooms are offsite at the original premises at 10 Ramsay Road, Pennant Hills. Service specialties include Gastroscopy, Colonoscopy, Haemorrhoid injections, Iron infusions and Pain management.



Figure 14 Pennant Hills Day Surgery



Norwest Endoscopy and Day Surgery

Norwest Endoscopy and Day Surgery is located on the ground floor of the Norwest Private hospital and treats over 4,000 patients annually for a range of endoscopy procedures delivered by their team of gastroenterologists. Procedures performed include Colonoscopy, Enteroscopy, Endoscopic retrograde cholangiopancreatography (ERCP), Endoscopic ultrasound (EUS), Flexible Sigmoidoscopy, Gastroscopy, Luminal Stenting, Percutaneous endoscopic gastrostomy (PEG) insertion and replacements. Day surgery procedures include Anal Tag, Bronchoscopy, Endobronchial ultrasound (EBUS), Haemorrhoidectomy, Insertion of seton, Oral Maxillofacial Surgery, Perianal Abscess Drainage and Sphincterotomy.

Procedures formerly performed in the operating theatre suites have transferred to the purpose-built facility consisting of two integrated operating theatres and associated recovery areas. Norwest Endoscopy and Day Surgery admits up to 40 patients daily and has already achieved 70 per cent capacity. At full capacity, over 200 patients will be admitted in the unit each week.

Lakeview Private

Located on the main hospital grounds, Lakeview Private is a dedicated day surgery unit with 10 dedicated operating theatres and additional specialist endoscopy and ophthalmology suites, and a 42-bed long stay ward. The facility absorbed many of the services provided by the Castle Hill Day Surgery and retained many of its specialists. Lakeview Private provides an extensive range of specialist medical and surgical services as well as onsite pharmacy, pathology, radiology, allied health, rehabilitation, cafe, conference facilities

Madison Day Surgery

Madison Day Surgery is a state-of-the-art facility specialising in ophthalmic surgery. Originally named "Perfect Vision" Clinic, they joined Presmed Australia's Day Hospitals in July 2017 to be under the Presmed umbrella.

Madison Day Surgery has 5 ophthalmologists provides ophthalmology corrections for refractive errors, cataracts, glaucoma, retina, eye conditions as a side-effect of diabetes, macular degeneration (AMD), strabismus, oculoplastics, keratoconus and pterygium.

5.1.2 Rouse Hill Hospital (planned)

NSW Government is planning to build a new public hospital at Rouse Hill to meet the healthcare needs of the growing north-western Sydney community. Information available from the NSW Health Infrastructure website includes that the \$300 million Rouse Hill Hospital will be located at the corner of Commercial Road and Windsor Road, and therefore close to the town centre, transport links and arterial roads. Work is scheduled to start by early 2023.

Health Infrastructure also advises that clinical services planning, including a major research project, is currently underway and will determine the services that will be provided in the new hospital.

The proposed Rouse Hill hospital (public) is expected to have a positive impact on the healthcare provision in the area and presents a raft of opportunities for the region as a whole. Rouse Hill Hospital is not directly competing with the proposed health services facility as it focuses on public healthcare and has a large focus on overnight services.

The investment from the public sector highlights the chronic undersupply of acute hospital beds in the region but does not address the private acute bed gap. The increase in public service provision brings a new cohort of service providers, physicians, nurses and allied health staff that promote the health service maturity and further investment in the region.

The Visiting Medical Offers (VMOs) will largely be based out-of-area, which results in a flow of staff across the region that could be attracted to provide private healthcare services. This flow of workforce provides the proposed health services facility a wide selection of VMOs to attract and potentially fill consulting, procedural and surgical suites. The public system can often (but not always) be seen as a first mover in healthcare and provides confidence in the market for further private investment, this is a prime example here where the public sector has unlocked this corridor for further private healthcare investment.



5.2 Outpatients

5.2.1 Specialist Medical

Medical specialist consultation rooms are located in highly dense clusters of Wahroonga, Bella Vista, Hornsby, Castle Hill and Baulkham Hills. North of Castle Hill and Glenhaven, there are only 2 specialist consultation rooms. From primary research, there is a high presence of Ophthalmologists and ENT specialists, especially within the Hornsby region.

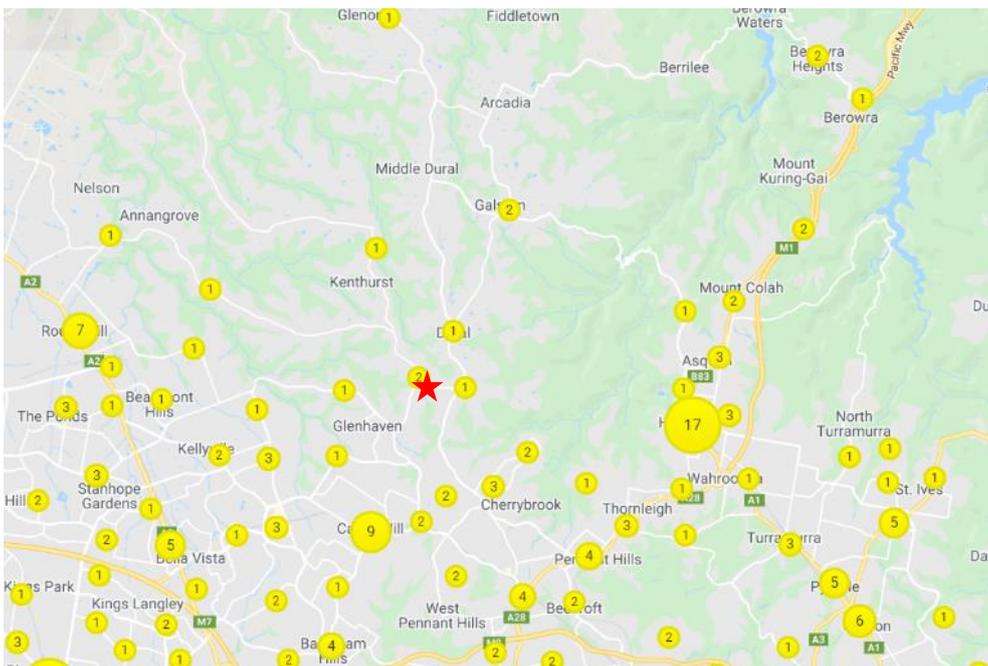
Figure 15 Map of specialist consultation rooms, grouped into clusters



5.2.2 General Practice (GP)

There are only ten GP clinics servicing the residents north of Glenhaven. This presents as an opportunity to utilise the outflow of patients from north of Dural who may otherwise have travelled out of area for their primary care services. A strong GP clinic provides patient foot traffic that drives other co-located services.

Figure 16 Map of General Practices

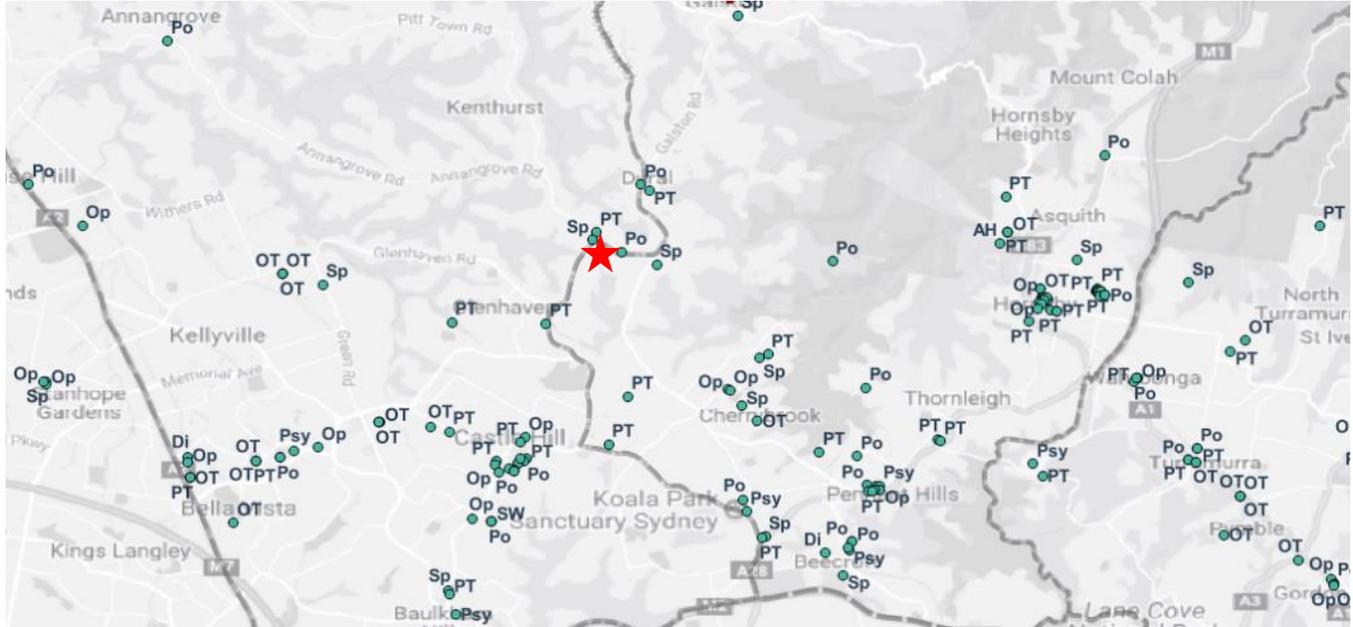




5.2.3 Allied Health

Allied Health facilities are more wide-spread and less reliant on acute hospital service locations as compared with other service types. Allied Health services north of Glenhaven are very limited and they are primarily located in Dural. In addition to the stand-alone allied health private practices, there are consulting rooms in medical practices and rehabilitation centres that offer additional allied health services.

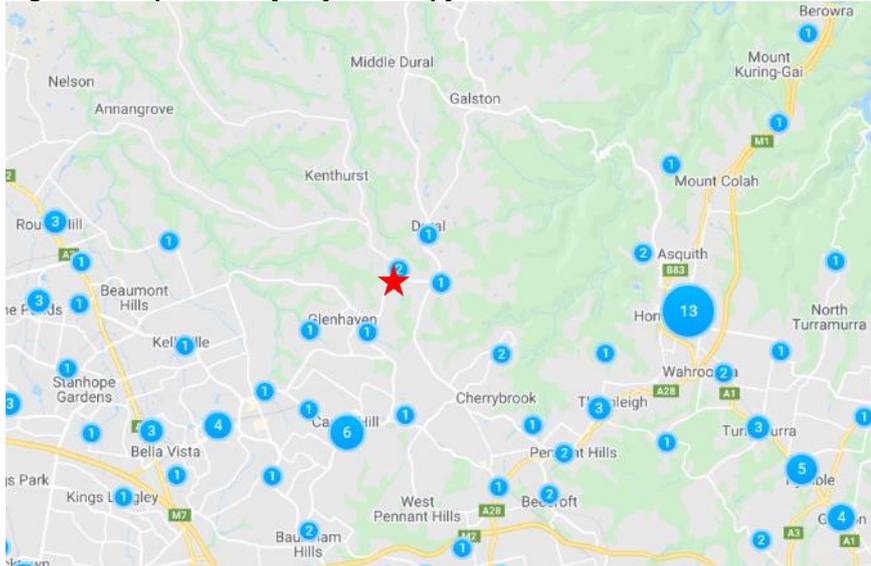
Figure 17 Map of nearby Allied Health facilities



Key: Physiotherapy (PT), Occupational Therapy (OT), Speech Therapy (Sp), Podiatry (Po), Psychology (Psy), Optometry (Op), Allied Health Combination (AH) and Dietitian (Di)

Physiotherapy clinics are a good indicator of allied health service provision, they are closely tied in with medical care and often co-located with other allied health services such as Occupational Therapy, Speech Therapy and more. Currently there are no standalone Physiotherapy clinics north of Dural. This presents as an opportunity to utilise the outflow of patients from north of Dural who may otherwise have travelled out of area for their allied health care services.

Figure 18 Map of nearby Physiotherapy services



Name	Distance
Dural Physiotherapy and Sports Clinic	0.3
Dural Family Medical Practice	1.5
Dural Active Health	1.6
Glenhaven Physiotherapy Centre	1.8
Christopher Dodd Hills Physiotherapy	3.1
Castle Glen Physiotherapy	3.2
Cherrybrook Physiotherapy	4.2



5.3 Medical Imaging and Pathology

Within the primary catchment, there are 13 Pathology centres and 15 Radiology centres. These facilities are primarily located in Hornsby and Bella Vista region clustered amongst acute care facilities, **with no Radiology services north of Castle Hill.**

Figure 19 Map of nearby Medical Imaging and Pathology lab/collection facilities

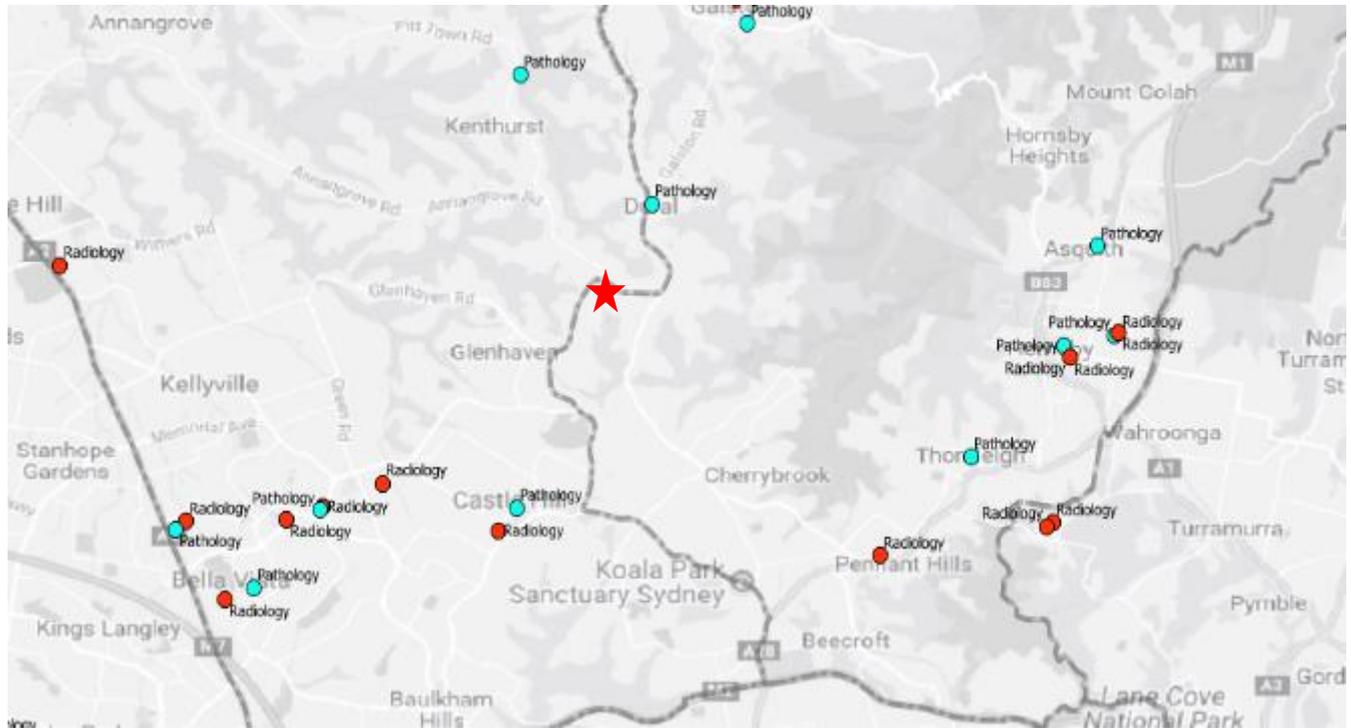


Table 5 Pathology and Radiology Centres by distance to Dural

Pathology Centres	Dist. (km)	Radiology Centres	Dist. (km)
Australian Clinical Labs Collection - Dural	1.9	I-MED Radiology Castle Hill	4.8
Australian Clinical Labs Collection - Kenthurst	4.0	PRP Imaging Castle Hill	5.4
Australian Clinical Labs Collection - Galston	5.3	The Hills Medical and Dental Centre	6.6
Laverty Pathology - Castle Hill	6.1	Hills Imaging Centre	6.6
Laverty Pathology - Baulkham Hills	7.8	Bella Vista Dental Imaging	7.3
Southern Sun Pathology - Thornleigh	8.0	Pennant Hills Diagnostic Centre	7.4
Douglass Hanly Moir Pathology - Hornsby	8.8	Norwest Imaging Pty Ltd	9.0
Laverty Pathology - Bella Vista	9.0	PRP Imaging Norwest	9.1
Douglass Hanly Moir Pathology - Bella Vista	9.2	PRP Imaging - Hornsby	9.5
Douglass Hanly Moir Collection - Asquith	9.9	San Radiology	9.9
Douglass Hanly Moir Collection - Glenorie	10.2	Northside Medical Imaging - Hornsby	10.3
SDS Pathology - Hornsby	10.3	Connect Radiology - Hornsby	10.3
Laverty Pathology - Berowra	16.2	I-MED Radiology Hornsby	10.3
		Rouse Hill Town Medical Centre	10.4



6. Demand Modelling

6.1 Methodology

The health service demand investigations for the Dural Health Hub 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.

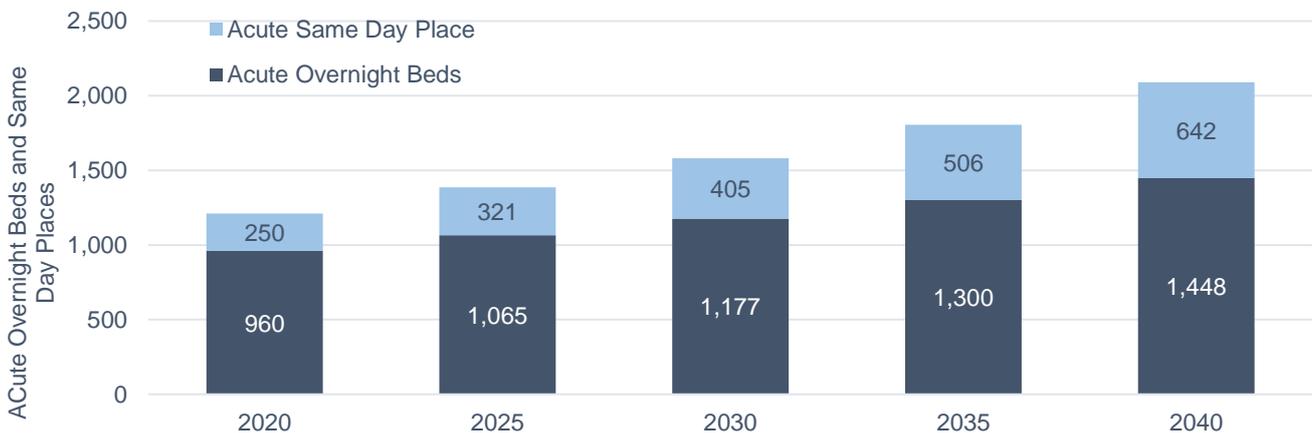
The reference files applied to the primary catchment population calculates a number of measure variables, such as overnight episodes, same day episodes and consultations, converting them to beds, places and consultations using stay periods. This demand is adjusted for standard health service operational 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.

6.2 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 increasing from 60% in 2020 to 72% of episodes in 2040. The projected aging population of the Dural Health Hub'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 acute overnight bed demand increase 2.5% pa from 2020 to 2040. Acute same day bed demand will grow at a faster rate, with average annual increase of 7.8% pa over the 20-year period.

Figure 21 Demand for Acute Overnight beds and Same Day care places, 2020-2040 (HPI Modelling)





6.2.1 Acute Overnight Care

When assessing the distribution of projected acute overnight bed demand between its service modes, Paediatric Surgical will have the fastest average annual growth rate (9.2%) followed by Adult Mental Health (4.5%), Adult Medical (2.9%), Adult Surgical (2.8%) and Women’s Health (0.2%).

Table 7 Projected acute overnight bed demand in the catchment by service mode, 2020 to 2040 (HPI Modelling)

	2020	2025	2030	2035	2040
Adult Medical	384	430	482	544	609
Adult Mental Health	124	145	169	197	235
Adult Surgical	286	313	340	367	401
Paediatric Medical	31	33	34	35	36
Paediatric Mental Health	13	18	23	29	38
Paediatric Surgical	19	22	23	24	26
Women’s Health	102	105	105	104	102

When delving deeper into the distribution between specialties, acute overnight bed demand shows highest demand in Psychiatry, Immunology & Infections, Orthopaedics, Gastroenterology and Neurology.

Table 8 Acute Overnight Bed High Volume and Growth Specialties, 2020 to 2040 (HPI Modelling)

Specialty	Annual Growth	Additional Beds
Psychiatry	4.8%	111
Immunology & Infections	9.8%	37
Orthopaedics	1.8%	37
Gastroenterology	3.4%	33
Neurology	3.0%	31
Alcohol and Other Drugs	5.8%	25
Respiratory Medicine	1.6%	24
General Medicine	3.7%	22
Plastic Surgery	6.5%	20
Urology	2.8%	19
Dermatology	4.1%	18
Neonatology	2.1%	16
Neurosurgery	2.4%	15
Interventional	3.7%	13
GI Surgery	1.2%	13
Haematology	2.5%	12
Cardiothoracic Surgery	2.6%	12
General Surgery	2.2%	10
Renal Medicine	4.4%	9
ENT; Head & Neck	2.8%	9



6.2.2 Acute Same Day Care

Acute Same Day services, along with Outpatient services, are amongst the fastest growing service types in Australia 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. Acute 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.

Table 9 Projected acute same day place demand in the catchment by service mode, 2020 to 2040 (HPI Modelling)

	2020	2025	2030	2035	2040
Adult Medical	105	140	183	236	301
Adult Mental Health	6	8	10	13	17
Adult Surgical	58	72	91	113	138
Paediatric Medical	7	9	12	15	19
Paediatric Mental Health	1	1	1	1	1
Paediatric Surgical	7	8	9	11	13
Women’s Health	12	14	15	17	18

In a similar trend to acute overnight, the distribution of projected adult same day care demand shows greatest average annual growth in Adult Mental Health (12%) followed by Adult Medical (11%), Paediatric Medical (9%) and Adult Surgical (8%). Followed by Paediatric Mental Health (4%), Paediatric Surgical (4%) and Women’s Health (3%).

The breakdown of acute same day bed demand shows highest demand in Renal Dialysis, Chemotherapy, Haematology Orthopaedics and Neurology. The fastest annual percentage growth will occur within Endocrinology (28.8%), Alcohol and Other Drugs (23.6%) and Neurology (22.4%).

Table 10 Acute Same Day Places High Volume and Growth Specialties in the catchment, 2020 to 2040 (HPI Modelling)

Specialty	Annual Growth	Additional Places
Dialysis	5.3%	60
Chemotherapy	10.3%	42
Haematology	18.8%	34
Orthopaedics	9.2%	34
Neurology	22.4%	30
Ophthalmology	9.0%	29
General Medicine	5.8%	19
GI Surgery	8.6%	18
Cardiology	12.4%	17
Diagnostic GI	3.8%	14
Alcohol and Other Drugs	23.6%	12
Gastroenterology	7.5%	12
Plastic Surgery	5.7%	9
Urology	8.7%	9
Respiratory Medicine	13.7%	8
Neurosurgery	10.3%	6
Psychiatry	5.0%	6
ENT; Head & Neck	6.1%	6
Gynaecology	2.3%	5
Renal Medicine	13.9%	5
Endocrinology	28.8%	4



6.3 Non-Acute Care

Non-acute care serves cater for patients for ongoing and long-term health treatment outside of an acute care setting. Non-Acute care services shows steady growth across the catchment, due to the increasingly aged population and more effective rehabilitation technologies for chronic illness and disability.

Table 11 Projected demand in non-acute care beds in the catchment, 2020 to 2040 (HPI Modelling)

Non-Acute Care	2020	2025	2030	2035	2040	CAGR (%)
Long Stay Care	105	128	152	176	201	3.3%
Rehabilitation Beds	166	208	253	298	343	3.7%
Total	271	336	405	474	544	3.5%

Demand for non-acute care is projected to increase by 3.5% per annum between 2020 to 2040. Rehabilitation beds are expected to increase faster than long stay care beds, with a CAGR of 3.7% compared to 3.3%. Overall, there is projected to be an absolute increase in demand of 273 non-acute beds over the next 20 years within the primary catchment.

6.4 Operating Theatre

Operating theatre demand is classified into four types, either Elective or Emergency and performed in the setting of Overnight or Same Day operating theatres. For the proposed Dural Health Hub, services will be performed out of Same Day elective operating theatres. Same day elective operating theatres experiences the fastest growth out of the four types of operating theatres (mentioned below), which is expected to grow at 4.2% annually up to 2040. Within the primary catchment there will be a requirement of an additional 24 elective same day theatres (18.8 in 2020 to 42.6 by 2040) over the next 20 years. Overnight elective theatres will also experience growth however at a slightly reduced rate of 3.2% per annum.

Table 12 Elective Theatre (Overnight and Same Day) Demand, shown by Service Mode, 2020-2040 (HPI Modelling)

The Hills Shire and Hornsby Shire LGAs	Mode	2020	2025	2030	2035	2040	CAGR
Same Day Elective Theatres	Adult Surgical	14.6	18.8	23.7	29.3	35.9	4.6%
	Paediatric Surgical	1.8	2.2	2.5	3.0	3.3	3.1%
	Women’s Health	2.4	2.7	2.9	3.2	3.4	1.8%
	Same Day Total	18.8	23.7	29.1	35.5	42.6	4.2%
Overnight Elective Theatres	Adult Surgical	18.3	20.9	23.6	26.4	29.3	2.4%
	Paediatric Surgical	1.3	1.4	1.4	1.3	1.4	0.4%
	Women’s Health	2.3	2.6	2.7	2.7	2.8	1.0%
	Overnight Total	21.9	24.9	27.7	30.4	33.5	2.1%
Grand Total		40.7	48.6	56.8	65.9	76.1	3.2%

The procedures performed can be grouped into 3 main service modes: Adult, Paediatric and Women’s Health. The fastest growing mode (for both same day and overnight) will be for adult surgical procedures. When delving deeper into specialties, the demand (for operating theatres) is shown in the table below.

Table 13 Elective Theatre (Overnight and Same Day) Demand, shown by Specialty, 2020-2040 (HPI Modelling)

The Hills Shire and Hornsby Shire LGAs	Specialty	2020	2025	2030	2035	2040	CAGR
Same Day Elective Theatres	Orthopaedics	3.3	4.5	5.9	7.3	8.6	5.0%
	Ophthalmology	2.8	3.7	4.8	6.1	7.7	5.3%
	GI Surgery	1.8	2.2	2.9	3.7	5.0	5.2%
	Diagnostic GI	2.1	2.6	3.1	3.6	4.2	3.4%
	Plastic Surgery	1.5	1.9	2.3	2.8	3.4	4.1%
	Gynaecology	2.4	2.7	2.9	3.2	3.4	1.7%
	ENT; Head & Neck	0.9	1.2	1.5	1.9	2.2	4.5%
	Urology	0.6	0.9	1.1	1.4	1.7	5.0%
	Interventional	0.8	1	1.2	1.4	1.6	3.3%
	General Dentistry	1.1	1.2	1.3	1.3	1.4	1.2%



The Hills Shire and Hornsby Shire LGAs	Specialty	2020	2025	2030	2035	2040	CAGR
	Vascular Surgery	0.3	0.4	0.5	0.7	1.0	7.1%
	Breast Surgery	0.3	0.4	0.5	0.5	0.6	3.2%
	Gastroenterology	0.2	0.2	0.3	0.4	0.4	5.3%
	General Surgery	0.3	0.3	0.3	0.4	0.4	2.4%
	Neurosurgery	0.2	0.2	0.2	0.3	0.4	3.7%
	Endocrinology	0	0	0.1	0.1	0.2	11.1%
	Cardiothoracic Surgery	0.1	0.1	0.2	0.2	0.2	3.5%
Overnight Elective Theatres	GI Surgery	5	5.7	6.4	7	7.7	2.2%
	Orthopaedics	4.4	4.8	5	5.3	5.5	1.2%
	Cardiothoracic Surgery	1.7	2	2.3	2.7	3.2	3.2%
	Interventional	1.8	2.1	2.4	2.8	3.1	2.9%
	Urology	1.2	1.3	1.5	1.9	2.3	3.4%
	Neurosurgery	1.3	1.5	1.8	1.9	2.0	2.3%
	Obstetrics	1.3	1.4	1.5	1.5	1.6	1.1%
	Plastic Surgery	0.7	0.8	1	1.3	1.5	4.1%
	ENT; Head & Neck	1.2	1.3	1.3	1.2	1.2	0.0%
	Endocrinology	0.6	0.7	0.8	1	1.1	3.2%
	Gynaecology	0.9	1	1	1	1.0	0.2%
	Vascular Surgery	0.5	0.6	0.7	0.8	0.9	2.3%
	Breast Surgery	0.4	0.4	0.5	0.5	0.6	2.1%
	General Surgery	0.4	0.4	0.5	0.5	0.6	2.3%
	Transplantation	0.1	0.1	0.2	0.2	0.3	7.1%
	Neonatology	0.1	0.2	0.2	0.2	0.3	3.5%
	Diagnostic GI	0.1	0.2	0.2	0.2	0.2	1.9%
	Haematology	0.1	0.1	0.1	0.2	0.2	2.2%
	Ophthalmology	0.1	0.1	0.1	0.1	0.1	-0.5%
	Oncology	0.1	0.1	0.1	0.1	0.1	0.3%

The largest demand over the next 20 years for same day elective surgeries in volume continues to be Orthopaedics, increasing at a rate of 5% year on year. The top 5 specialties experiencing the greatest growth in volume are: Orthopaedics, Ophthalmology, GI Surgery, Diagnostic GI & Plastic Surgery



6.5 Outpatients

6.5.1 General Practice

As the population grows and its age distribution skews towards the older cohorts, there will be a greater need for general practice outpatient rooms. The demand for general practice outpatient rooms is expected to increase by 5% per annum, equating to an additional 41 consultation rooms per year across both the Hornsby Shire and The Hills Shire LGAs (primary catchment).

Table 14 Projected demand in General Practice Outpatient rooms, 2020 to 2040 (HPI Modelling)

General Practice and Primary Care	2020	2025	2030	2035	2040	Annual Growth (%)
Consultation Rooms	533	659	811	1,010	1,355	5%

General practice and primary care differs from specialist outpatient care as it is highly location dependent. Residents will often visit GP clinics within their area, whilst having less hesitation to travel afar to receive specialist care. This has implications on the assumed serviceable population and needs to be considered in service profiling.

6.5.2 Specialist Outpatient

The breakdown of demand for community-based specialist outpatient consultation services by specialty shows demand for services will be significantly higher than the general population growth rate (0.6% Hornsby Shire LGA and 2.9% The Hills Shire LGA CAGR over 20 years). This is due to an increasingly age population in the primary catchment and an increasing focus on the management of chronic illness in the community instead of within acute hospitals. The highest consultation room demand by 2040 will be for General Medicine, Respiratory Medicine, General Surgery, Obstetrics, Endocrinology and Orthopaedics. Significant growth in room demand is expected across the board with the exception of a small number of low volume specialities which have been excluded.

Table 15 Projected demand in Specialist Outpatient rooms, 2020 to 2040 (HPI Modelling)

Specialty	2020	2025	2030	2035	2040	CAGR
General Medicine	132	184	243	304	378	5.4%
Respiratory Medicine	35	41	54	89	187	8.7%
General Surgery	47	52	63	88	169	6.6%
Obstetrics	56	68	80	92	106	3.2%
Endocrinology	46	58	69	84	100	4.0%
Orthopaedics	47	58	71	84	99	3.8%
Gastroenterology	31	40	52	63	77	4.7%
Psychiatry	32	41	52	62	74	4.3%
Neurology	20	24	31	41	61	5.7%
Cardiology	18	24	32	40	51	5.3%
ENT; Head & Neck	32	35	38	42	47	1.9%
Ophthalmology	15	19	25	32	45	5.6%
Gynaecology	25	29	33	38	44	2.9%
Immunology & Infections	21	25	32	36	40	3.3%
Urology	15	19	23	28	34	4.2%
Dermatology	17	20	23	26	30	2.9%
Rheumatology	7	9	12	16	25	6.6%
Trauma and Injury	12	14	16	19	23	3.3%
Vascular Surgery	9	11	14	16	20	4.1%
Haematology	8	10	13	16	19	4.4%
Oncology	5	6	8	11	16	6.0%
Renal Medicine	5	6	8	9	11	4.0%
Cardiothoracic Surgery	6	7	8	9	10	2.6%
Paediatric Medical	4	5	6	7	8	3.5%
Alcohol and Other Drugs	3	5	6	7	8	5.0%
Neurosurgery	3	3	4	4	5	2.6%



Specialty	2020	2025	2030	2035	2040	CAGR
Paediatric Surgical	2	2	3	3	4	3.5%
Plastic Surgery	2	2	3	3	4	3.5%
Total	2675	2842	3052	3304	3735	4.9%

6.5.3 Allied Health

Whilst the demand for Allied Health outpatient treatment spaces is relatively smaller compared to medical specialist rooms, it will demonstrate the same significant annual growth because of increased chronic diseases, an aging population, changing community expectations and advances in allied health therapies. The largest growth will occur with Physiotherapy (CAGR 6.6%), Occupational Therapists (5.6%), Orthotics (5.6%) followed closely by Social Workers (5.2%) and Psychologists (4.6%).

Table 16 Projected demand of Allied Health Outpatient Treatment Spaces, 2020 to 2040 (HPI Modelling)

	2020	2025	2030	2035	2040	CAGR
Physiotherapy	166	231	312	423	593	6.6%
Podiatry	58	73	90	108	131	4.2%
Occupational Therapy	38	55	76	89	112	5.6%
Optometry	62	73	83	93	102	2.5%
Speech pathology	37	45	53	64	76	3.7%
Psychology	27	36	45	55	66	4.6%
Social Work	16	22	28	36	44	5.2%
Nutrition/dietetics	15	19	23	28	32	3.9%
Audiology	12	11	12	14	15	1.1%
Orthotics	1	2	2	3	3	5.6%
Total	432	567	724	913	1,174	5.1%

Allied Health outpatient treatment spaces can generally be shared amongst various clinicians without excessive investment into equipment, with some exception to Optometry and Audiology.

6.6 Medical Imaging

Medical Imaging demand for the primary catchment demonstrates similar strong projections from 2020 to 2040. By 2040, the greatest demand by volume are the Ultrasound, X-ray and MRI modalities. This demand represents the 'community-based' or non-hospital component of medical imaging.

Table 17 Projected demand of Community Based Medical Imaging Equipment 2020 to 2040 (HPI Modelling)

Community	2020	2025	2030	2035	2040	CAGR
Ultrasound	24	32	40	49	58	4.5%
X-Ray	8	10	12	14	16	3.5%
MRI	2	3	3	4	5	4.7%
Mammography	3	4	4	4	4	1.4%
Computed Tomography (CT)	2	2	3	3	3	2.0%
Angiography	0.3	0.4	1	1	1	6.2%
Gamma Camera	1	1	1	1	1	0.0%
Positron Emission Tomography (PET)	0.2	0.3	0.3	0.4	0.5	4.7%
Total	42	52	64	76	88	3.8%



7. 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 in consideration the competitor profile, population size and structure as well as evolving market utilisation trends. This gap analysis validates the selection of the proposed health services facility profile by prioritising areas of undersupply and of lower levels of competition. **This chapter is split into 2 main parts**

1. **Primary catchment analysis** (i.e., the entire Primary catchment (The Hills Shire and Hornsby Shire LGAs) supply and demand comparison)
This base scenario is used for the report to show the LGA catchment
2. **Outflow capture analysis** (what are the requirements for this northern region currently receiving care from afar)
This scenario is a what-if analysis to highlight flow of patients

7.1 Primary Catchment Gap Analysis

7.1.1 Inpatient

7.1.1.1 Acute Inpatient Day Care / Day Procedures

The growing trend towards shifting procedures traditionally treated as an inpatient towards a same day setting will see a growing requirement in acute same day places.

There are several specialist day hospital services in the primary catchment such as the Pennant Hills Day Surgery and the Norwest Endoscopy and Day Surgery in the field of Gastroenterology, as well as the Madison Day Surgery in the field of Ophthalmology. These centres have been recently opened with state-of-the-art facilities and have a large cohort of consulting practitioners. In addition to this supply, there are 9 endoscopy theatres located at the hospitals within the primary catchment.

In aggregate terms, there will be an **undersupply of same day places by 2025 of 122 places, increasing to 307 by 2035.**

Table 18 Same day place requirements, 2015-2035

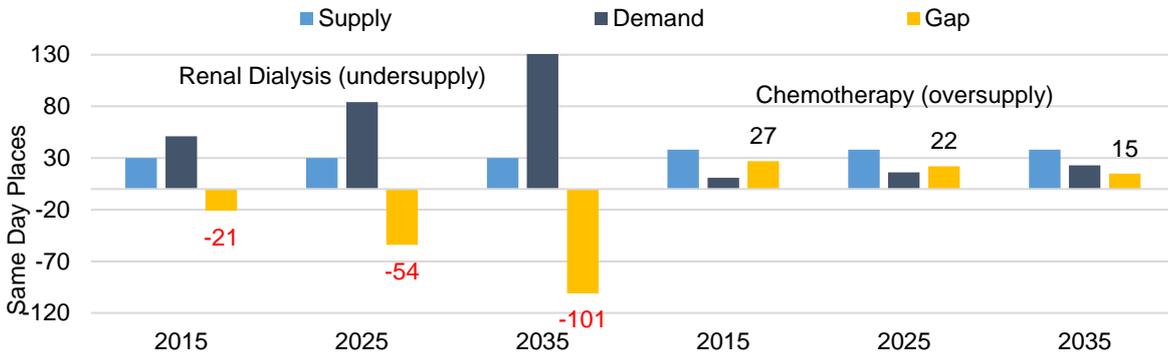
Facility	Supply	Demand			Gap		
	Current [^]	2015	2025	2035	2015	2025	2035
SAN	92 (30 chemo, 14 dialysis, 18 cardiac, 30* recovery)	195	321	506	4	-122	-307
Norwest	56 (8 chemo, 16 dialysis, 32 recovery)						
Lakeview Private	20* recovery						
Hornsby	16* recovery						
Madison, SAN Day, Pennant Hills	<15						

[^] Based on best available public information

* Based off OT ratio derived from Norwest Private Hospital

When taking into account the Sydney Adventist Hospital, there will be an oversupply of chemotherapy places but a current and growing requirement for renal dialysis places, increasing from 21 places in 2015 to 101 by 2035. There are currently no Dialysis options for this catchment and the closest options are the Sydney Adventist Hospital Dialysis Unit and Norwest Private Fresenius Centre. There could be an opportunity to incorporate this service into the Dural Health Hub site or to contact an operator like Fresenius to co-locate.

Figure 22 Renal dialysis and chemotherapy chair requirements, 2015-2035

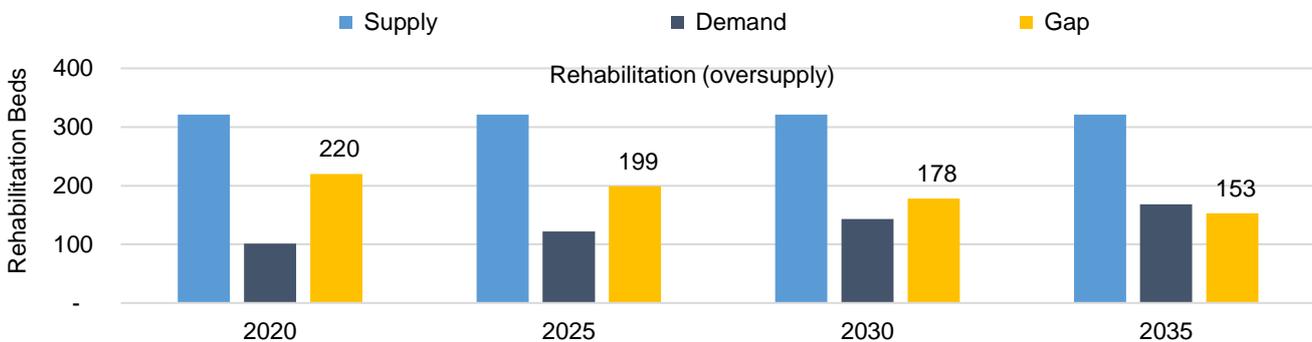


7.1.1.2 Non-Acute Rehabilitation

With the dedicated rehabilitation hospitals of Mt Wilga Rehabilitation Hospital and The Hills Private Hospital within the primary catchment and Lady Davidson Hospital in the adjacent catchment, there is a large oversupply of inpatient rehabilitation beds. This oversupply starts at 220 beds in 2020 and steadily decreases to 153 beds by 2035 as demand for adult rehabilitation services increase due to the aging population. Despite this increase, there will be a shift in demand for same day rehabilitation care as patients spend less time post-surgery as an inpatient and in some cases may bypass it altogether in favour of same day services.

A growing trend for rehabilitation care is the increasing number of inpatient hospitals creating their own fast stream in-house rehabilitation units. This model has been successfully put in place at the Mater Hospital Sydney and Sydney Adventist Hospital, which has subsequently reduced the flow of patients to neighbouring dedicated rehabilitation facilities.

Figure 23 Inpatient Rehabilitation bed requirements, 2020-2035



Due to this oversupply, we would not recommend providing inpatient rehabilitation services, but outpatient services that may compliment those being discharged from these facilities or creating relationships with rehabilitation physicians to provide home-based care to those in the area that cannot travel the distance to the Hornsby / Turrumurra region.

7.1.2 Outpatients

The general lack of Specialist and Allied Health consulting rooms presents a great opportunity to co-locate these services, especially those that compliment a same day procedure setting. There is a general oversupply of specialist ENT and Ophthalmologists in the Hornsby area. There is also a purpose-built centre for Gastroenterologists in Pennant Hills that may be difficult to compete with. The projected population growth, large and underserved northern region and lack of specialist and allied health outpatient supply creates a great opportunity to house these services under one roof.

There is potential as well to target existing clinics, such as a Physiotherapy/Sports Medicine clinic and GP clinic, to relocate their practice to the Dural Health Hub. There is minimal competition and the proposed health services facility has the advantage of being strategically placed (both from a road and foot traffic point of view) but also on the fringe of a high growth and low supplied region.

7.1.3 Medical Imaging, Pharmacy and Laboratory

Medical imaging options are lacking in the area, there is no competition north of Castle Hill. The advantage of co-locating a medical imaging module to the proposed health services facility would not only retain patients due to convenience but also introduce new patients to the Dural Health Hub who otherwise would not have attended. There is however a large footprint



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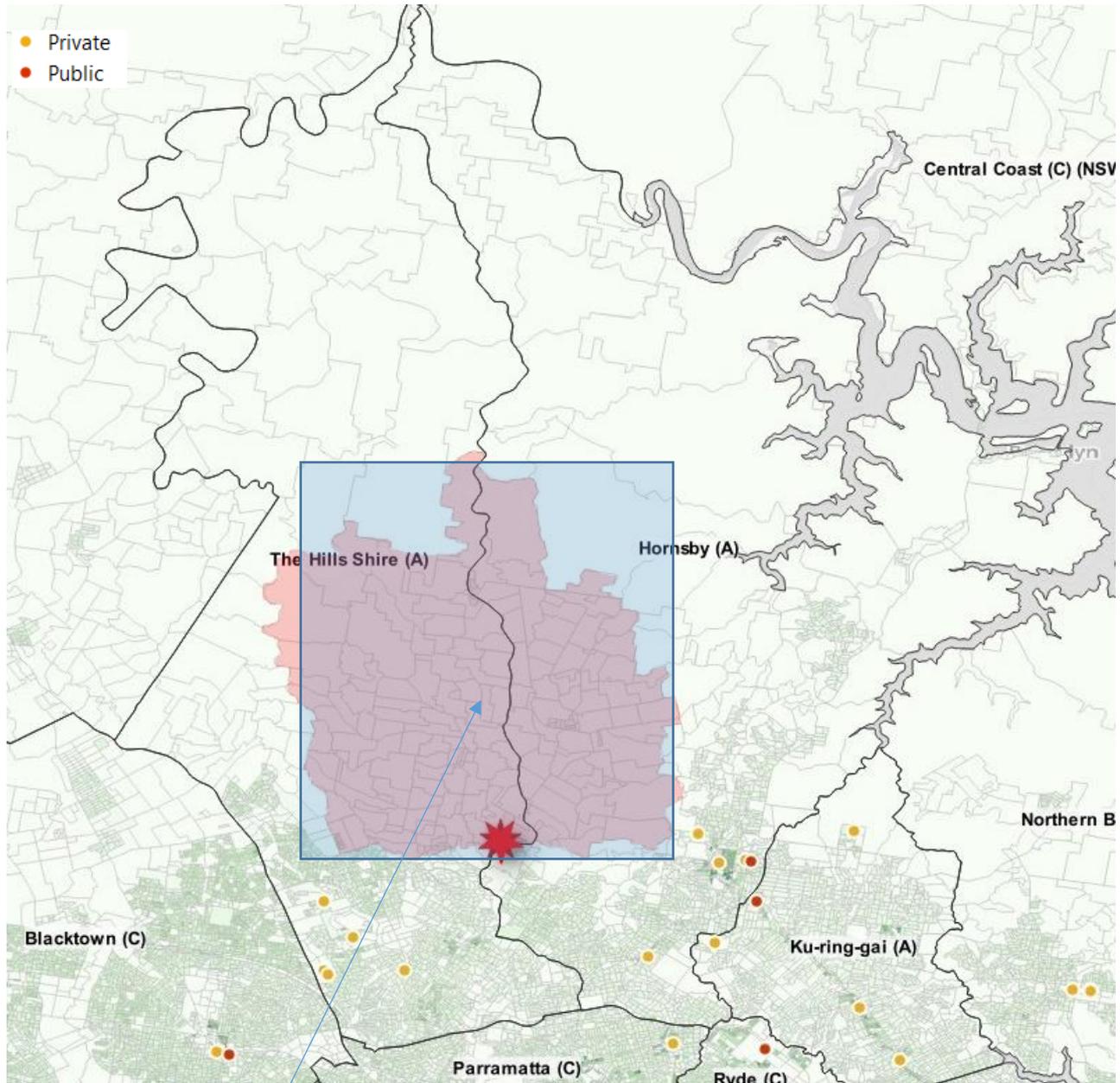
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requirement and large capital outlay, this module has been separated in the health services facility profile to create a on/off module to the facility's design.

Pharmacy and Pathology have relatively more competition than Medical Imaging services, however are a relatively lower risk investment as they are either retail space or collection points with small footprint and low capital costs. They are also a key in creating an appearance of a 'one-stop-shop' centre and can also improve the flow of patients coming into the proposed health services facility for routine services.

7.2 Outflow capture (What-if scenario)

Figure 24 Outflow capture (What-if scenario) diagram, shown with licensed hospitals



In 2016, this Northern region comprises of 10,709 dwellings and 32,939 residents (37,000 est. 2020 = ~11% of both LGAs). The LGA boundaries are shown in black, the Meshblock boundaries are shown in grey and the mesh blocks defining the northern region is shaded red.

By 2035, the private health insurance component of demand for this northern region alone would be:

- 86 overnight beds
- 30 same day places
- 3 elective same day operating theatres
- 3 elective overnight operating theatres

Given the irregular shape of the catchment under the What-if scenario (shown by the red highlighted Meshblocks), a rectangular outflow boundary has been assumed (shown by the blue rectangle).

If the proposed health services facility were to provide for this northern region that currently is underserved and residents primarily travel to Hornsby and The Hills Shire District for medical care, then this this centre could potentially cater for a portion of the following demand. The proposed facility profile of Dural Health Hub would cater for 16% of this cohort’s demand by 2035.



Table 19 Demand requirements for Northern region, Total Demand and Private Health Insurance demand

Service	Northern region Demand					Private Health Insurance Component				
	2020	2025	2030	2035	CAGR	2020	2025	2030	2035	CAGR
Population [^]	37,073	42,978	49,823	57,759	3.0%	24,839	28,795	33,381	38,699	3.0%
Inpatient Beds	95	106	117	129	2.1%	64	71	78	86	2.0%
Same Day Places	21	28	35	45	5.2%	14	19	23	30	5.2%
Elective OT (Overnight)	2.4	2.7	3.0	3.3	2.1%	1.6	1.8	2.0	2.2	2.1%
Elective OT (Same Day)	2.1	2.6	3.2	3.9	4.2%	1.4	1.7	2.1	2.6	4.2%

[^]Population projections using The Hills Shire growth rate

Table 20 Demand requirements for Northern region, MBS Services, 2020 to 2035

MBS Service	Number of MBS Services				Number of Equivalent KPU for MBS Services [^]			
	2020	2025	2030	2035	2020	2025	2030	2035
Allied Health	35,219	40,829	47,332	54,871	7	8	9	11
Diagnostics	47,454	55,012	63,774	73,931	10	11	13	15
GP	262,107	303,854	352,250	408,354	40	46	54	62
Specialist	53,015	61,458	71,247	82,595	11	12	14	17

[^]Equivalent Key Planning Unit (KPU) (e.g. Rooms/Machines) calculated by MBS Activity/Days of Operation per Year / Sessions per Day



8. Service Specification

Dural Health Hub's indicative key planning unit (KPU) profile is outlined in the table below, showing the proposed physical requirements for each department to function efficiently whilst also taking into consideration the quantitative gap analysis of the region.

The Project Space Estimate Summary for Dural Health Hub is listed in the following table and demonstrates an indicative gross area requirement of **11,118 m²** for all departments and circulation. This profile will be adjusted following the refinement of the service profile as well as identification of site constraints during future detailed design.

Table 21 Summary of indicative KPU profile of Dural Health Hub

Level	Name	Area	NLA	Estimated KPU
Basement 1	Carpark	2,772 m ²		
Basement 1	Fire Stair	36 m ²		
Basement 1	Lift	20 m ²		
Basement 1	Lift Lobby	27 m ²		
Basement 1	Subtotal	2,856 m²		
Lower Ground 2	Carpark	2,672 m ²		
Lower Ground 2	Fire Stair	36 m ²		
Lower Ground 2	Lift	20 m ²		
Lower Ground 2	Lift Lobby	27 m ²		
Lower Ground 2	Subtotal	2,756 m²		
Lower Ground 1	Back Of House	217 m ²		
Lower Ground 1	Carpark	138 m ²		
Lower Ground 1	Day Surgery	1,359 m ²	Yes	4 x Operating Rooms 6 x Stage 1 Recovery 6 x Stage 2 Recovery Bed Bays 6 x Stage 2 Recovery Chair Bays 8 x Stage 3 Recovery Chair Bays
Lower Ground 1	Day Surgery Waiting	64 m ²	Yes	
Lower Ground 1	Fire Stair	36 m ²		
Lower Ground 1	Lift	20 m ²		
Lower Ground 1	Loading Dock and Ambulance Bay	73 m ²		
Lower Ground 1	Plant	8 m ²		
Lower Ground 1	Service Corridor	107 m ²		
Lower Ground 1	Subtotal	2,022 m²		
Ground Floor	Fire Stair	36 m ²		
Ground Floor	Lift	20 m ²		



Level	Name	Area	NLA	Estimated KPU
Ground Floor	Medical Centre	1,126 m ²	Yes	Includes Radiology, GP Clinic and Allied Health 1 x General X-ray 1 x OPG 2 x Ultrasound 1 x Mammography 1 x Bone Densitometry 1 x CT Scanning 1 x MRI 16 x GP/AH Consult Rooms 1 x 3 Bay Treatment Room 1 x Gym 1 x Procedural Room 2 x Patient Holding/ Recovery
Ground Floor	OT Risers	33 m ²		
Ground Floor	Pathology Collection	50 m ²	Yes	2 x Collection rooms
Ground Floor	Public Amenities	52 m ²		
Ground Floor	Public Lobby	71 m ²		
Ground Floor	Retail	172 m ²	Yes	
Ground Floor	Subtotal	1,560 m²		
Level 1	Courtyard	93 m ²	Yes	
Level 1	Fire Stair	36 m ²		
Level 1	Inpatient Short Stay and Overnight Beds	732 m ²	Yes	15 Short Stay Bed
Level 1	Lift	20 m ²		
Level 1	Medical Tenancy 1	159 m ²	Yes	6 X Consulting Rooms
Level 1	Medical Tenancy 2	149 m ²	Yes	6 X Consulting Rooms
Level 1	Medical Tenancy 3	175 m ²	Yes	7 X Consulting Rooms
Level 1	OT Plantroom	89 m ²	Yes	
Level 1	Plant	8 m ²		
Level 1	Public Amenities	26 m ²		
Level 1	Service Lobby	29 m ²		
Level 1	Visitor Corridor	82 m ²		
Level 1	Subtotal	1,598 m²		
Level 2	External Plant Enclosure	288 m ²		
Level 2	Fire Stair	18 m ²		
Level 2	Lift	20 m ²		
Level 2	Subtotal	326 m²		
Overall	Total	11,118 m²	4,167 m²	



9. Supplementary Document

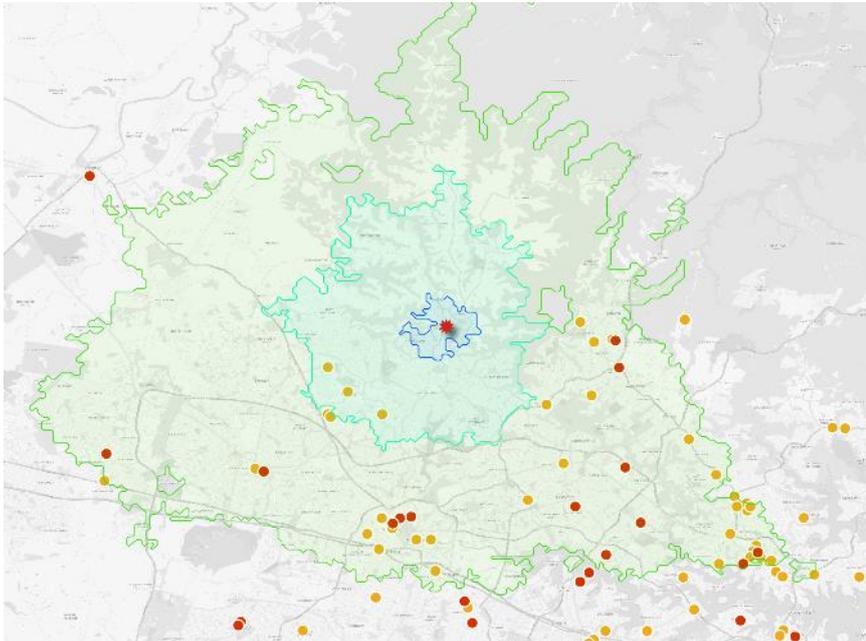
9.1 Catchments and supply

In addition to the outflow catchment analysis performed in the main report, a geospatial drive-time analysis is shown below to demonstrate the immediate catchment requirements and population profile. The location of the proposed health services facility is in an opportune position to capture the north-northwest communities with **limited health care service supply**, as well as the local communities within the 5- and 15-minute drivetime catchments. For the catchment within 15-minutes of the proposed site, there is expected to be an **additional 60,000 residents** to provide primary and secondary healthcare services for by 2035, growing at a CAGR of 1.8%.

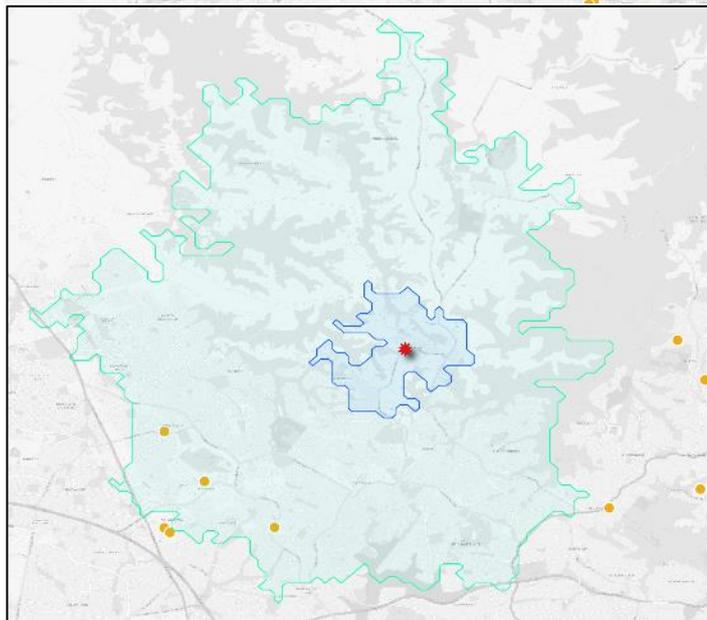
Table 22 Drivetime catchment population characteristics, 2020 and 2035

Drive-time catchments	Population		Dwellings	
	2020	2035	2020	2035
5 minutes	9,040	11,752	3,432	4,462
15 minutes	201,386	261,802	67,133	87,273

Figure 25 Geospatial analysis of 5-, 15- and 30-min drivetime catchments, with licensed hospitals



There is a distinct lack of both private and public acute healthcare supply within the immediate and surrounding regions.



There are no licensed hospitals within a 5km radius of the proposed site, and no acute healthcare services to the north-northwest. This lack of supply results in residents flowing to higher supplied areas, which results in a large number of these patients flowing past Dural.

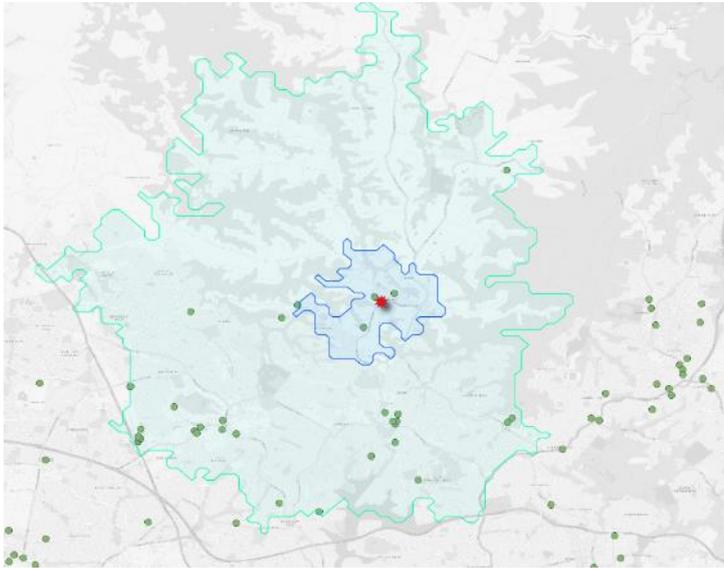
Legend

- 5min drivetime
- 15min drivetime
- 30min drivetime
- Private
- Public

9.2 Demand drivers

A detailed analysis of demand drivers and demand quantification is shown in the main report, however specific analysis is made here to outline the impact of local aged care facilities on overall healthcare demand. The proposed site is within close proximity to a handful of residential aged care facilities, shown in the map below. This mismatch between a relative higher density of aged care facilities compared to a lower density of medical and allied health services creates an environment of low self-sufficiency, where residents are reliant on external services to maintain optimal healthcare.

Figure 26 Aged care facilities (green), 5- and 15-min drivetime catchments



Patients over the age of 65 on average utilise healthcare four times as much as those under 65. This higher utilisation of healthcare is compounded by the fact that the population profile of the area is aging, growing and life expectancies are increasing. This compounding effect accelerates the demand for outpatient care and same day medical and surgical interventions.

Models of care are shifting away from large acute admitted hospitals, to community-cantered multi-disciplinary health hubs with same-day medical and surgical capacity. This decentralised model provides care closer to home in a more efficient and economic setting, with larger tertiary hospitals freeing up capacity to cater for higher acuity patient loads.

Recent findings in the Aged Care Royal Commission suggest a greater collaboration and coordination between aged care and acute care, with health hubs and community centres at the heart of this interface.

This smaller hospital footprint allows for care closer to home and is more responsive to the needs of the local community, especially those with a high density of aged care beds such as Dural.

Based on analysis of Medicare utilisation in the area and the population growth profile, there is sufficient demand to require **six additional GP consultation rooms every year to cater for residents within 15-min drive of the site**. There is no question that outpatient care will grow at a much faster rate than admitted care, with shifting healthcare models looking to leverage the advancements in healthcare technologies to treat patients in the community. An additional layer to this demand is the fact that residential aged care is driven by GPs, and areas with higher densities of aged care (such as Dural) will require greater supply of GPs, allied health and diagnostic services.

Table 23 Medicare Services (MBS) for the local 15-min drivetime catchment, 2020 and 2035

MBS Service	2020		2035		
	Services	KPU	Services	KPU	KPU Change
Allied Health	217,995	44	385,242	77	+34
Diagnostics	279,458	56	444,645	89	+33
GP	1,509,897	161	2,299,747	246	+84
Specialist	314,273	48	507,634	77	+30

The commissioning of medical centres within the catchment should not be seen a deterrent to the proposed facility, as the benefits of a multi-tenanted health hub far outweighs the development of fragmented individual consultation rooms. There are significant benefits and operational synergies of co-locating medical, allied health, diagnostic and procedural services. This hub acts as a satellite facility to major acute hospitals, allowing for referral pathways back to the community to ensure that local residents receive high quality, holistic and safe healthcare services.

The proposed health services facility profile has been designed to assume that other centres will be commissioned over the next 15 years, the gap analysis has shown significant undersupply of acute, diagnostic and outpatient services and has conservatively captured only a portion of this gap to account for this. A review demand profile is shown below to highlight the opportunity to provide services to the 15-min catchment surrounding the proposed Dural Health Hub site. This additional analysis should be read in context to the main report, which emphasises the potential for healthcare investment in this region.

Table 24 Demand requirements for 15-min catchment, Total Demand and Private Health Insurance demand

Service	15-min Catchment Demand				Private Health Insurance Component			
	2020	2025	2030	2035	2020	2025	2030	2035
Population^	201,386	221,525	241,663	261,802	134,929	148,420	161,912	175,409
Inpatient Beds	516	546	568	585	348	366	378	390
Same Day Places	114	144	170	204	76	98	112	136
Elective OT (Overnight)	13	14	15	15	9	9	10	10
Elective OT (Same Day)	11	13	16	18	8	9	10	12



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