

# Drivers of Tasmania's Future Population Health Needs

June 2022

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## Introduction

In November 2020, the Tasmanian Government announced the commencement of *Our Healthcare Future* – a long-term reform agenda to consult, design and build a highly integrated and sustainable health service for Tasmania.

The *Our Healthcare Future: Immediate Actions and Consultation Paper* released at that time highlighted the critical importance of having clinical planning that considers the population's need for health services.

This paper focusses on the characteristics of the Tasmanian population which are likely to drive future health service need, in particular demographics and population health, and projections of future health service utilisation.

The measures used in this paper were chosen due to their widespread acceptance as drivers of future health service need and the availability of data. There are a range of other factors which will influence future health service need. Therefore, the data and projections in this paper are not intended to be used in isolation, but rather as part of a suite of planning tools.

Furthermore, the projections in this paper are not intended to be predictions or forecasts. Rather, they illustrate the likely outcome if a given set of assumptions were to be realised. The projections are generally based on a continuation of historical trends and assume there will be no change to existing government policies. In this way, the projections indicate the most likely areas of greatest future health need, to enable appropriate policies to be developed to respond to that need.

This document is a companion document to *Our Healthcare Future: Advancing Tasmania's Health*, which provides a shared vision and policy direction for a sustainable health system. That document and further information regarding *Our Healthcare Future* is available on the Tasmanian Department of Health website at: <https://www.health.tas.gov.au/about/what-we-do/strategic-programs-and-initiatives/our-healthcare-future>.

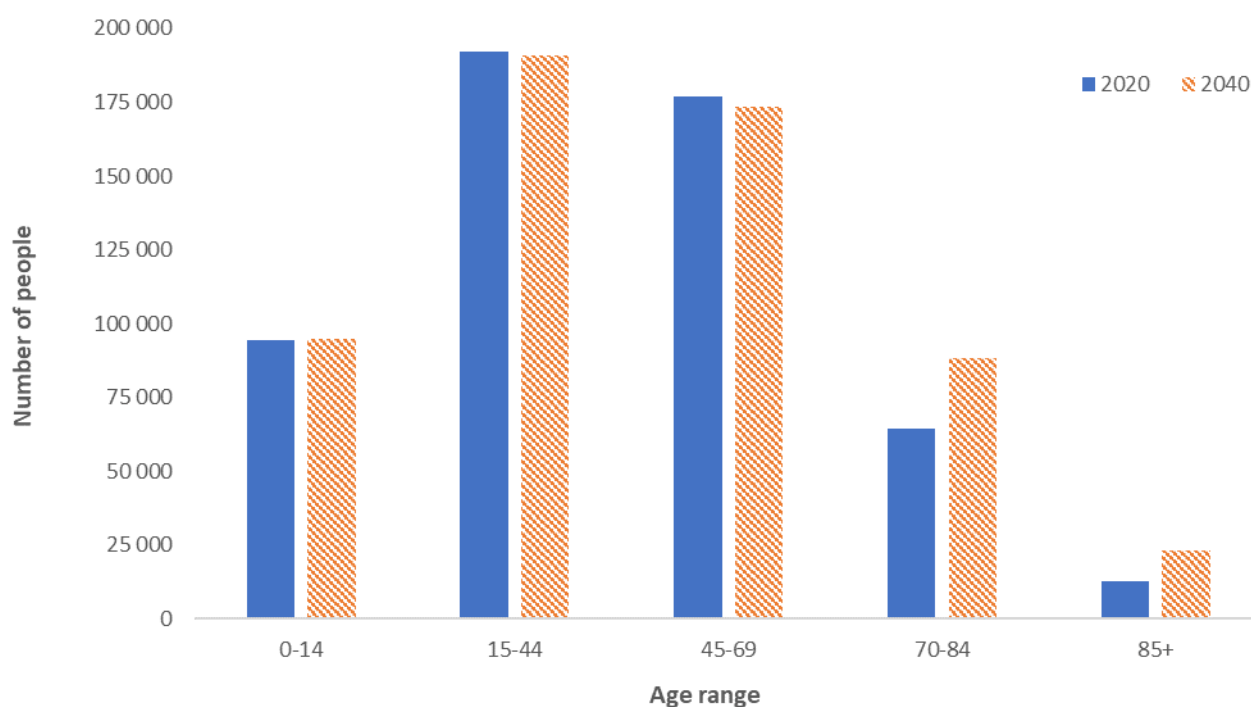
# Demographics

## Population Growth and Ageing<sup>i</sup>

Population growth and ageing is a fundamental driver of the demand for healthcare. Demand for healthcare can be expected to increase as the overall size of the population increases and particularly as the proportion of the population in older age groups increases, given the need for health services tends to increase as people age.

Tasmania’s population is projected to grow from 540 781 as at June 2020<sup>ii,1</sup> to 570 983<sup>2</sup> by June 2040 (based on the medium series of the Tasmanian Department of Treasury and Finance Population Projections, as adjusted by the Department of Health<sup>iii</sup>). Most of this population growth is projected to occur in those aged 70 years and above, with a small decline in those aged 15 to 69. The largest increase in percentage terms is the cohort aged 85 and over, which is projected to increase by 85 per cent, from 12 616 in 2020 to 23 377 in 2040. See Figure 1.

**Figure 1: Tasmanian population by age ranges, 2020 (actual) and 2040 (projected)**



i The age groups presented throughout this document are as used in the Hordes and Associates modelling and reflective of categories of hospital need.

ii Aggregated population data shows Tasmania’s estimated resident population as at 30 September 2021 was 540 839. For this analysis, June 2020 has been used as the reference point for this paper as that is the most recent date for which population data disaggregated by age and sex are available at the time of writing.

iii The Department of Health has adjusted the Department of Treasury and Finance population projections to reflect the estimated resident population as at June 2020 – see Appendix 1.

Age range	2020		2040		Growth	
	Number	Percentage of total population	Number	Percentage of total population	Number	Percentage
0-14	94 277	17.4	94 943	16.6	666	0.7
15-44	192 240	35.5	190 988	33.4	-1 252	-0.7
45-69	177 103	32.7	173 279	30.3	-3 824	-2.2
70-84	64 545	11.9	88 397	15.5	23 852	37.0
85+	12 616	2.3	23 377	4.1	10 761	85.3
<b>Total</b>	<b>540 781</b>	<b>100.0</b>	<b>570 983</b>	<b>100.0</b>	<b>30 202</b>	<b>5.6</b>

A key driver of the projection for a growing and ageing population is net interstate migration patterns. The population projections assume a continuation of recent trends, which have seen Tasmania experience net interstate migration gains in the older age groups but net losses in many of the younger age groups.

Population ageing is also influenced by the overall life expectancy of the population. Life expectancy in Tasmania has been gradually increasing since records began. There are many reasons for this, including improvements in sanitation, education and health. Life expectancy at birth in Tasmania is currently 79.9 years for males and 84.3 years for females<sup>3</sup>. It is projected that by 2040 it will increase to 81.0 years for males and 84.7 years for females<sup>4</sup>.

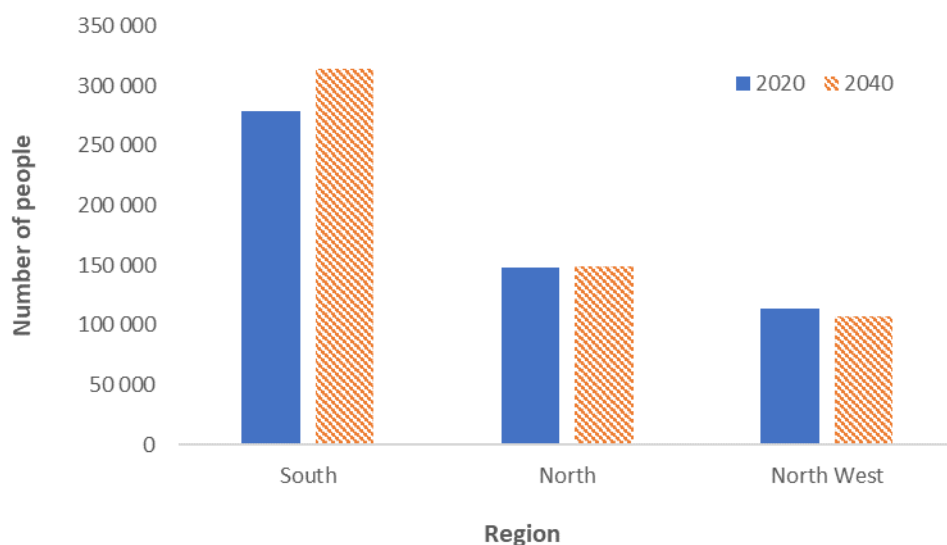
Tasmania already has the oldest population of any Australian state or territory, with a median age of 42.3 years, compared to 37.8 nationally<sup>5</sup>. This is projected to increase to 44.9 years by 2040<sup>6</sup>.

### Regional Population Projections

Tasmania's population is quite dispersed, with 51.5 per cent living in the South, 27.4 per cent in the North and 21.1 per cent in the North West<sup>7</sup> as at June 2021. Only 44 per cent of Tasmania's population lives in the capital city, compared to 68 per cent nationally<sup>8</sup>. This population dispersal creates challenges in providing health services which are accessible to most Tasmanians while also being safe and sustainable.

As noted above, the state's total population is projected to increase by around 30 000 people from 2020 to 2040. The South is projected to grow by a greater amount – around 35 000 people. This is projected to be offset by a population decline of around 6 000 people in the North West, while the North is projected to have population growth of less than 1 000 people. Based on these projections, by 2040 the South would account for 55.1 per cent of the State's population, the North 26.1 per cent and the North West 18.9 per cent. See Figure 2.

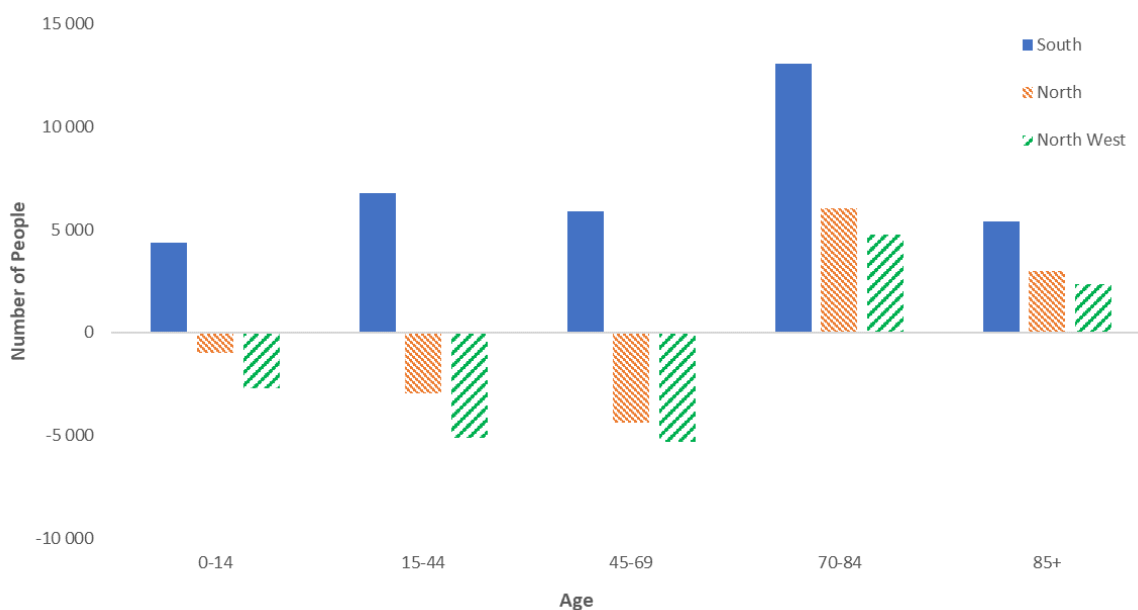
**Figure 2: Tasmanian population by region, 2020 (actual) and 2040 (projected)**



Region	2020		2040		Growth	
	Number	Percentage of total population	Number	Percentage of total population	Number	Percentage
South	279 001	51.6	314 453	55.1	35 452	12.7
North	148 024	27.4	148 753	26.1	729	0.5
North West	113 756	21.0	107 777	18.9	-5 979	-5.3
<b>Total</b>	<b>540 781</b>	<b>100.0</b>	<b>570 983</b>	<b>100.0</b>	<b>30 202</b>	<b>5.6</b>

All three regions are projected to see an increase in the number of people aged 70 and above between 2020 and 2040. Only the Southern region is projected to see an increase in all age groups, as shown in Figure 3.

**Figure 3: Population change by age and region, Tasmania, 2020 (actual) to 2040 (projected)**



Population ageing is projected to be more pronounced in the North West, with the median age in that region increasing from 44.8 years to 48.7 years from 2020 to 2040<sup>9</sup>. The North and South are also projected to see an increase in their median age during that time, from 43.2 to 45.9 years in the North and 40.9 years to 43.2 years in the South.

The possible impact of COVID-19 on future population growth is discussed at Appendix 2.

More detailed population projections by region and age group are provided at Appendix 3.

## Population Health

### Self-assessed health status

A person's self-assessed health status has historically proven to be a reliable indicator of a person's actual health and a good predictor of health service need. Information on this measure is available from the *Tasmanian Population Health Survey*, which has been conducted four times at regular intervals from 2009 to 2019. The results from the survey have been age standardised to remove the impact of different age distributions in the populations surveyed.

Since 2009, the proportion of Tasmanians reporting excellent/very good health has declined and the proportion reporting their health as either good or fair/poor has increased<sup>10</sup>, as shown in Figure 4.

**Figure 4: Self-assessed health status, 18 years and over, Tasmania, 2009 to 2019**

Status	2009 (%)	2013 (%)	2016 (%)	2019 (%)	Change 2009 to 2019 (percentage points)
Excellent/Very Good	43.0	41.2	37.1	37.0	-6.0
Good	37.9	40.9	38.9	41.1	3.2
Fair/Poor	18.9	17.6	23.7	21.7	2.8

The most recent survey, conducted in 2019, reveals self-assessed health status is very similar across the regions, as shown in Figure 5.

**Figure 5: Self-assessed health status by region, 18 years and over, Tasmania, 2019**

Status	North (%)	North-West (%)	South (%)	Tasmania (%)
Excellent/Very Good	35.7	36.2	38.3	37.0
Good	42.0	40.8	40.4	41.1
Fair/Poor	22.2	22.9	21.1	21.7

Should the current trend of an increasing number of people describing their health as fair/poor continue, it is projected around 32.5 per cent of Tasmanians would report their self-assessed health status as fair/poor by 2032, compared to 21.7 per cent in 2019<sup>11</sup>, as shown in Figure 6.



**Figure 6: Proportion of Tasmanians 18 years and over describing their self-assessed health status as fair/poor, 2019 (actual) to 2032 (projected).**

Year	North (%)	North-West (%)	South (%)	Tasmania (%)
2019 (actual)	22.2	22.9	21.1	21.7
2022	26.6	29.8	25.3	26.6
2027	29.2	33.5	28.2	29.5
2032	31.8	37.2	31.0	32.5

### Prevalence of long-term conditions

The estimated percentage of the Tasmanian and Australian population with long-term conditions (generally defined as conditions which have lasted or are expected to last for six months or more) are shown in Figure 7. While, some caution must be used in interpreting this table as it is based on self-reported data, it does suggest Tasmanians are more at risk of having a long-term health condition than is the case nationally. While this would be expected to a certain extent, given Tasmania's older age profile, Tasmania also records a greater incidence of long-term conditions than nationally even when the data is age-standardised to account for differences in age-structure. This suggests Tasmania's health outcomes are influenced by factors other than age structure. Selected health risk factors which may contribute to Tasmanians' health outcomes are discussed below.

**Figure 7: Incidence of long-term conditions, Tasmania, 2017-18<sup>12</sup>**

Condition	Proportion of total population (non-aged standardised)		Proportion of total population (age standardised)	
	Tasmania	Australia	Tasmania	Australia
Mental and behavioural conditions	21.7	20.1	21.8	20.0
Hayfever and allergic rhinitis	21.3	19.3	22.5	19.3
Arthritis	20.3	15.0	16.0	13.3
Back problems (dorsopathies)	18.2	16.4	16.9	15.7
Hypertension	13.8	10.6	10.5	9.4
Asthma	12.9	11.2	13.0	11.2
Heart, stroke and vascular disease	6.0	4.8	4.7	4.2
Diabetes mellitus	5.5	4.9	4.3	4.3
Osteoporosis	5.0	3.8	3.5	3.3
Cancer (malignant neoplasms)	3.0	1.8	2.3	1.6
Chronic obstructive pulmonary disease	2.7	2.5	2.3	2.2
Kidney disease	0.5	1.0	0.4	0.9

## Health risk factors

There are certain factors which can influence people’s health, such as their weight, whether they smoke, alcohol consumption, nutrition and physical activity. *Healthy Tasmania*, a Tasmanian Government and community partnership, aims to improve the health and wellbeing of Tasmanians by developing strategies to reduce the impact of these and other health risk factors. While considerable progress has been made in recent years, Tasmania remains behind the national rate for several health risk factors, as shown in Figure 8.

**Figure 8: Selected Health Risk Factors, Tasmania and Australia, 2017-18<sup>13</sup>**

Risk factor	Tasmania (%)	Australia (%)
Excess weight – body mass index > 30	34.8	31.3
Current daily smoker	16.4	13.8
Alcohol consumption exceeds lifetime risk guidelines	17.1	16.1
Alcohol consumption exceeds single occasion risk guidelines	45.4	42.1
Inadequate fruit or vegetable consumption	93.1	94.6
Did not meet physical activity guidelines	84.7	84.6

The data in Figure 8 is sourced from the Australian Bureau of Statistics (ABS) *National Health Survey*. While this survey is useful to provide national comparisons of these risk factors, the *Tasmanian Population Health Survey* enables analysis at the Tasmanian regional level. It can also be used to generate projections based on historical trends, due to its consistent methodology across all surveys. Further information on selected risk factors based on the *Tasmanian Population Health Survey* is provided below<sup>iv</sup>. As the projections are based on only four historical datapoints across 10 years, the forward projection period has been limited to 2032.

### Body mass index

Being overweight or obese, with obesity defined as a body mass index (BMI<sup>v</sup>) equal to or above 30, increases the risk of a range of chronic health problems, including cardiovascular disease, type two diabetes, hypertension, musculoskeletal conditions and some types of cancers. In addition to healthcare required for chronic conditions, severely obese adults are candidates for specialised services such as weight loss medication and/or bariatric surgery.

The *Tasmanian Population Health Survey* indicates obesity increased in all regions from 2009 to 2019. The highest rates of obesity are in the North and North West regions. Based on a continuation of historical trends, 41.1 per cent of Tasmania’s population is projected to be obese by 2032, as shown in Figure 9.

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<sup>iv</sup> The results of the *National Health Survey* and the *Tasmanian Population Health Survey* do not directly correspond. There are a number of reasons for this, including different reference periods (the most recent data for the *National Health Survey* relate to 2017-18 while the most recent *Tasmanian Population Health Survey* was conducted in 2019) and different sample sizes (the 2017-18 *National Health Survey* was based on the responses of 2 016 Tasmanians while the *Tasmanian Population Health Survey* had a sample size of 6 300).

<sup>v</sup> BMI is calculated as a person’s weight in kilograms divided by their height in metres squared. For example, for a person 1.80 metres tall and weighing 80 kilograms, their BMI is:  $80 \div 1.80^2 = 80 \div 3.24 = 24.69$ .

**Figure 9: Actual and projected self-reported BMI ( $\geq 30$ ) by region, 18 years and over, Tasmania, 2019 (actual) to 2032 (projected)<sup>14</sup>**

Year	North (%)	North-West (%)	South (%)	Tasmania (%)
2019 (actual)	32.5	29.5	25.6	28.2
2022	35.4	34.4	29.3	32.0
2027	41.3	38.8	33.2	36.6
2032	47.2	43.2	37.2	41.1

### Smoking

Tobacco smoking is a major risk factor for heart disease, stroke, peripheral vascular disease, respiratory illnesses such as lung and chronic obstructive pulmonary diseases, as well as some types of cancers.

The proportion of the population which smokes is relatively similar across the three regions of Tasmania. There is a historical trend of decreasing smoking rates across the three regions. Figure 10 shows actual smoking rates in 2019 and projected smoking rates to 2032 for the three regions and statewide. The projections assume the proportion of the population that smokes will continue to decrease at the rate observed from 2009 to 2019. It is currently unknown whether smoking rates will continue to decline at that rate and hence if the low smoking rates projected for 2032 will be realised.

**Figure 10: Actual and projected current (daily and occasional) smokers by region, 18 years and over, Tasmania, 2019 (actual) to 2032 (projected)<sup>15</sup>**

Year	North (%)	North-West (%)	South (%)	Tasmania (%)
2019 (actual)	13.0	12.3	11.5	12.1
2022	9.4	10.7	9.3	9.6
2027	6.3	6.9	5.7	6.1
2032	3.1	3.2	2.1	2.6

### **Socio-economic factors**

Socio-economic factors are important determinants of health. Having access to material and social resources and being able to participate in society are important for maintaining good health.

The ABS produces the Socio-Economic Indexes for Areas (SEIFA) following each Census. The most recently available data is from the 2016 Census. One of the indexes included in the SEIFA is the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD). The IRSAD is a general measure of both relative socio-economic advantage and disadvantage at the area level.

The ABS has collated the scores from the 2016 IRSAD into quintiles, where quintile one contains the lowest 20 per cent of scores (being the most disadvantaged areas) and quintile five contains the highest 20 per cent of scores (being the most advantaged areas). An interstate comparison of the 2016 IRSAD shows Tasmania had the lowest proportion of people living in the most advantaged areas (4.6 per cent) and the highest proportion of people living in the most disadvantaged areas (37 per cent)<sup>16</sup>.

The IRSAD is calculated using a range of different variables, including income, education, employment, occupation and housing characteristics. Tasmania lags the national average on several of these measures, including:

- **Education:** compared to the other states and territories, Tasmania has the poorest levels of educational attainment, with the lowest proportion of people who continue study beyond year 10 (16.3 per cent of the population have year 10 as their highest educational qualification, compared to 10.0 per cent nationally) and the lowest proportion of people with a bachelor degree or above (26.1 per cent compared to 31.3 per cent nationally)<sup>17</sup>.
- **Income:** Average weekly ordinary full-time earnings in Tasmania are the lowest of the states and territories and around 11.8 per cent lower than the Australian average<sup>18</sup>.

These factors can have a significant impact on a person's health. Educational attainment is associated with better health throughout life and equips people to achieve stable employment, have a secure income, live in adequate housing, provide for families and cope with ill health by assisting them to make informed health care choices. Similarly, a higher income allows for greater access to goods and services that provide health benefits, such as better food and housing, additional health care options, and greater choice in healthy pursuits<sup>19</sup>.

The 2016 IRSAD revealed a national trend of the most advantaged areas tending to be clustered around capital cities and selected coastal areas, while the most disadvantaged areas tended to be in regional and rural areas. Therefore, Tasmania's outcome in the 2016 IRSAD is perhaps unsurprising, given, as noted previously, only 44 per cent of Tasmania's population lives in the capital city, compared to 68 per cent nationally. Despite this trend, a person's place of residence does not of itself determine relative advantage or disadvantage. Rather it is the characteristics of people who live in certain areas which determines that area's IRSAD. For example, people who live in capital cities are more likely to have higher levels education attainment than those living in rural and regional areas<sup>20</sup>.

It is important to note the IRSAD relates to areas, not individuals. Therefore, while a relatively disadvantaged area is likely to have a high proportion of relatively disadvantaged people, it is also likely to contain some people who are relatively advantaged. Similarly, while the location of a person's residence can influence the range of opportunities, goods and services available to them, this does not mean, for example, that all people living in rural areas are disadvantaged, but rather they may have chosen a lifestyle which is different from living in a city. Nonetheless, it is likely the proportion of the population living in relatively socio-economically disadvantaged circumstances contributes to Tasmania ranking below the national average on many measures of population health. Furthermore, many of the more socio-economically disadvantaged areas in Tasmania are a greater distance from major health facilities than more advantaged areas, meaning residents of those areas face challenges of both being more likely to suffer ill health and having less access to health services.

### Other factors

In addition to the factors noted above, Tasmania is above the national average in a range of other measures which create challenges for the provision of health services. These include:

- **Chronic conditions:** The proportion of the Tasmanian population reporting having three or more chronic conditions is 11.5 per cent, compared to the Australian rate of 8.7 per cent<sup>21</sup>. Chronic conditions reduce a person's quality of life and are associated with higher health costs.
- **Disability:** Disability prevalence can be a significant driver of the demand for health services. Based on the latest data, 26.8 per cent of Tasmanians had a disability, significantly higher than the national rate of 17.7 per cent<sup>22</sup>.
- **Mental health:** A person's mental health can have a substantial social and economic impact. In Tasmania, 13.9 per cent of adults report very high or high levels of psychological distress. Between 2009 and 2019, the percentage of Tasmanian adults reporting ever being diagnosed with anxiety or depression increased from 21.4 per cent in 2009 to 33.6 per cent in 2019<sup>23</sup>.
- **Tasmanian Aboriginals:** An estimated 5.7 per cent<sup>vi</sup> of the Tasmanian population identify as Tasmanian Aboriginals<sup>24</sup>. Aboriginal people face additional challenges to their ongoing health and wellbeing, including poorer outcomes driven by social disadvantage<sup>25</sup>, and are more likely to experience risk factors which are associated with poorer health.

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<sup>vi</sup> The Tasmanian Aboriginal population estimate for June 2016 is 28 537 (ABS 3238.0, July 2019). This is 5.5 per cent of the population at that time (517 514). The corresponding figure for 2021 (a projection) is 30 837, being 5.7 per cent of the population.

Other Tasmanians who may experience poorer health outcomes than the overall population are those from culturally and linguistically diverse (CALD) backgrounds and the LGBTIQ+ community:

- people from **CALD** backgrounds may experience greater difficulty in using health services than other Tasmanians due to reasons such as communication barriers and different cultural practices. While people from CALD backgrounds comprise a smaller proportion of the population in Tasmania than elsewhere in Australia, they still represent a significant proportion of the population. According to 2016 Census data, 13 per cent of Tasmanians were born overseas, compared to just under 29 per cent nationally<sup>26</sup>.
- people identifying as **LGBTIQ+** report poorer health than the general population. In particular, COVID-19 has had a disproportionate effect on LGBTIQ+ Tasmanians' mental health, with 31 per cent of LGBTIQ+ respondents noting this impact, compared with 13 per cent of non-LGBTIQ+ respondents<sup>27</sup>.

**Climate change** also presents a serious challenge to the health and wellbeing of Tasmanians and is already having an impact on health services which will continue to increase over coming years. As extreme weather events such as heatwaves, floods, droughts and storms worsen and become more intense, this risk of negative health impacts also increases, especially for children, older people and vulnerable population groups. This in turn, places increasing pressure on health services. For example, increasing numbers of emergency department presentations during heatwaves are placing a greater strain on hospital services. Other ways in which climate change may negatively impact health in the future include changes in the spread of disease, air pollution and food insecurity.

## Health service utilisation

### Scope

This section includes projections of hospital activity and data on GP presentations, ambulance services and private health insurance coverage.

As discussed in *Our Healthcare Future: Advancing Tasmania's Health*, the *Our Healthcare Future* reforms include a strategic ambition to provide more healthcare in the community where it is safe and appropriate to do so. Doing so will (all other things being equal) decrease the projected growth in hospital activity and result in an increased use of community care.

It is difficult to project the future need for community care due to the limited data on current use and the ongoing development of new models of care. Therefore, such projections are not included in this paper. As noted in *Our Healthcare Future: Advancing Tasmania's Health*, the next steps in the *Our Healthcare Future* reforms will be the development of three regional Clinical Services Plans for the North, North West and South and the development of a long-term plan for healthcare in Tasmania. The development of these plans will include more detailed analysis of future health needs, including care provided outside the hospital setting.

### Projections of future hospital activity

Projections of hospital utilisation show that if trends continue, public hospital demand will increase significantly over the next 20 years, as shown in Figure 11. Population ageing is a key driver of this projected demand. While the South is the only region of Tasmania projected to have significant growth in total population over the next 20 years, all four major hospitals are projected to have increased demand. This is largely due to the projected increase in people in the older age groups across all three regions.

**Figure 11: Projections of Public Hospital Activity by episode, Tasmania, 2021-22 to 2041-42<sup>28</sup>**

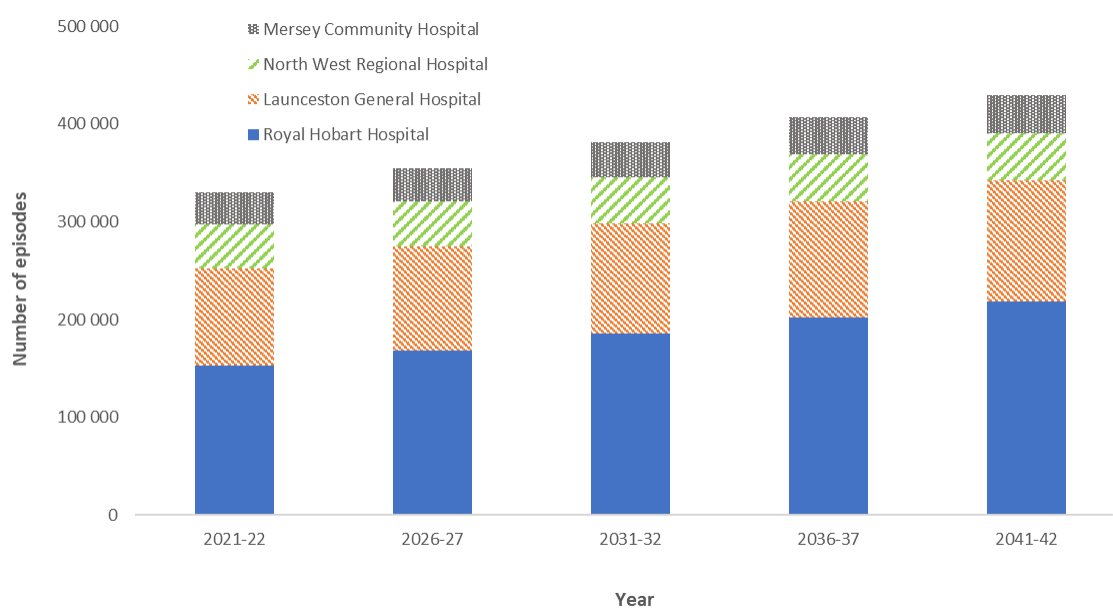
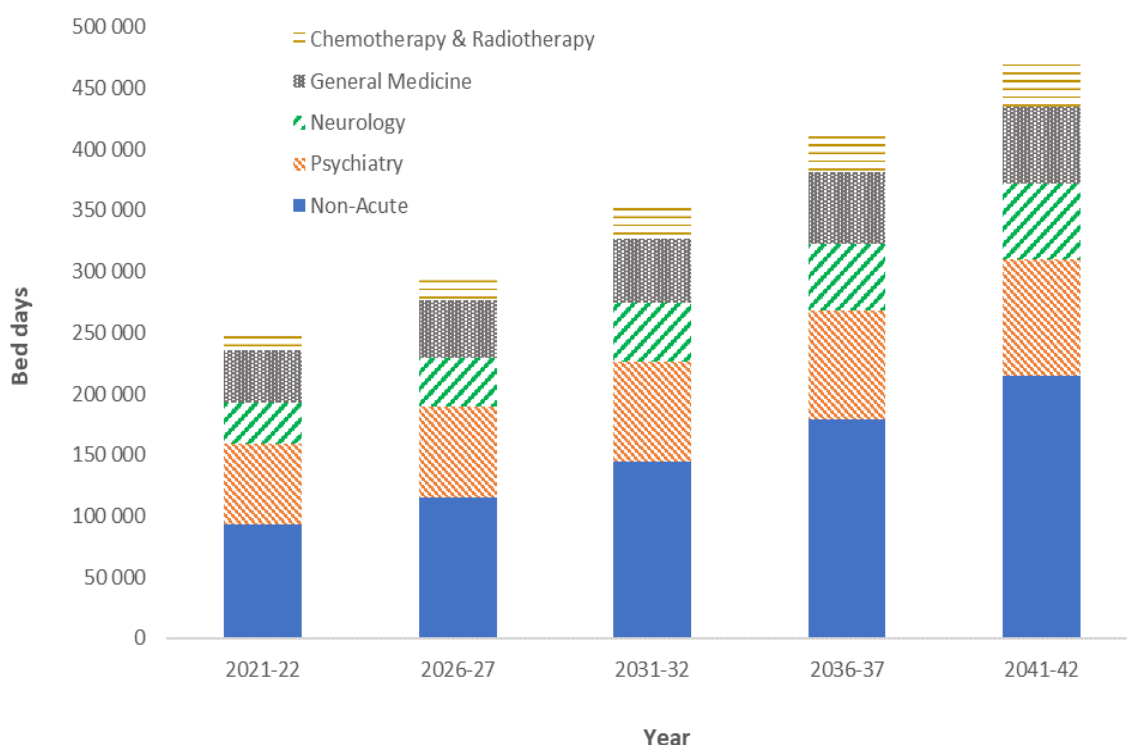


Figure 12 shows the specialties which are expected to experience the largest increase in bed days over the next 20 years. The largest increase is expected to be for non-acute services, with the number of bed-days projected to increase by 145 per cent over the next 20 years. Non-acute care broadly covers services to patients that support the management of a health condition, either temporarily or indefinitely. Therefore, the projected increase in this category is consistent with the ageing of the Tasmanian population and the expected increase in chronic conditions associated with that ageing. These projections are total demand for these specialties at both public and private hospitals.

**Figure 12: Projections of hospital demand by speciality, public and private, Tasmania, 2021-22 to 2041-42<sup>29</sup>**



## Primary Health

Primary health care is for many people the main access point to the health system. Primary care services include medical, nursing, pharmaceutical, diagnostic, allied health, mental health, and dental, and for many, home and community support services. The Tasmanian Government works closely with Primary Health Tasmania (PHT) to drive improvements to primary health care and ensure appropriate services are available to local communities.

PHT produces an annual report on General Practice in Tasmania. The most recent edition of the report notes “General practice is integral to the healthcare system, however little quantitative data has been available to help understand the depth and breadth of work undertaken every day by general practice teams.”<sup>30</sup> PHT has developed a Primary Health Information Network to attempt to resolve this issue of inadequate data.



The PHT report indicates Tasmanian GPs have a strong focus on chronic disease prevention, early diagnosis and management, diagnosing and managing patients with complex comorbidities. Based on the PHT data, almost 387 000 Tasmanians saw a GP in 2019.

The Productivity Commission's Report on Government Services<sup>31</sup> indicates that Tasmania has less GPs per capita than the national average, at 106.6 per 100 000 people compared to 114.5 GPs per 100 000 people nationally. The difference is greatest in outer regional areas, where Tasmania has 92.7 GPs per 100 000 people compared to 99.2 GPs per 100 000 people nationally.

Tasmania also lags the national rate in bulk billing. In 2020-21, 79.6 per cent of non-referred attendances were bulk billed, compared to 88.8 per cent nationally<sup>32</sup>.

Barriers to GPs access, including availability or cost, can result in people presenting to public hospital emergency department for conditions which may be better seen in the GP setting if possible. Such presentations include patients who:

- are allocated a triage category of four (semi-urgent: to be seen within 60 minutes) or five (non-urgent: to be seen within 120 minutes)
- were not referred by a GP and
- have a primary diagnosis code that does not require further investigation.

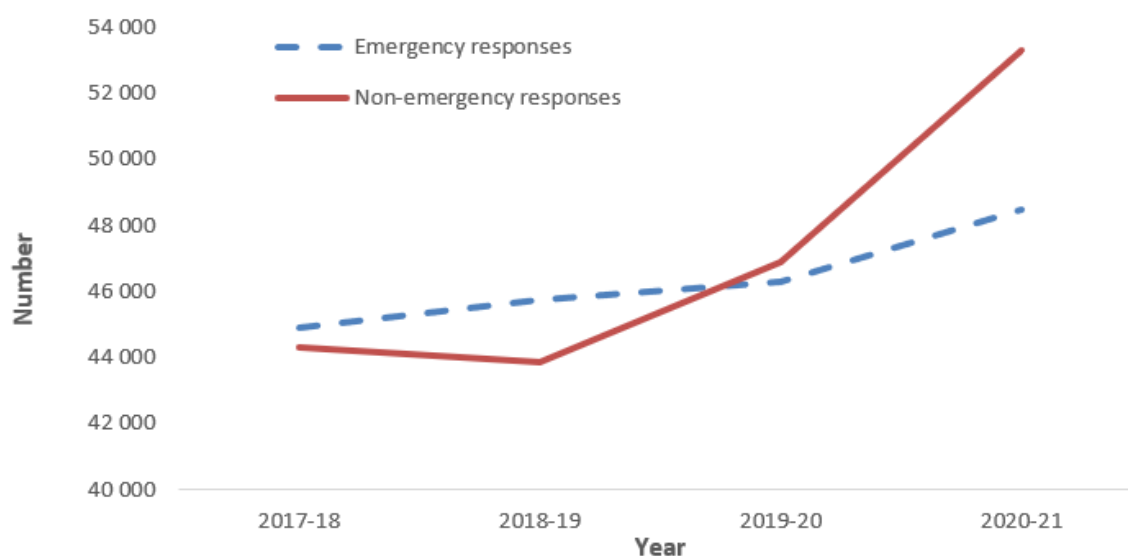
In 2020-21, around 27.5 per cent of people presenting to Tasmania's public hospital emergency departments met this definition of patients who may be better seen in a GP setting if possible<sup>33</sup>. Improving access to GPs and other forms of primary care is likely to assist in reducing the incidence of these presentations and result in better patient care.

## **Ambulance Services**

Ambulance Tasmania provides pre-hospital emergency care, health transport and medical retrieval services across Tasmania. It also plays a vital role in facilitating the treatment of patients in non-hospital settings. For example, extended care paramedics provide services to allow patients to be treated at home rather than attend hospital.

The number of ambulance responses, both in total and for emergency responses, has been increasing in recent years, as shown in Figure 13, with the more significant increase in recent years being for non-emergency responses. The number of ambulance responses includes each resource mobilised to an incident. There can be multiple ambulance responses to a single incident.

**Figure 13: Number of Responses by Ambulance Tasmania, 2017-18 to 2020-21<sup>34</sup>**



Ambulance Tasmania has also established a secondary triage service, which commenced in 2021. Through this service, people who call Triple Zero and are assessed as not requiring an emergency ambulance response are redirected to more appropriate care pathways. This is expected to reduce the number of non-emergency ambulance responses over time. Ambulance Tasmania is also investigating ways to ensure the number of units responding to each incident is no more than required to provide an appropriate response.

### **Private Hospital Services**

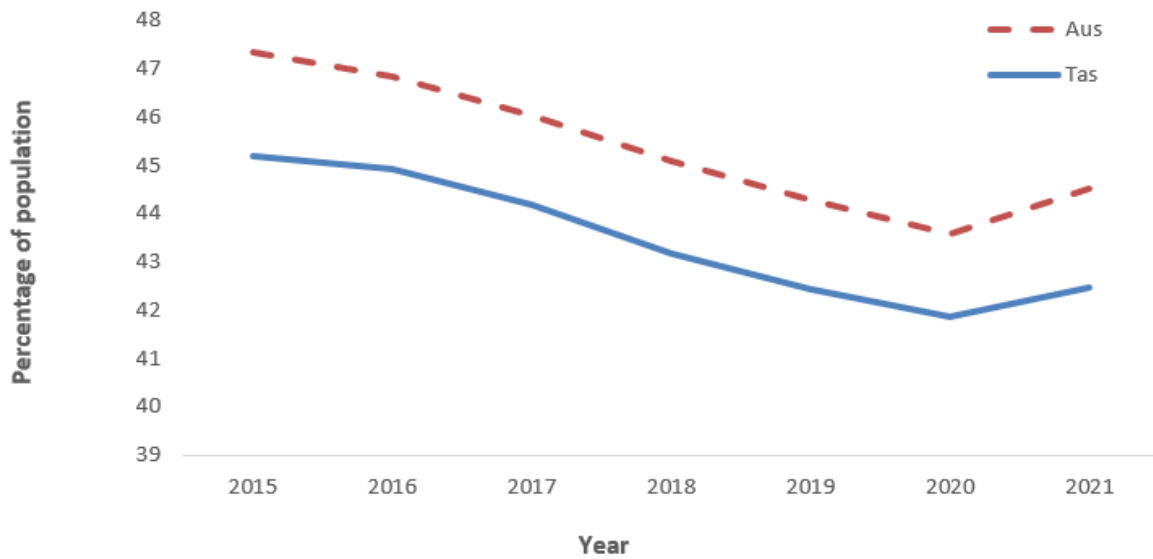
The private hospital system plays an important role in the Tasmanian health system. While private hospitals do not offer the full scope of services offered in public hospitals (and hence more urgent and complex cases, as well as emergency admissions will tend to be treated in public hospitals) they provide additional capacity to the health system as a whole, particularly in the area of elective surgery.

Despite their important role, the private hospital sector comprises a relatively smaller proportion of total health system capacity in Tasmania than is the case nationally. The private hospital sector's presence outside Hobart is small compared to the public sector, largely due to the diseconomies of scale faced by private operators providing services to a dispersed population.

This disparity is shown in the relative number of bed days provided in each sector. Data from the Australian Institute of Health and Welfare shows that in 2019-20 public hospitals accounted for 67 per cent of bed days in Australia, compared to 33 per cent in the private system<sup>35</sup>. In Tasmania, the relative proportions were 70 per cent in the public system and 30 per cent in the private system<sup>36</sup>.

Trends in private hospital cover provide additional context of the likely future demand for public hospital services. As at June 2021, 42.5 per cent of Tasmanians had private health insurance for hospital treatment. In recent years, the percentage of Tasmanians with private health insurance for hospital treatment has been lower than the national rate and has been declining over time, although in the year to June 2021 the coverage rate increased both nationally and in Tasmania, as shown in Figure 14. It is unclear at this time if this was a one-off increase or the commencement of a longer-term trend.

**Figure 14: Private Health Insurance Hospital Coverage, Australia and Tasmania, 2015 to 2021<sup>37</sup>**



## Appendix 1: Sources and Method

### Population Projections

The population projections used in section 1 of this paper are based on the projections released by the Tasmanian Department of Treasury and Finance (Treasury) in 2019, with revisions by the Tasmanian Department of Health (DoH) to reflect the release by the ABS in August 2021 of population estimates by age and sex for 2020<sup>vii</sup>.

The Treasury projections cover a period of 50 years (from 2017 to 2067) at the state level and 25 years (2017 to 2042) at the Local Government Area (LGA) level. In this paper projections are presented to 2040.

The Treasury projections were prepared using an independently built projection model, called the Regional Population Projection Program, designed by Dr Tom Wilson of Charles Darwin University, a leading Australian demographic modeller. The model uses the cohort component method, which generates projections based on various assumptions around future fertility, mortality and net migration (both interstate and overseas).

Treasury produced three series of projections, indicating high, medium and low growth scenarios. The medium series is predominantly based on current trends in fertility, life expectancy at birth and migration. This paper uses the medium series, which Treasury recommends for use for most policy and planning purposes.

The projections are not forecasts and are not intended to be used as a standalone decision tool. They also do not consider the demographic impacts of any present or future government policies. Rather, they provide a range of plausible outcomes which assist in planning for the future.

For more information see: <https://www.treasury.tas.gov.au/economy/economic-data/2019-population-projections-for-tasmania-and-its-local-government-areas>

### Department of Health revisions

In August 2021, the Australian Bureau of Statistics (ABS) released estimates of regional population by age and sex for 2020. DoH has used these estimates to revise the population projections released by Treasury in 2019.

For June 2020, there is a difference of 7 397 or 1.4 per cent between the ABS' estimated resident population of 540 781 and the figure of 533 384 provided by Treasury's medium series projection.

DoH has developed a method to merge the ABS' 2020 population estimates with the Treasury population projections for future years. The method considers there are two plausible reasons why the Treasury projections are less than the estimated resident population as at June 2020:

- a temporary fluctuation in population growth, which will see the actual population reverting to the Treasury projections at some point in the future; or

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<sup>vii</sup> The potential impact of COVID-19 on the population projections is discussed in Appendix 2.

- a permanent one-off increase in population, which would require the Treasury projections to be adjusted upwards by the amount of the current gap between the ABS estimates and Treasury projection for 2020.

DoH also considered a third option, being that the Treasury projections are unsound and thus a higher rate of growth should be used for projections of future years. This option was rejected as analysis of Tasmania's population over the past 40 years reveals cycles of population growth followed by plateaus. There is insufficient evidence to suggest the rate of population growth seen in recent years will be maintained in the long-term. Further information is provided in Appendix 2.

It is not possible to determine whether recent population growth is a temporary fluctuation or a permanent one-off increase. Therefore, DoH has assumed both are equally likely, and developed a revised set of population projections which incorporate elements of both scenarios.

The revised projection series essentially follows the trend of the Treasury projections, but at a higher level of population. The difference between the revised projections and the Treasury projections is less than if only the permanent one-off increase in population scenario was used.

The adjustments made to the Treasury population projections by DoH are not likely to be as reliable as producing a new set of projections with updated Census of Population and Housing data. Nonetheless, as Treasury updates its projections relatively infrequently (approximately every five years) the DoH adjustments are a useful way to reflect updated ABS estimates of population in the periods between Treasury producing updated projections. Treasury has reviewed the adjustments to the projections made by DoH and considers them to be reasonable.

The revised population projections are used in this paper and were provided to Hards and Associates to inform their development of projections for disease prevalence and public health service utilisation.

## **Life Expectancy**

The Treasury population projections include a mortality assumption which is based on a continuation of the historical trend of gradual increases in life expectancy at birth. The Treasury medium series projections assume Tasmanians' life expectancy at birth in 2067 will be 82.4 years for males and 85.2 for females. The ABS Life Tables show life expectancy at birth in Tasmania is currently 79.9 for males and 84.3 for females. DoH has assumed life expectancy will increase linearly from the current rate to the rate assumed by the Treasury projections, ie by 0.053 per year for males and 0.019 for females, to derive the projected life expectancy at birth in 2040.

## **Median age**

The median age is the age at which half the population is older and half the population is younger. For each year over the period from 2022 to 2040, the state-level median age was calculated using the revised population projections. The regional level median age projections were calculated by grouping LGA-level projections into the three regions.

## **Population health**

Projections of fair/poor self-assessed health, obesity and smoking in section 2 of this paper were based on results from the *Tasmanian Population Health Survey*, which was conducted in 2009, 2013, 2016 and 2019.

For each of these data items, a variance-weighted least squares regression model ([https://en.wikipedia.org/wiki/Weighted\\_least\\_squares](https://en.wikipedia.org/wiki/Weighted_least_squares)) was used to produce projections at the regional level using population data estimates from the surveys.

As the projections are based on only four data points across a 10-year period, the forward projection period has been limited to 2032.

Other measures were directly used from the source material as referenced in this document.

## **Hospital utilisation**

Projections of hospital utilisation are based on analysis by Hardes and Associates (Hardes), a major provider of health demand modelling. Every Australian state and territory either has used or is using Hardes data for healthcare demand and supply modelling.

The Hardes modelling analyses health service delivery over the past five years, then provides projections of the type and volume of hospital services expected in the future, based on expected future trends and population projections.

For more information see: <https://hardesandassociates.com.au/>

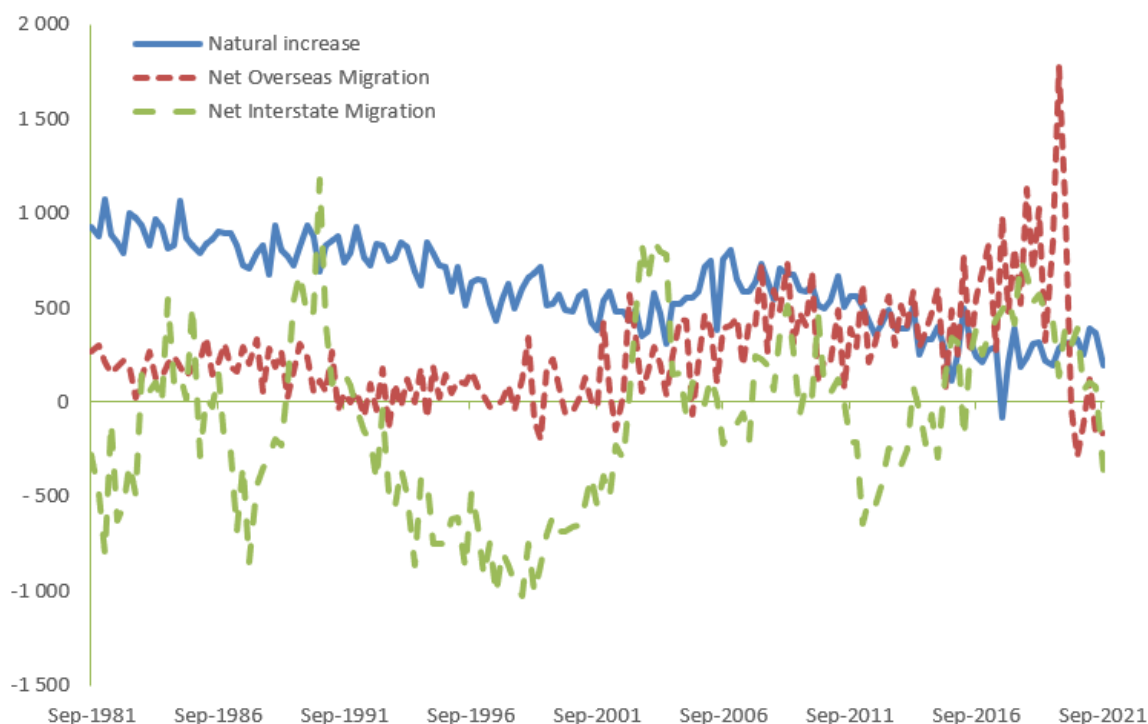
## Appendix 2: Possible impact of COVID-19 on population projections

The population projections used in this paper were released by Treasury in 2019 and adjusted by DoH to reflect the estimated resident population as at June 2020. Therefore, they do not account for the possible impact of COVID-19. This Appendix examines the drivers of population change and whether there is any evidence to date that COVID-19 has affected those drivers.

The drivers of population change at the state level are natural increase (the difference between births and deaths) and net migration, both interstate and overseas. The historical trends in the components of population change are shown in Figure 15. It shows that:

- natural increase remains positive but has been gradually declining since the ABS data series began in 1981, except for a spike in the early to mid-2000s. This decline is largely due to population ageing, which is increasing the proportion of Tasmania's population in older age groups and decreasing the proportion in the child-bearing age groups.
- Net interstate migration ebbs and flows between negative and positive, but on average is around zero in the long run.
- Net overseas migration has generally only been a minor contributor to Tasmania's population growth, but had been increasing in importance prior to the COVID-19 pandemic.

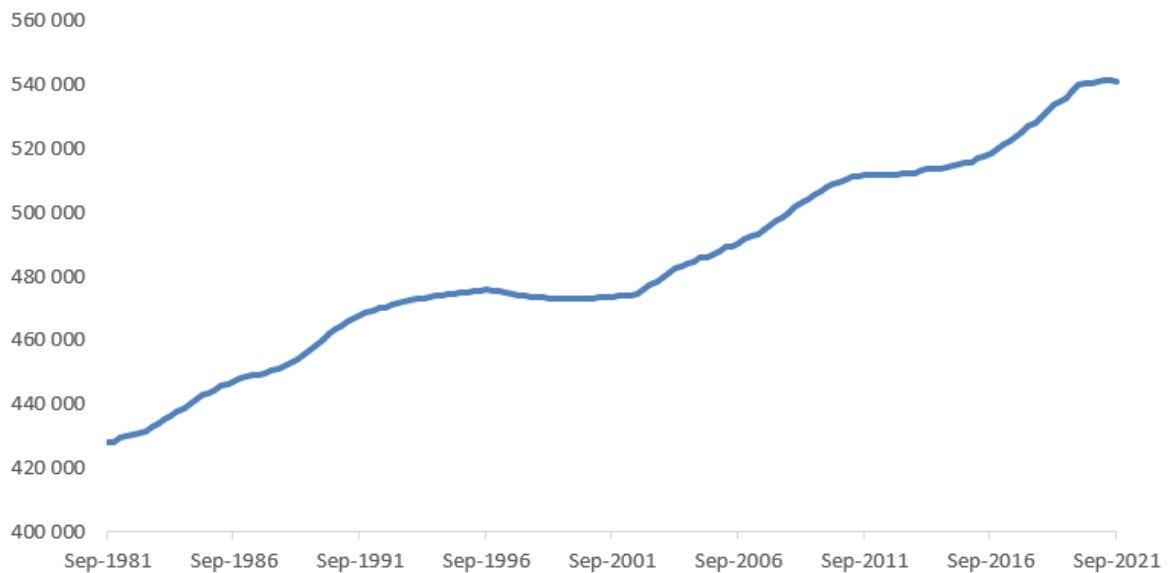
Figure 15: Components of population change, Tasmania, September 1981 to September 2021<sup>38</sup>



With natural increase at low levels and in a pattern of long-term decline, net migration is likely to be the primary driver of Tasmania's future population growth.

The importance of net interstate migration as a driver of population change is reflected in Tasmania’s historical population growth over the past 40 years (Figure 16). There is a repeating trend of periods of relatively strong population growth being followed by periods of much lower growth. The ebbs and flows of total population growth are generally consistent with the pattern of net interstate migration shown previously in Figure 15.

**Figure 16: Estimated Resident Population, Tasmania, September 1981 to September 2021<sup>39</sup>**



One of the reasons that net interstate migration to Tasmania tends to return to around zero in the long term is that the factors which influence interstate migration movements, such as employment opportunities and relative housing affordability, over time tend to return to an equilibrium point at which they are no longer an influencing factor. For example, a jurisdiction may have relatively more affordable housing than other jurisdictions for a period of time, but as more people move into that jurisdiction it is likely this will cause house prices to increase, hence reducing the jurisdiction’s relative advantage in this area.

Media commentary sometimes suggests the COVID-19 pandemic may result in more people moving from mainland capital cities to regional areas (including Tasmania), particularly as working from home arrangements introduced during COVID-19 increase the potential for people to work remotely. Despite this, at the time of writing, ABS data indicates that while there has been an increase in interstate migration movements to and from Tasmania since the onset of the COVID-19 pandemic, the rate of *net* interstate migration to Tasmania has decreased from a net gain of 387 people in the June quarter 2020 to a net loss of 513 people in the September quarter 2021, as shown in Figure 17.



**Figure 17: Interstate migration estimates, Tasmania, June 2020 to September 2021<sup>40</sup>**

<b>Quarter</b>	<b>Arrivals</b>	<b>Departures</b>	<b>Net movement</b>
June 2020	3 160	2 773	387
September 2020	2 427	2 360	67
December 2020	3 356	3 250	106
March 2021	3 333	3 250	83
June 2021	3 994	4 359	-365
September 2021	4 730	5 243	-513

As population projections are primarily intended to illustrate potential long-term population movements, assumptions underlying the projections should only be adjusted if there is evidence which indicates a permanent adjustment has taken place. Tasmania's historical pattern of population growth followed by a plateau, and recent data not indicating any increase in net interstate migration, suggest there is insufficient evidence at this time to adjust the assumption used in the population projections for net interstate migration.

In relation to overseas migration, the medium series of the Treasury projections assume a net inflow of 1 800 people per year. While COVID-19 has effectively seen a cessation of net overseas migration to Tasmania, this is likely to be a short-term situation. Again, given the long-term nature of population projections, there is insufficient evidence of what future net overseas migration flows may be to justify adjustments to the current assumption.

Given the true impact of COVID-19 on future population growth cannot yet be determined, DoH will continue to work with the existing assumptions underlying the projections used in this paper and monitor estimates of Tasmania's population as they are released to consider whether any adjustments are required in the future.

## Appendix 3: Tasmanian population projections by age group and region

### South

Year	0-14	15-44	45-69	70-84	85+	Total
2020 (actual)	49 103	103 588	89 020	31 001	6 289	279 001
2025	50 019	106 311	89 226	35 700	6 752	288 008
2030	51 260	108 224	90 359	40 222	7 938	298 002
2035	52 510	109 101	92 099	42 957	10 101	306 768
2040	53 462	110 375	94 885	44 051	11 680	314 453
<b>Change 2020-2040 (No.)</b>	<b>4 359</b>	<b>6 787</b>	<b>5 865</b>	<b>13 050</b>	<b>5 390</b>	<b>35 452</b>
<b>Growth 2020-2040 (%)</b>	<b>8.9</b>	<b>6.6</b>	<b>6.6</b>	<b>42.1</b>	<b>85.7</b>	<b>12.7</b>

### North

Year	0-14	15-44	45-69	70-84	85+	Total
2020 (actual)	25 357	51 422	49 099	18 586	3 559	148 024
2025	25 152	50 771	47 623	21 160	3 872	148 577
2030	25 048	50 156	46 162	23 450	4 648	149 463
2035	24 766	49 313	45 109	24 470	5 810	149 468
2040	24 367	48 477	44 704	24 635	6 570	148 753
<b>Change 2020-2040 (No.)</b>	<b>- 990</b>	<b>-2 945</b>	<b>-4 395</b>	<b>6 049</b>	<b>3 011</b>	<b>729</b>
<b>Growth 2020-2040 (%)</b>	<b>-3.9</b>	<b>-5.7</b>	<b>-9.0</b>	<b>32.5</b>	<b>84.6</b>	<b>0.5</b>

### North West

Year	0-14	15-44	45-69	70-84	85+	Total
2020 (actual)	19 817	37 231	38 984	14 957	2 767	113 756
2025	18 842	36 330	37 489	16 930	3 121	112 713
2030	18 277	35 137	36 000	18 747	3 646	111 807
2035	17 779	33 554	34 545	19 757	4 500	110 136
2040	17 113	32 136	33 690	19 710	5 127	107 777
<b>Change 2020-2040 (No.)</b>	<b>-2 704</b>	<b>-5 094</b>	<b>-5 294</b>	<b>4 753</b>	<b>2 360</b>	<b>-5 979</b>
<b>Growth 2020-2040 (%)</b>	<b>-13.6</b>	<b>-13.7</b>	<b>-13.6</b>	<b>31.8</b>	<b>85.3</b>	<b>-5.3</b>

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