Deloitte.

Williamtown Special Activation Precinct

Economics Report

February 2022
Final Report

Executive Summary

The $4.2 billion Snowy Hydro Legacy Fund is helping to deliver critical infrastructure, priority initiatives, and other long-term New South Wales (NSW) Government plans. It consists of five areas of immediate focus which are: improved water security, rail and road transport connections, freight linkages, digital connectivity, and **Special Activation Precincts (SAP)**.

The SAP Program was announced in 2018 to attract more industry investment into the regions and aligns with the 20-year Economic Vision for Regional NSW. On 28 May 2020, the Deputy Premier and Minister for Regional NSW announced Regional NSW's fifth SAP investigation area at Williamtown[1], with the vision of creating a Defence and aerospace hub to provide further economic development and job growth opportunities. Supporting this decision was a June 2020 announcement in which Prime Minister Scott Morrison announced a record $270 billion investment in Defence over the next 10 years (representing a $70 billion increase over previous expected spending). Approximately $65 billion (24%) of the announced funding will be attributed to air domain capabilities[2]. This is in addition to the $200 billion (out to 2026) of investment in Defence announced in the 2016 Defence Integrated Investment Program[3].

Williamtown is Australia's premier fast jet fighter base and has experienced infrastructure investments of over a billion dollars in the last decade.[4] Williamtown is well positioned to capture a significant portion of key air domain related investment, as identified in the 2020 Defence Force Structure Plan. An estimated $40.4 – $60.3 billion may be directed at Williamtown through investment in the following cornerstone and growing Defence programs located within, or related to, the Williamtown SAP[5]:

- F-35 Joint Strike Fighter (JSF) ongoing acquisition and sustainment – $9.9 to $17 billion
- F-35 Replacement Evaluation – $300 to $400 million
- Additional Air Combat Capability – $4.5 to $7.6 billion
- Growler Replacement – $7.6 to $11.4 billion
- E-7A Wedgetail Upgrades and Replacement – $14 to $21.1 billion
- Joint Air Battle Management System – $1.8 to $2.8 billion.

These programs are catalysts for the development of the Williamtown SAP into a Defence and aerospace hub and have been explored further as part of a market sounding process. They form the core industry basis for the economic scenario development as part of this report.

This report seeks to build on and revalidate previous investigations, which focused primarily on Defence, aerospace and freight, and logistics industries. This report provides the economic analysis to support the Structure Plan.

The study area and SAP

The Williamtown SAP investigation area covered an area of 11,408 hectares within the Port Stephens Local Government Area (LGA), sitting in a common thoroughfare between Newcastle, the northern Hunter Region and north-east towards the holiday destination of Port Stephens. The SAP boundary focused on in this study includes (refer to Figure 1-1) land with primary use for business/commercial and agricultural, purposes and zoned for a mix of commercial, rural, defence, infrastructure, transport facilities and public utility related uses covers rural, agricultural, residential, commercial, and light-industrial lands. The SAP area is home to the RAAF Base Williamtown, Newcastle Airport, and the Defence and Aerospace Related Employment Zone (DAREZ). The area contains flood prone land and Per- and Polyfluoroalkyl Substances (PFAS) contamination from previous activities at the military base, which were considered as part of the master planning process for the Williamtown SAP.

[1] Department of Regional NSW, July 2020
[2] $270bn boost to Defence capability $270 billion boost to Defence capability | Defence News (July 2020)
[3] Australian Department of Defence, Defence Integrated Investment Program (2016)
[4] RAAF Base Williamtown, https://www.airforce.gov.au/about-us/bases/new-south-wales/raaf-base-williamtown
[5] Australian Department of Defence, Defence Force Structure Plan (2020) Chart 4

Figure 1-1 Williamtown SAP Area

Source: Hatch Roberts Day, Deloitte (2021)

Service need

There is a strong pipeline for significant investment in key Defence programs located at RAAF Base Williamtown, which will incentivise private sector demand in the region. Within the Williamtown SAP, two types of drivers for demand have been identified. These are: (1) demand driven by existing Defence programs that may grow substantially over time in response to the significant government announced $270 billion investment in Defence over the next ten years, in addition to the previous $200 billion outlined in 2016[6], and (2) demand driven by existing infrastructure.

These cornerstone and growing Defence programs outlined above represent significant drivers for investment in the Williamtown SAP by the Defence Primes[7] , and as a second order effect, the supply chains to those Primes (Australian Defence industry Small Medium Enterprises (SMEs)). Reliable and increased funding into these programs is a key driver of growth, both in terms of the military base presence and the Defence industry located at Williamtown.

In addition to the demand being driven by the government's investment in Defence, existing infrastructure in the region is also anticipated to provide growth. Key infrastructure includes the following:

- **The Newcastle Airport** is a gateway to The Hunter Region, with a national economic contribution of nearly $1.2 billion per annum. This includes an employment contribution of more than 5,600 jobs[8]. Over 1.2 million passengers pass through the airport each year, and this is forecast to increase to over 2.6 million passengers by 2036[9]. A recent assessment of the potential international air freight demand suggests that there is potential for a total of 20,519 tonnes of freight to be exported through the Newcastle Airport, increasing to 48,700 tonnes by 2040[10]
- The Federal Government has recently announced funding of $66 million to **upgrade the Newcastle Airport runway** to international standards, which is expected to generate thousands of local jobs and create new travel and export destinations for the region. The runway will be widened to accommodate longer range domestic and international passenger services, as well as significantly increased large freight capabilities to benefit local exporters. This will maximise the benefits of works already completed on the terminal to upgrade international arrivals and departures processing. Newcastle Airport estimates these improvements could create around 4,400 full-time jobs, deliver an additional 850,000 visitors to the region, and add $12.7 billion to the local economy over the next 20 years

[6] Australian Department of Defence, Defence Integrated Investment Program (2016)
[7] 'Primes' - Defence prime contractors capable of the delivery of major defence programs
[8] MacroPlanDimasi, Williamtown Aerospace Precinct – Employment Area Analysis, June 2019
[9] Newcastle Airport Pty Ltd, Newcastle Airport Vision 2036
[10] Morrison Low (2019), Newcastle Airport International Air Freight Demand Forecasts and Economic Impact Assessment

- **The existing Defence and Aerospace Related Employment Zone (DAREZ)** adjacent to RAAF Base Williamtown contains the Astra Aerolab Business and Technology Park (Astra Aerolab) and the Williamtown Aerospace Centre (WAC), including 1 Technology Place. The DAREZ includes both zoned employment land and rural land. Not all land in the area has been zoned for employment use[11]. IT should be noted that Astra Aerolab has an approved multi-stage DA with works already underway on the first stage.
- **The RAAF Base Williamtown**[12] is an Air Force base which has been part of The Hunter since the late 1930s when the Defence Practice Area was first designated at Williamtown. The base is also the workplace of several contractors supporting the major programs and industry housed in and around Williamtown, with an approximate total of 4,700 workers on base[13]. An estate base plan is currently in draft for RAAF Base Williamtown which will outline the capital requirements and growth 'inside the fence' out to 2040
- **The Port of Newcastle** is another key piece of infrastructure within The Hunter. Its main function is the export of coal and agriculture products, facilitated by a rail line transport infrastructure which interconnects the region. For the Hunter Region, coal mining has and continues to be the main industrial output, with over 164.9 million tonnes of coal with an export value of more than $20B exported from the Port of Newcastle in 2019.

Market sounding

Outcomes from the market sounding, undertaken as a part of this report, revealed that there is interest in investing and developing within the Williamtown SAP, which is partly driven by the existing infrastructure, significant government investment announced for the Defence industry, and also specific programs like the F-35 Joint Strike Fighter program in Williamtown. The greatest opportunity and competitive advantage for the Williamtown SAP is to establish it as a national and international Defence hub, supported by the RAAF Base at Williamtown, the existing presence of Defence contractors and investment opportunities provided by on-going and future Defence programmes (such as the JSF Program).

Whilst there was general interest from stakeholders, there was uncertainty in governments timing of investment in capabilities and programs, and how the existing flood prone and contaminated land within the area would be addressed. Other themes include the following:

- Need for Williamtown SAP to establish enabling infrastructure (such as roads and public transport access, communal office spaces) and amenities (shared use, retail and leisure) to support and attract workers and investment in the region
- Need to focus on the development of skills needed within the community through targeted training programs, and also, to address the perception that there is a shortage of skilled workers where there is no shortage, as identified in previous market sounding work
- Need for a precinct-wide approach to land use planning to address current concerns (flood managements, PFAS contamination, and storm water and sewages infrastructure constraints) and support the establishment, expansion and development of businesses within the Williamtown SAP
- Need for a coordinated and competitive government approach to attract investment for the Williamtown SAP
- Opportunity for growth of the existing Defence industry leveraging unprecedented level of Defence industry grants/programs
- Opportunity for expansion of adjacent sectors (such as the Aerospace industry)
- Opportunity for growth through incorporation of non-adjacent sector (agribusiness) and support sustainable precinct development.

Identified 'needs' were explored further as part of the market failure analysis for Williamtown SAP, which were then used to inform scenario development and understand the implications of current and projected land use requirements.

There were a number of competitive advantages that stakeholders identified through the market sounding process, these include:

1. The availability and low cost of land (compared with Newcastle and Western Sydney)
2. The Port of Newcastle close by to the Williamtown SAP has land available and cheap relative to other Ports, and it is the only Port connected to in land rail
3. Interconnectedness with other major cities via the Airport – it is an accessible small city/rural area
4. Cheaper workforce than Sydney – lower living costs generally translate to lower wage expectations

[11] At the time of writing this report, we understand that the Precinct 52 proposal (which has been referred to as the WAC Stage 2) by its owners has been refused by Government planning authorities. It is not expected that this proposal will progress and for this reason has not been included in future land supply analysis.
[12] https://www.airforce.gov.au/about-us/bases/new-south-wales/raaf-base-williamtown
[13] Defence Stakeholder Interview

5. Several offerings within close proximity: wineries in land, beaches, lakes, substantial cities close by (Newcastle, and Sydney beyond that)
6. The nature of the Williamtown SAP will speed up approval processes relative to other areas; and as supported by previous work (Williamtown SAP Market Sounding and Demand Report (PwC, 2020)) [14] .

Market failure

The Treasury CBA Guidelines for Special Activation Precincts identify two market failures where Government intervention may be warranted: network externalities and coordination failure. Both failures are impacting the organic development of the Williamtown SAP investigation area.

The Williamtown SAP investigation area faces several transport, utility, and amenity barriers impeding the precinct reaching its full potential. In particular, the area is prone to regular flood events, requiring major water infrastructure and management investments to be made to make the site safe, accessible, and productive. Legacy Defence activity has resulted in PFAS contamination impacting large parts of the area, limiting broader land use until remediated. The site also requires significant utility services and/or infrastructure capacity to be added for potable water, wastewater, and power and local road augmentation to make the area ready for complex and high value advanced manufacturing and Defence and aerospace activity, as has been proposed for the site. While all these matters have till date been mitigated on a case-by-case basis, the cost and effort of doing so introduces a barrier to entry for many business activities. The SAP seeks to mitigate these risks through a series of management and infrastructure solutions.

With intended land use and current land ownership fragmented across multiple private and public owners, the incentive for any one party to undertake these enabling works is low. The relative upfront cost for these investments compared to the lagged and network nature of the benefits creates a disincentive for investment. This leads to a situation whereby no initial party develops infrastructure or moves into the SAP because of the uneven distribution of costs and benefits (i.e., a network market failure). The ability for other users to wait and let others carry the financial burden drives free rider behaviour, further discouraging any early mover activity. In this environment, organisations are unlikely to collaborate or co-invest to deliver this infrastructure without greater planning certainty. The effort of coordinating numerous parties to deliver large scale infrastructure can take significant effort and expertise which no one party is willing to provide. This lack of coordination can therefore lead to duplicated geological, planning, and technical infrastructure studies being prepared by organisations as well as the risk of duplicate and/or future infrastructure augmentation or remediation works to enable serving of activity beyond the proponent's core use. This is inefficient and risks division, contest and capital waste. As a result, there is a real risk that no party seeks to act unless the other elects to act first, creating a self-fulfilling cycle of inaction (i.e., a coordination market failure).

The SAP provides an opportunity to address these constraints and to help incentivise the acceleration of economic activity in the investigation area through two clear roles:

1. The provision of funding for early and enabling works to provide a utility infrastructure and services foundation that will help attract new tenants and investors to the precinct and grow the network user base and utilisation to support future expansion of the network
2. Align private and public landowners through coordinated planning discussions to a structure plan and governance arrangements that drive greater certainty, transparency, and coordination across the investigation area, resulting in a lower marginal cost for delivering the infrastructure across all users.

Structure Plan

The 'opportunities' identified from earlier market sounding activities were investigated further as part of this study to quantify the land use implications that they present for the Williamtown SAP. The key opportunities were developed into economic scenarios, each building on its predecessor, and included:

- Supporting 'organic' growth in current industries and hubs (developed into Scenario 1)
- Growth of adjacent/complementary industries (developed into Scenario 2)
- Growth of non-adjacent/ancillary industries (developed into Scenario 3 and 4).

Key land use themes identified during the market sounding process indicate that most stakeholders are open to a diverse range of sectors locating within the Williamtown SAP. Overall key land use themes include improvements in road and public transport access, as well as increased amenity to support workforce attraction and retention. Environmental constraints are also highlighted as a limitation to development by stakeholders. The "incremental benefit" approach has been taken to scenario development to ensure a cohesive vision and development pathway which has, at its core, Defence capability. All proposed scenarios were assessed incrementally relative to Base Case 1, which assumes no additional

[14] Williamtown SAP Service Need Report (PwC, 2020)

interventions or investment within the Williamtown SAP, with organic growth occurring by sector and region with a current land use footprint of 9.8 hectares.

The development "envelope" at 2056 shows a potential ultimate growth range of 3,700 jobs based on a mix of core capability expansion and catalytic growth. This is expected to occur across an ultimate precinct area of 106 hectares. It is expected that the SAP will see skilled job growth in Defence and aerospace sectors in particular grow, along with ancillary support services. The SAP also creates opportunities for agribusiness, eco-tourism, logistics and education to expand.

Each subsequent scenario considers added adjacent / ancillary industries and are categorised as local service, industry, health and education, and amenity. All four proposed scenarios are made up of different levels of employment growth and land area required (includes all future planned Astra Aerolab land), and these are summarised at a high level in the tables below with a more granular level provided for the **recommended Scenario 4 (i.e., the ultimate state and the basis for the Structure Plan)**. This scenario encapsulates and responds to the market sounding findings in creating a Defence and aerospace hub that has a sense of place and provides a good working lifestyle. The industries considered in this scenario are centred around the Defence and aerospace hub, with supporting adjacent ancillary industries including amenity, health and education, and tourism.

To achieve this, the Williamtown SAP should focus on fostering short to medium term opportunities while also laying the foundations for a longer-term plan. The initial focus should be on forming a strategy to address the market failures, including providing enabling infrastructure, targeting industries, and level of growth initially, before expanding out to the proposed ultimate state.

Table 1-1 Summary of total projected employment growth and land area requirements for all four scenarios

	Employment (total jobs)				Land (Ha)			
	2019	**Horizon 1 2026**	**Horizon 2 2036**	**Horizon 3 ultimate**	**2019**	**Horizon 1 2026**	**Horizon 2 2036**	**Horizon 3 ultimate**
Scenario 1	5,764	8,140	10,049	11,966	9.8	53	71	83
Scenario 2	5,764	8,140	10,049	12,386	9.8	60	83	100
Scenario 3	5,764	8,191	10,277	12,693	9.8	62	86	102
Scenario 4	5,764	8,191	10,381	12,958	9.8	66	89	106

Source: Deloitte Analysis (2021)

Table 1-2 Detailed summary of employment growth and land area requirements for the Structure Plan

		Employment (total jobs)				Land (Ha)			
Industry	**Description**	**2019**	**Horizon 1 2026**	**Horizon 2 2036**	**Horizon 3 ultimate**	**2019**	**Horizon 1 2026**	**Horizon 2 2036**	**Horizon 3 ultimate**
Defence	Defence related	2,911	3,681	4,400	5,527	0.0	9	10	11
Defence contractors	Warehousing, workshop, manufacturing, aerospace, specialist uses	409	904	1,543	2,035	7.2	28	35	38
Local service	Storage, workshop, manufacturing	790	1,586	1,925	2,342	0.0	8	13	16
Industry	Storage, workshop, manufacturing, specialist uses e.g., secure buildings	1,257	1,530	1,957	2,340	1.9	12	20	25
Health & education	Office space, education training facilities	148	172	201	282	0.3	2	3	6
Amenity	Food, beverage, hotel and other accommodation, recreation, sporting facility, conference facilities.	248	317	355	432	0.5	7	8	10
Total		5,764	8,191	10,381	12,958	9.8	66	89	106

Source: Deloitte Analysis (2021)

The analysis and modelling undertaken included assumptions for the benefits of co-location for adjacent and non-adjacent industries, the potential for workforce attraction and retention through improved amenity, and the extent of potential induced growth in ancillary industries which would benefit from locating at Williamtown SAP.

The master planning process concluded with the Structure Plan focussed on drainage system solutions and addressing a range of environmental constraints. The Structure Plan ensures that the visions and principles of the Williamtown SAP are realised without impeding the existing approved development associated with the Newcastle Airport Master Plan. The Structure Plan provides a flexible framework to accommodate a range of proposed land uses and allows development to proceed with a staged approach focussed on meeting short term market demand for aerospace and Defence related industries, with airside access within the Northern Precinct.

Key physical and operational elements of the area reflected in the Structure Plan include:

- The constructed portions of Stage 1 of Newcastle Airport Master Plan and resultant development parcels, street network, and drainage solution has been adopted
- The active nodes that are under construction have been reflected in the Structure Plan
- The Structure Plan will expand on the existing active nodes envisaged under the approved Newcastle Airport Master Plan within western and eastern portions of the Northern Precinct
- The Structure Plan has adopted the location of the northern commercial centre as outlined in the Newcastle Airport Master Plan
- The secure airside parcel has been expanded further to the south to respond to forecasted high market demand for airside lots and demand for flexible lot size arrangements
- Two freight and logistics hubs have been identified. An express hub is located at the north-east of the Northern Precinct and will receive and distribute smaller goods. A larger (5ha's) secure freight and logistics site is located within the secure airside parcel
- Also consistent with the Newcastle Airport vision, the block south of the airside parcel has a smaller depth to accommodate finer grain lots, catering to the identified market demand for smaller sized land parcels
- Opportunities for tourism and research and development uses have been identified within the north east corner of the Northern Precinct, close to Newcastle Airport and easily accessible from Nelson Bay Road. The resultant Structure Plan comprises over 137 ha of developable land.

Ultimately the Structure Plan is adopting a flexible zoning approach across the SAP, with evolving market-forces being allowed to shape where employment uses will be located over time.

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Glossary

Term	Definition
Astra Aerolab	*The Astra Aerolab Business and Technology Park*
DAREZ	*Defence and Aerospace Related Employment Zone*
DPC	*The NSW Department of Premier and Cabinet*
DPIE	*Department of Planning, Industry and Environment*
FIC	*Fundamental Inputs to Capability*
INSW	*Infrastructure New South Wales*
JSF	*Joint Strike Fighter*
LGA	*Local Government Aera*
MILVEHCOE	*Military Vehicle Centre of Excellence*
PFAS	*Per- and Polyfluoroalkyl Substances*
PwC	*Price Waterhouse Coopers*
RAAF	*Royal Australian Air Force*
SAP	*Special Activation Precinct*
SBC	*Strategic Business Case*
SICP	*Sovereign Industrial Capability Priority*
SMEs	*Small Medium Enterprises*
WAC	*Williamtown Aerospace Centre*

1. Introduction

1.1. Project background

The Special Activation Precinct (SAP) Program was announced in 2018 as a priority for the $4.2 billion Snowy Hydro Legacy Fund and aligns with the 20-year Economic Vision for Regional NSW. SAPs are areas in specific regional locations declared by the NSW Government with the ambition of enabling them to become thriving business hubs[15]. The goal of a Precinct is to create employment, attract investment, revive regional areas, and drive economic growth. It aims to do this through several mechanisms, including improved coordination of land use and infrastructure planning, land acquisition and investment in common-user infrastructure.

At a high level, SAPs are driven by several focus industries they aim to develop:

- Defence
- Advanced manufacturing and agribusiness
- Freight and logistics
- Tourism and hospitality
- Renewable energy and recycling.

According to the Department of Planning, Industry & Environment (DPIE)[16], SAP activities undertaken to incentivise business investment, create jobs and upscale economies include:

- Government led studies
- Streamlined planning
- Government-led development
- Infrastructure investment
- Business concierge services (to support inbound investment).

A Program Strategic Business Case (SBC) was prepared in 2019 for the SAP Program, which identified and prioritised potential SAP locations for further investigation. Locations for SAP investigation were identified based on the presence of economic enablement from identified engine industries or regional specialisation, catalytic triggers, and the availability of strategic NSW Government intervention options.

On 28 May 2020, the Deputy Premier and Minister for Regional NSW, announced Regional NSW's fifth Special Activation Precinct investigation area at Williamtown[17].

1.2. This report

This report builds on and revalidated previous investigations and provides economic analysis to support the Structure Plan recommended for the SAP's future development. The report considers the current and prevailing economic make up and catalytic forces expected through development of the SAP and presents land use demand and timing to frame the Structure Plans delivery and an estimate of the jobs impact delivered through realisation of the plan.

[15] Special Activation Precincts, https://www.nsw.gov.au/snowy-hydro-legacy-fund/special-activation-precincts, accessed December 2020
[16] Wagga Wagga Special Activation Precinct, https://committee4wagga.com.au/news/2019/12/16/wagga-wagga-special-activation-precinct, accessed December 2020
[17] Department of Regional NSW, July 2020

2. Strategic and Policy Context

2.1. Federal

Government commitment to investment in Australia's sovereign industrial capabilities bodes particularly well for Defence and aerospace industry growth:

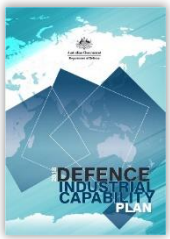
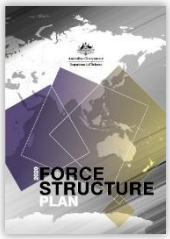
- As part of the 2018 Defence Industrial Capability Plan, The Department of Defence introduced a Sovereign Industrial Capability Assessment Framework and initial list of ten Sovereign Industrial Capability Priorities (SICPs)
- In June 2020, the Prime Minister Scott Morrison announced a record $270 billion investment in Defence over the next 10 years, representing a $70 billion increase over previous expected spending[18]
- In November 2020 the Hon Melissa Price MP, Minister for Defence Industry announced broader investment initiatives across the Defence portfolio to support economic recovery by investing an additional $24 million in Defence industry grants programs to build a robust, resilient and internationally competitive Defence industry'[19].

A summary of the Federal policies which provide overarching national strategies for Defence, Defence industry, freight and supply chains are outlined along with their relationship to the Williamtown SAP in Table 2-1.

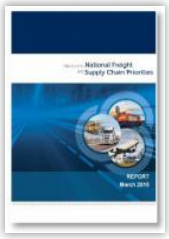
Table 2-1 Summary of key federal policies and plans

Cover	Summary
	**Defence White Paper, 2016** The 2016 Defence White Paper is a review and assessment of the government's investment in Australia's Defence capabilities to strengthen Australia's security including an overview of international security partnerships and collaboration with Defence industry, science, and technology research partners in support of the nation's security. The Williamtown SAP and the key strategies outlined in the Defence White Paper are aligned. The White Paper calls upon Australian Defence Industry to play a stronger role in the delivery of programs and capabilities, which is aligned to the Williamtown SAP which is looking to catalyse Defence industry growth. *"The priority focus is on ensuring Defence gets the equipment, systems and personnel it needs on time and on budget. The Defence White Paper reviews the major capability-related investments, including weapons systems and platforms, facilities such as military bases, information and communication technology, and workforce."*[20]
	**Department of Defence, Integrated Investment Program 2016** In developing the 2016 Defence White Paper, Defence adopted an integrated approach to bring together for the first time the key elements of investment needed to deliver and sustain Australia's Defence capabilities. The Integrated Investment Program guides the implementation of the bulk of investment over the decade to FY 2025–26 to build the future force and Defence capability goals of the Defence White Paper. The Integrated Investment Program provides forecast Defence investment in areas such as equipment, infrastructure, information and communications technology, science and technology, and workforce, all of which can be attributable to capabilities based at RAAF Williamtown. This speaks to the pipeline of investment and growth for the base through to mid-2020's.

[18] $270bn boost to Defence capability $270 billion boost to Defence capability | Defence News (July 2020)
[19] https://www.minister.defence.gov.au/minister/melissa-price/media-releases/increased-support-business-access-defence-industry-grants accessed December 2020
[20] Williamtown SAP Service Need Report (PwC, 2020)

Cover	Summary
	**Department of Defence, Defence Industry Policy Statement 2016** The 2016 Defence Industry Policy Statement has been developed following an extensive consultation process during the development of the Defence White Paper. The consultation process identified the need to develop Defence industry policy to reset and refocus the Defence and industry partnership for improved delivery of Defence capability, to ensure we are maximising opportunities for competitive Australian businesses and streamline the delivery of Defence industry programs. This paper has important strategic context for Williamtown SAP, as it encourages greater industry involvement (both Primes and SMEs) in the delivery of programs and capabilities.
	**Department of Defence, Defence Industrial Capability Plan 2018** The need for a Defence Industrial Capability Plan was recognised in the government's 2016 Defence White Paper and 2016 Defence Industry Policy Statement. These documents made clear that a strong, sustainable, and secure Australian Defence industry is fundamental to achieving Defence's mission today, and to support a future force that is positioned, resourced, and structured to defend our nation and advance our regional and global Strategic Defence Interests. The government is focused on ensuring that Australia's industry is positioned to meet Defence's future requirements and to maximise economic growth and high-tech jobs in the sector. In this Plan, a list of ten initial Sovereign Industrial Capability Priorities (SICP) was announced. A Defence policy map and ten initial SICPs are identified in Figure 2-1. Further analysis identified that five of the SICPs are particularly relevant for Williamtown and are discussed in Section 4.3.1.
	**Department of Defence, Defence Force Structure Plan 2020** This 2020 Force Structure Plan details the government's intentions for new and adjusted Australian Defence Force (ADF) capability investments to implement the new strategic objectives in the 2020 Defence Strategic Update. It links Defence's capability plans with Defence's reform program, the More Together: Defence Science and Technology Strategy 2030 for innovation, and resourcing plans. This Plan also builds on existing Defence industry initiatives, such as the 2016 Defence Industry Policy Statement and the Defence Export Strategy, to maximise Australian industry involvement in Defence projects. This paper outlines a timeline of spending on key programs for each of the Defence domains. This speaks to the pipeline of investment which may be captured at Williamtown, and consequently, the second order effects on Australian Defence Industry and their appetite to have operations in Williamtown.
	**Defence Strategic Update, 2020** The 2020 Defence Strategic Update identifies that Australia's security environment has deteriorated. Major power competition, military modernisation, disruptive technological change, and new threats are all making our region less safe. As the strategic environment changes around us, we must change with it. The Strategic Update sets out the challenges in Australia's strategic environment and their implications for Defence planning. It provides a new strategic policy framework to ensure Australia is able – and is understood as willing – to deploy military power to shape our environment, deter actions against our interests, and, when required, respond with military force. While the drivers of change identified in the 2016 Defence White Paper persist, they have accelerated faster than anticipated. This paper serves as an update to the 2016 Defence White Paper and sets strategic direction for Australian Defence Industry. This will influence all of Defence (including Williamtown) in its structure, strategy and objectives moving forward.

Cover	Summary
	**Defence Transformation Strategy, 2020** The 2020 Defence Transformation Strategy seeks to deliver enterprise-wide transformative outcomes providing maximum value to the people of Australia. Specifically, Defence seeks to: • Learn about our environment, our risks, our opportunities, and our own performance • Evolve how we operate our enterprise, support, and develop our people, and deepen our partnerships • Align our priorities, our processes, our systems, and how we engage and communicate inside and outside Defence • Deliver the Defence Mission and strategic effects, through our capabilities, our services, and by clearly demonstrating Defence's value to the nation. Priority reform areas of focus include: • Driving Improved Capability Delivery • Strengthening Defence's approach to Australian Industry capability, including innovation, export and harnessing opportunities from Australian science and technology • Adopting a strategic approach to Defence enterprise resilience and supply chain assurance • Improving Defence's Strategic Workforce Planning, Learning and Management • Instituting an improved enterprise performance measurement and reporting framework • Improving Defence engagement and communications.

	**Inquiry into National Freight and Supply Chain Priorities, 2018**
	
	This Inquiry is a part of the formation of a National Freight and Supply Chain Strategy. The recommendations regarding the Newcastle Port and Airport include:
	
	• Develop a better understanding of regional air freight requirements
	• Promote training and re-skilling of employees in the fright industry
	• Support the development and implementation of a 'single window' for international trade
	• The Williamtown SAP and the key strategies outlined in the Inquiry into National Freight and Supply Chain Priorities are aligned. In particular, the Williamtown SAP will:
	  ○ Upgrade regional road network connectivity
	  ○ Support improvements on major freight rail route
	  ○ Simplify regulatory approvals processes to make NSW a better place to do business.[21]

Source: Australian Government Department of Defence and Department of Infrastructure, Transport, Regional Development and Communications

[21] Williamtown SAP Service Need Report (PwC, 2020)

Figure 2-1 Defence policy map and Defence Sovereign Industrial Capability Priorities

Sovereign Industrial Capability Priorities

Aerospace platform deep maintenance	Test, evaluation, certification and systems assurance
Enhanced active and passive phased array radar capability	Munitions and small arms research, design, development and manufacture
Combat clothing survivability and signature reduction technologies	Collins Class submarine maintenance and technology upgrade
Advanced signal processing capability	Continuous shipbuilding program (including rolling submarine acquisition)
Surveillance and intelligence	Land combat vehicle and technology upgrade

Source: Australian Government Department of Defence and Deloitte Analysis (2021)

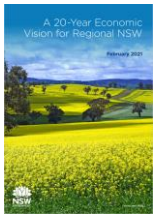
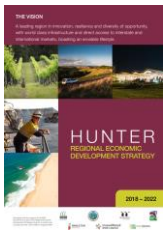
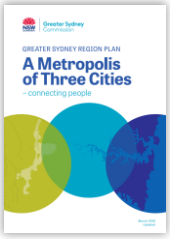
2.2. State and Regional

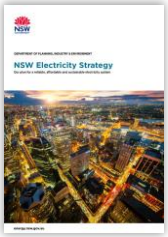
Several relevant documents providing context and strategic alignment of the Williamtown SAP can be identified within in previous works conducted by MacroPlanDimasi and PwC. Additional documents providing guidance for regional development as well as strategic policies relevant for the region are summarised in Table 2-2.

Table 2-2 Summary of state and regional policies and plans

Cover	Summary
	**Department of Planning and Environment, Hunter Regional Plan 2036, October 2016** Prepared to guide the states' land use planning priorities and decisions in the region over the next 20 years. Explicitly discusses the Newcastle Airport as a strategic asset to be used with the emerging cluster of aerospace knowledge industries at Williamtown (Actions 7.1-7.5) "The opportunities for future development and growth of the Hunter Region identified in the Hunter Regional Plan 2036 are aligned with the Williamtown SAP, namely: • Develop advanced manufacturing, Defence, and aerospace hubs • Enhance inter-regional linkages to support economic growth • Protect economic functions of employment land."[22]
	**Williamtown DAREZ Land Use Strategy - Port Stephens Council 2006** This Land Use and Development Strategy is the culmination of three (3) stages of study completed by GHD on behalf of The Department of Planning: Site Selection, Land Capability and Suitability Assessment and Structure Plan and Development Control Framework. Based on the findings and recommendations of the above stages, and in consultation with the Project Control Group a detailed structure plan and development control framework for the DAREZ at Williamtown resulted. This report has great relevance given the DAREZ plays an important role and will be leveraged by the Williamtown SAP.
	**NSW Government, NSW 2040 Economic Blueprint 2019** This 2040 Blueprint sets the direction for NSW' continued economic success in a changing world. It identifies NSWs' current economic position, the vision for 2040, megatrends and industries of the future, and finishes by making recommendations towards realising the vision. "The Williamtown SAP Program and Williamtown SAP are aligned to the NSW Economic Blueprint through: • Supporting the establishment of place-based strategic precincts that build on regional competitive advantages and help revitalise regions • Targeting emerging growth industries in regional NSW such as Defence and aerospace industries • Providing employment and educational opportunities that enable people to remain in their communities, and support movement of people to the regions • Growing Williamtown as a major national and international Defence industry hub • Providing improved transport links • Providing improved regional digital connectivity • Diversifying businesses in regional NSW."[23]

[22] Williamtown SAP Service Need Report (PwC, 2020)
[23] Williamtown SAP Service Need Report (PwC, 2020)

Cover	Summary
	**A 20-Year Economic Vision for Regional NSW 2021** The 20-Year Economic Vision for Regional NSW is the NSW Government's plan to drive sustainable, long-term economic growth in regional NSW. It is the roadmap to unlock significant economic potential in regional NSW. It guides transformative, once-in-a-generation investment in our regions through the $4.2 billion Snowy Hydro Legacy Fund, to create jobs now and into the future. In practice, addressing market failures that reduce competition and regional growth can include government taking a significant role in coordinating the activation of local economies, reducing regulatory barriers and making strategic public investments. Special Activation Precincts (like the one proposed for Williamtown) represent one of the primary place-based mechanisms used by the State Government to catalyse this economic activity.
	**Hunter regional economic development strategy 2018-2022** Regional Economic Development Strategies articulate a framework for identifying actions crucial to achieving the regional vision. Projects listed within this strategy should therefore be viewed as example projects that have emerged from the initial application of the framework. Adoption of these projects would be subject to further evaluative processes. Three core strategies have been identified to capture the opportunities, manage risks and deliver on the vision for the region, which provides a valuable framing for the Williamtown SAP planning. These are: • Improve inter and intra-connectivity of the Region to boost business opportunities in the 'engine' industries of Agriculture, Mining and Manufacturing • Manage transitions and risks to the Coal Mining and Electricity Generation sectors and diversify the Region's economy to build resilience • Improve infrastructure, services and amenities to fully realise and sustain the Region's growth potential
	**New South Wales Government: Strong, smart, and connected – The NSW Defence and Industry Strategy 2017** Strong, smart, and connected represents the NSW government's vision for Defence and Defence-related industries in the state. As Australia's largest and most diverse economy, NSW is recognised as a leader in advanced manufacturing, systems integration, cybersecurity, aerospace, information and communication technology, business services and many other areas directly relevant to the needs of Defence. This document contains information such as key statistics, Defence industry activities, Defence education and training support provisioned by the University of Newcastle, Defence focussed initiatives which are consistent with the NSW governments Hunter Regional Plan 2036 and Implementation Plan 2016-2018 released in October 2016, measures of success and local profile for BAE Systems Australia which identifies Williamtown as the centre of BAE System's fast jet maintenance activities.
	**New South Wales Government: Greater Sydney Regional Plan, *A Metropolis of Three Cities* 2018** This report sets the long-term vision of transforming Sydney into three main hubs, to accommodate the projected population growth over the next 40 years. The *Three Cities* are: (1) the Western Parkland City, (2) the Central River City, and (3) the Eastern Harbour City. The report brings an innovative direction to land use planning, transport, and infrastructure, which is designed to improve the liveability of Greater Sydney. Relevant context for Williamtown can be drawn through the link with Western Sydney Airport. The report details how the airport will be the economic catalyst for the Western Parkland City over the next 40 years. A comparison of Williamtown Airport with the Sydney airports has been undertaken in Section 3.3.

Cover	Summary
	**New South Wales Government: Global NSW: Connected, Smart, Vibrant 2019** Global NSW is a government-wide plan to grow and build on NSW's prosperity. The plan focuses on: • Growing and diversifying trade • Stimulating new business investment • Fostering innovation • Boosting industry competitiveness in cities and across regions. The SAP Program and Williamtown SAP are aligned to the pillars identified in Global NSW. Specifically: • Promoting trade, investment, and the advancement of a global innovation economy • Building on existing strengths to grow world leading industries and creating conditions for innovation to flourish • Creating vibrant precincts where people and businesses thrive."[24]
	**New South Wales Electricity Strategy, 2019** The Strategy is the NSW government's plan for a reliable, affordable, and sustainable electricity future that supports a growing economy. It will involve delivering Australia's first coordinated Renewable Energy Zone (REZ). The Strategy encourages and estimated $8 billion of new private investment in NSW's electricity system over the next decade including $5.6 billion in regional NSW (which may be of benefit to Williamtown SAP). It will also support an estimated 1,200 jobs mostly in regional NSW. The strategy is relevant for Williamtown SAP as the NSW government is in the early stages of feasibility for REZs in the Hunter-Central Coast and Illawarra regions of NSW.

Source: Deloitte Analysis (2021), informed by MacroPlanDimasi (2019) and PwC (2020)

[24] Williamtown SAP Service Need Report (PwC, 2020)

3. Regional Context

3.1. The Hunter Region

The Hunter Region (The Hunter) is located in the State's fastest growing corridor – from the northern edge of Sydney to Newcastle – and spans across several local government areas including:

- Maitland City Council
- City of Newcastle
- Lake Macquarie City Council
- Cessnock City Council
- Port Stephens Council
- Singleton Council
- Muswellbrook Council
- Upper Hunter Shire
- Dungog Shire.

The region is characterised by The Hunter Valley, which is one of the largest river valleys on the NSW coastline, strong transport connectivity routes, and ability to reach wider domestic and international markets via its regional airport.

Across the region, the NSW Department of Planning, Industry and Environment (DPIE) estimated the population along this corridor to be 1.1 million by 2036. The dominant industries of the region vary by locale but are broadly characterised by the Upper Hunter focussing on resources (particularly coal mining) and agriculture, while the lower region has a stronger focus on Defence, services, and manufacturing – largely driven by Newcastle and Williamtown.

The Hunter is a destination known for its climate, lifestyle, and natural resources (coastline, beaches, and national parks). Given the Region's natural endowments and viticulture production, tourism has become a significant industry to the regional economy, attracting roughly 12.5 million visitors (pre-COVID) annually which contributes to over $3 billion in visitor spend. Food and wineries are also a longstanding draw, leveraging the local agriculture industry. The Hunter is a strong producer of grains such as wheat and barley but also is a major area for beef and dairy production. Moreover, The Hunter Regional Plan 2036 identified the opportunity for further export of these goods, particularly into South East Asia. It is also a place where people look to settle given the affordable land opportunities and proximity to Sydney.

The Hunter Valley is known as one of Australia's equine capitals and is one of only three International Centres of Thoroughbred Breeding Excellence in the world and is Australia's largest producer, supplier, and exporter of premium thoroughbreds. This is estimated to contribute $2.6 billion to the state economy.

The main hub for entry into The Hunter by air is Newcastle Airport, which operates on a joint use basis. Airport infrastructure is shared between Newcastle Airport, which has operated both domestic and international routes, and Defence with Royal Australian Air Force (RAAF) Base Williamtown. Newcastle Airport accommodates around 1.3 million passengers per year and is a key economic and employment hub[25]. The RAAF base is notably the home of the F-35 Joint Strike Fighter Program. Newcastle Airport is home to and serviced by FlyPelican airline with services predominantly to Sydney and Canberra with Virgin Australia and JetStar offering flights to Melbourne and various other NSW and Queensland destinations. Newcastle Airport is surrounded by businesses including aircraft manufacturers, an aircraft restorer, and a skydiving school.

Moreover, the Port of Newcastle is another key piece of infrastructure within The Hunter. Its main function is the export of coal and agriculture products, facilitated by a rail line transport infrastructure which interconnects the region. For the Hunter Region, coal mining has and continues to be the main industrial output, with over 164.9 million tonnes of coal, worth more than $20B export value, exported from the Port of Newcastle in 2019. The Hunter Plan 2036 identified the need for investment in the 'last mile connections' between freight routes – and to the Port of Newcastle and Newcastle Airport – to improve freight movements to global markets and drive regional economic growth. The Pacific Highway and New England Highway (refer to Figure 3-1) are key pieces of road infrastructure providing greater mobility and connectivity, for travellers, as well as local residents and businesses operating in the area. Figure 3-1 details the inter-regional transport connections for the Hunter Region and NSW more broadly.

[25] Newcastle Airport, https://www.newcastleairport.com.au/about-us

The Hunter Regional Plan 2036 identified that The Hunter accounts for 44 percent of power generation in NSW, with solar, wind and geothermal resources ready to deliver large-scale projects[26]. The growth and diversification of The Hunter's mining and energy industries will be influenced by demand, culture, and policies. Current sentiment, consumer behaviour and pricing are starting to shift demand away from coal towards renewables. This provides an opportunity for The Hunter Region to diversify its energy production. As attitudes shift to renewables, there is opportunity to retrain workers displaced from coal plants. This can provide a significant opportunity for research and export of knowledge within the renewable energy sector for The Hunter.

Furthermore, health and education are two of the fastest growing and largest sectors in The Hunter, with the number of jobs projected to increase from 63,000 to 73,000, representing 21 per cent of the workforce by 2036[27].

The region also attracts a strong student base to the University of Newcastle, which is recognised as one of the top 300 universities globally according to the 2021 Times Higher Education rankings. The university provides courses targeted to the specific needs of the region (as well as the more standard degrees offered). These include various Defence-driven programs[28] such as cyber, aerospace engineering, renewable energy engineering. They have strong ties partnerships with government and industry, including the Newcastle Institute for Energy and Resources (NIER) and the Hunter Medical Research Institute (HMRI). The university has a strong research focus, achieving the highest possible rating in the Australian government's Excellence in Research Australia (ERA) assessment. There is also a TAFE NSW hub located in Newcastle, which offers practical vocational skills training to students.

In addition, proximal to the precinct WesTrac is one of the largest authorised Cat equipment dealers in the world, providing customers with a wide range of machinery and construction equipment, as well as continued support through servicing, parts, and technology solutions. The $150M WesTrac Cat head office, Newcastle Service Centre and Training Institute at Tomago was opened in July 2012. The project incorporates twelve major buildings, with 50,000m2 under roof, on a 23ha site facing Tomago Road. The facility includes workshops, administration and staff facilities for the sales, service and assembly of Caterpillar equipment. The WesTrac Institute at Tomago has the capacity to train up to 350 apprentices at any one time. The facility is made up of 14 general classrooms, 2 labs, a large 5-bay workshop. The NSW Institute will also facilitate training of up to 4,000 students in post-trade courses annually.

While the Hunter Region has a long history of traditional manufacturing, the region is becoming increasingly known for its emerging advanced manufacturing sector. A community of start-up firms have been supported by the accelerator Slingshot and the technology incubator Eighteen 04, University of Newcastle's Integrated Innovation Network (I2N) (comprising of four Innovation Hubs) and groups such as the AI Group, through their Manufacturing Innovation Cluster. To date, the University of Newcastle's I2N program (which was established in collaboration with accelerator Slingshot) has accelerated and incubated 71 start-ups, raised approximately $6million and gathered a community of 4,400 entrepreneurs, to continue to accelerate growth in the market for the Hunter Region[29].

[26] Ibid
[27] Hunter Regional Plan 2036
[28] Defence Capability, https://www.newcastle.edu.au/research/priorities/defence-capability, accessed January 2021
[29] I2N Integrated Innovation Network, University of Newcastle

Figure 3-1 Inter-regional connections

Source: Hunter Regional Plan 2036, DPIE (2016)

3.2. Economic development and employment in the region

Port Stephens LGA is located north of Newcastle and is part of the largest regional economy in Australia, as part of the Hunter region. The local economy has a diverse industry base, with established manufacturing, Defence, and aviation services, as well as strong regional links to domestic and global markets through Port of Newcastle and Sydney are also key advantages for the region. An overview of where the Williamtown SAP Structure Plan boundary is located, relative to Newcastle and the southern centres of the Port Stephens LGA is as shown in Figure 3-2.

Figure 3-2 Williamtown SAP relative to Newcastle and southern Port Stephens LGA centres

Source: Hatch Roberts Day

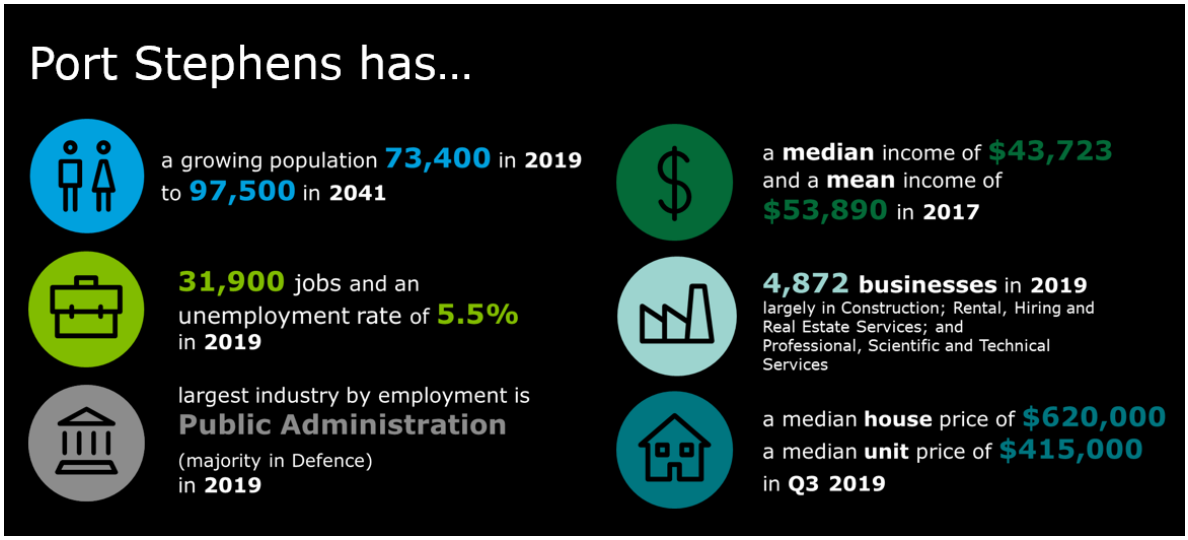
An overview of the current state economic and employment of the Port Stephens area is present in Figure 3-3, and illustrates that based on current projections population will grow steadily by an additional 24,100 persons (growth of 32% between 2019 to 2041). Growth in the Port Stephens area is comparatively higher than neighbouring regions, such as Newcastle, which is projected to grow by 26% between 2016 and 2041[30]. In addition, currently the area supports approximately 31,900 jobs, with the Defence as the largest employment industry. The employment industry is supported by 4,872 businesses, with the largest businesses focusing on construction, real estate, as well as scientific and technical services.

Overall, the unemployment rate in the Port Stephens area has averaged 5.6% (from June 19 to June 21) sitting largely between 5% and 6% for the previous 4 years except for a spike in 2020 due to COVID-19 (peaking at 6.68%). By comparison Newcastle has had an average over the same period of 6.1%, although their pre-COVID levels were typically in the low 4% and the impact of the pandemic hit the LGA much harder with unemployment peaking at 8.14%. The rate across LGA's north and south of the Newcastle-Port Stephens areas was comparatively lower, averaging 5.2% over the same time, while the Cessnock LGA area was higher at around 7%. Labour market and employment analysis of Newcastle demonstrates that they had at the last census (i.e. 2015) 12,353 business (for a population of 169,016) with the largest employment sector health care. When compared to the employment market and workforce in Port Stephens we find that employment is

[30] Population Summary, City of Newcastle, https://forecast.id.com.au/newcastle/population-summary

technically focused (largely on defence) and is only slightly smaller in size (1% difference in the ratio of businesses to population between Port Stephens and Newcastle).[31] [32]

Figure 3-3 Port Stephens current economic and employment statistics

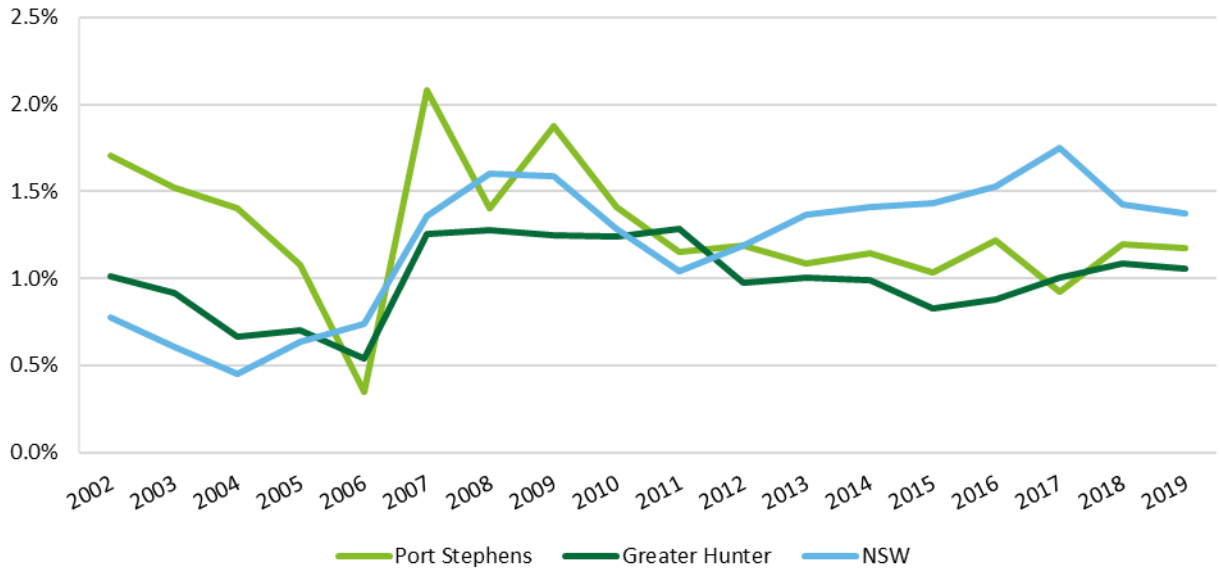


Source: Australian Bureau of Statistics, Deloitte Access Economics

3.2.1. Total population and employment

In June 2019, the population of Port Stephens was just under 73,500,[33] with year-on-year growth for the LGA generally higher than the growth across the Hunter Region, but consistently less than New South Wales, as shown in Figure 3-4.

Figure 3-4 Year on year population growth for Port Stephens LGA, the Greater Hunter Region and NSW, 2002 - 2019

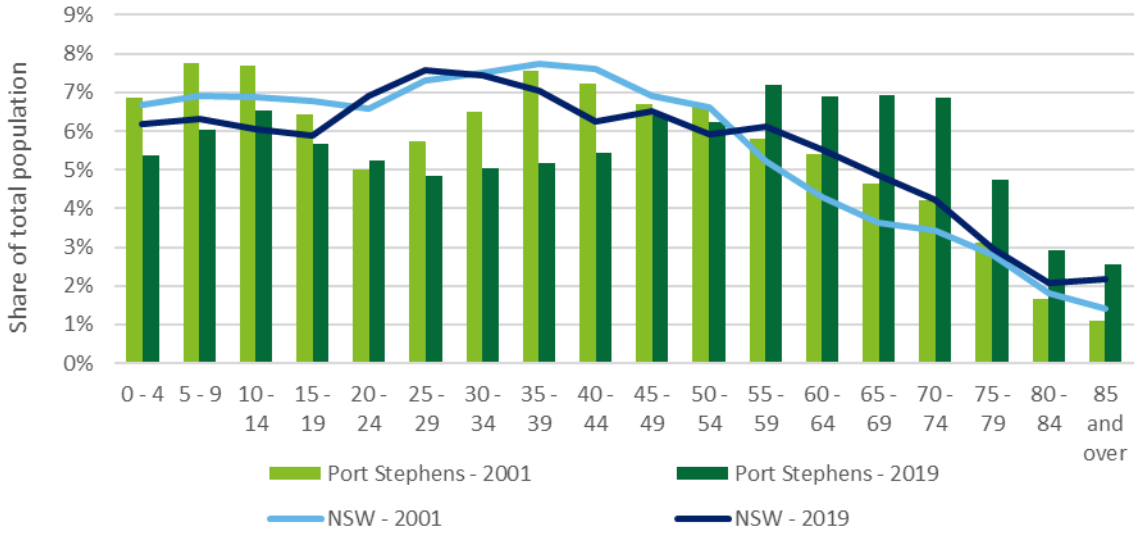


Source: Australian Bureau of Statistics (2019)

The largest shifts in the population of Port Stephens between 2001 and 2019 have been in age cohorts over 45 (as shown in Figure 3-5), signalling an ageing population and workforce, significantly larger than the State average.

[31] ibid
[32] Census 2016, ABS, https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/CED131
[33] ABS Stat (2020) *Estimated Residential Population by LGA - 2019,* available at: <http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ERP_QUARTERLY#>

Figure 3-5 Age profile of Port Stephens LGA and NSW, 2001 and 2019



Source: Australian Bureau of Statistics

An overview of population and employment forecasts for the Port Stephens LGA is present in Table 3-1, which highlights expectations from the NSW government. It should be noted that for consistency of comparison with other SAP projects, the 2019 DPIE projection dataset has been quoted. The DPIE 2019 dataset does not incorporate any assumptions on the impacts of COVID-19 on future growth either for population or employment. For consistency with other work, the table references data (i.e. the Travel Zone Projections) from Transport for New South Wales (TfNSW) which aligns with DPIE 2019 population projections and incorporates NSW Treasury Employment forecasts. Forecasts from Deloitte have been added for comparison. The Deloitte forecasts consider the impacts of COVID-19 on future growth and shows that population growth of approximately 0.5% per annum for Port Stephens LGA, and employment growth of just under 0.9% per annum between 2016 and 2056.

Table 3-1 Total Population and employment forecasts, Port Stephens LGA and NSW

Region	Source	2016	2021	2026	2031	2036	2041	2046	2051	2056	CAGR 2016-2056
Population ('000s)											
NSW	TfNSW	7,733	8,415	9,011	9,561	10,078	10,573	11,030	11,460	11,873	1.08%
NSW	Deloitte	7,733	8,176	8,541	8,995	9,461	9,944	10,441	10,940	11,436	0.98%
Port Stephens	TfNSW	71	73	75	77	79	81	84	84	86	0.46%
Port Stephens	Deloitte	71	75	77	79	81	83	86	86	87	0.51%
Employment ('000s)											
NSW	TfNSW	3,755	4,169	4,438	4,691	4,933	5,160	5,386	5,566	5,718	1.06%
NSW	Deloitte	3,806	3,972	4,273	4,589	4,850	5,097	5,349	5,599	5,839	1.08%
Port Stephens	TfNSW	31	33	36	38	39	40	42	42	43	0.84%
Port Stephens	Deloitte	31	33	35	36	38	40	42	43	44	0.88%

Source: TfNSW (2020); Deloitte – Deloitte Access Economics (2021)

Port Stephens is currently experiencing interest as a regional residential destination offering employment opportunities and amenity. Planning for residential communities is ongoing, with residential developments such as The Bower, Kings Hill and The Garden offering options for new residents.

From the last reported census (2016), Port Stephens had a SEIFA[34] score of 980. Across Australia's local government areas SEIFA scores range from 188 (most disadvantaged) the 1186 (least disadvantaged). Based on this Port Stephens:

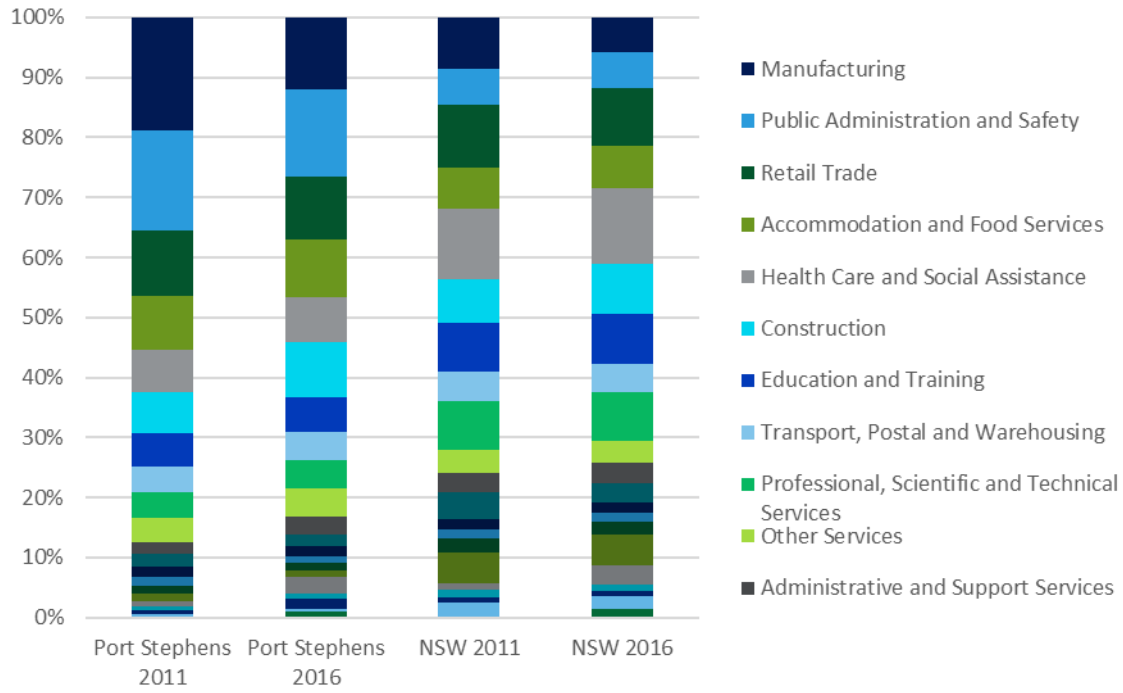
- Ranks 286 out of 544 local government areas with SEIFA scores in Australia
- There are 258 local government areas which are less disadvantaged
- There are 285 local government areas that are more disadvantaged.

3.2.2. Jobs by Industry

In 2019, Deloitte estimates there were approximately 31,900 jobs in Port Stephens, with the largest share of these in the industry sector of Public Administration, followed by the Manufacturing and Retail sectors. While most industry sectors have slightly increased or maintained their share of employment in the LGA, the manufacturing sector stands out notably as having contracted between 2011 and 2016, as shown in Figure 3-6, which is consistent with State and national trends. Since 2016, public administration jobs occupied the largest share of total employment, which is **largely made up of Defence** employment.

Further employment is expected to be generated through development in Kinross Industrial Estate, as well as the Williamtown Aerospace Centre, which includes lands south of RAAF Base Williamtown.

Figure 3-6 Employment by ANZSIC 1-digit industries in Port Stephens and NSW, 2011 and 2016



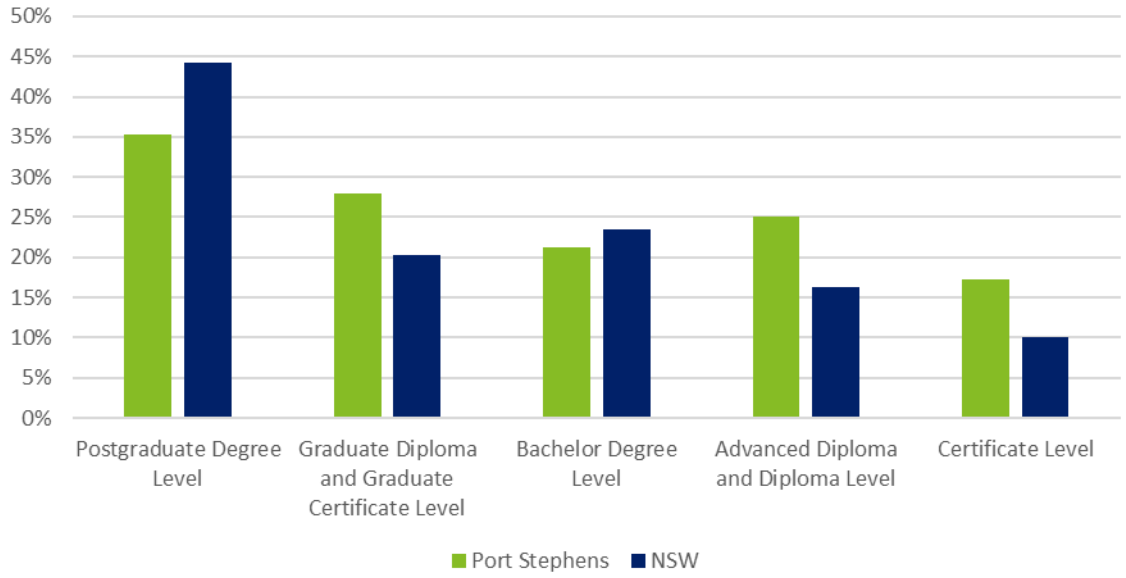
Source: Australian Bureau of Statistics Census of Population and Housing Journey to Work (2011 and 2016)

3.2.3. Workforce

The workforce of Port Stephens has become increasingly skilled overtime, as shown in Figure 3-7. Data from the ABS Census in 2011 and 2016 shows that there has been increases in residents with Postgraduate degrees (~35% increase), Graduate Diplomas and Certificates (~30%) and Advanced Diplomas and Diplomas (~25%).

[34] 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 indexes are based on information from the five-yearly Census.

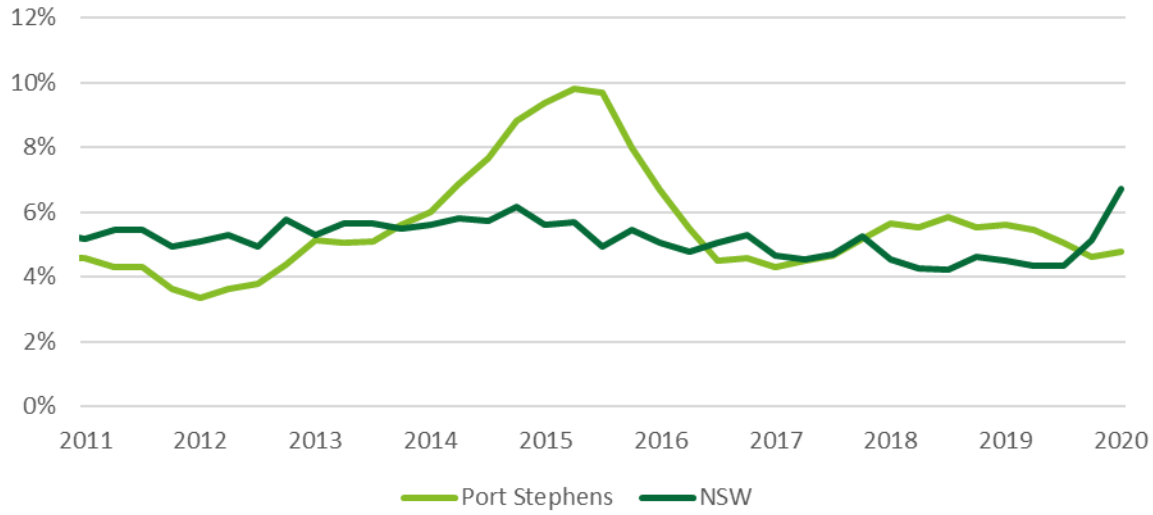
Figure 3-7 Skills growth of Port Stephens workers between 2011 and 2016



Source: Australian Bureau of Statistics Census of Population and Housing (2011 and 2016)

The unemployment rate in Port Stephens peaked in December 2015, driven by a contraction in manufacturing. As shown in Figure 3-8, since 2018, the unemployment rate has remained stable at under 6%, with a recent drop in unemployment at the end of 2019 to around 5.5%.

Figure 3-8 Port Stephens smoothed quarterly unemployment rate (%), June 2011 – June 2020



Source: Small Area Labour Market data, June 2020; ABS Cat.6291002 (2020)

Analysis of 2016 ABS Census Journey to Work data shows 60% of workers in Port Stephens LGA also resided within the LGA, a downward revision of 1% compared with the 2011 ABS Census. The remaining 40% of workers who commute into Port Stephens LGA for work did so from other LGAs within the Hunter Region. The largest proportion of workers commuting into Port Stephens are from Newcastle LGA, accounting for 14% of Port Stephens workers. Of the remaining workers, 9% originate from Maitland and 9% from Lake Macquarie as seen in Figure 3-8 These shares have remained similar to those observed through the 2011 Census, with the greatest shift seen from Newcastle with a 1% downward revision between Census periods.

TfNSW forecasts of workers and jobs in Port Stephens shows the ratio of jobs to workers is expected to fall over time within Port Stephens LGA as shown in Table 3-2. The assumptions underpinning these estimates are currently unclear.

Some of the underlying drivers may be an increase in part-time employment, or workers travelling into the region from surround LGAs. Deloitte estimates of the ratio between workers and jobs remains relatively stable over time, at just below 1.

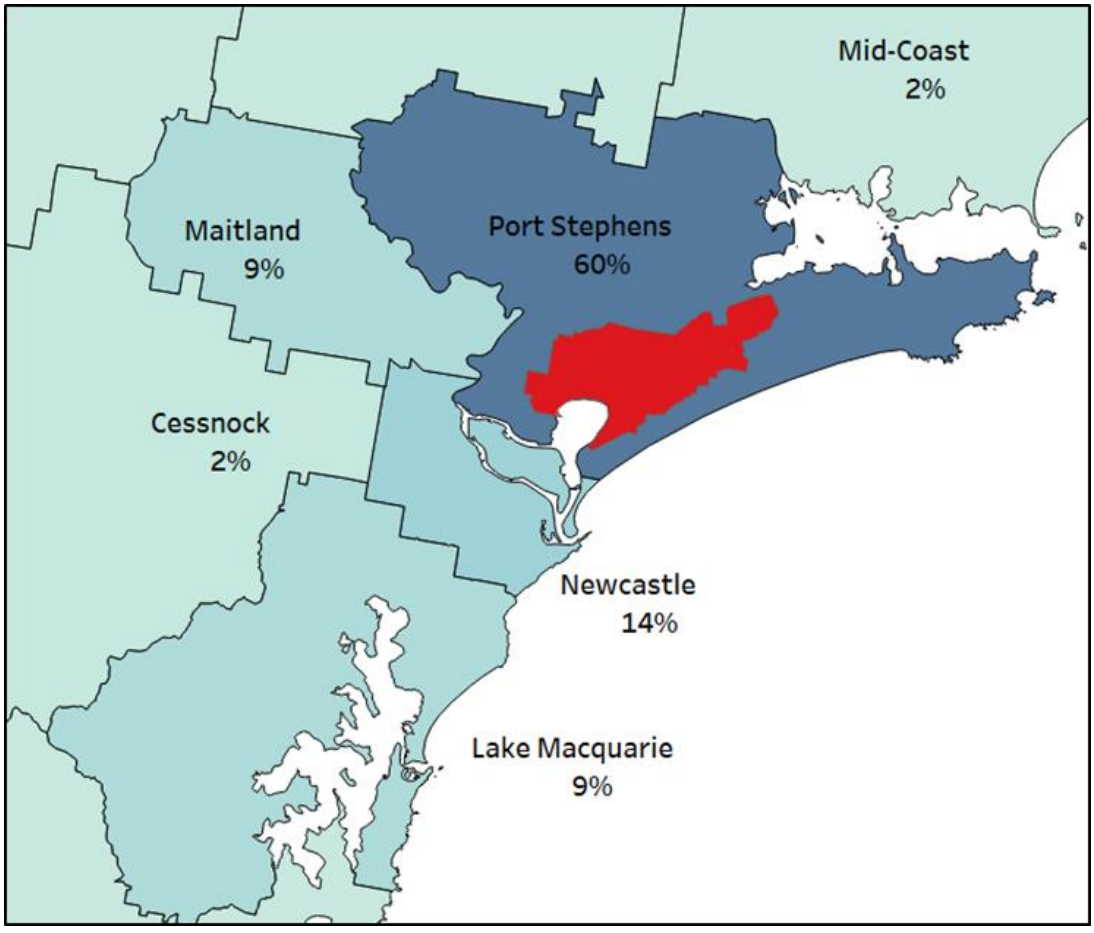
Table 3-2 Worker and Job forecasts, Port Stephens LGA

Measure	2016	2021	2026	2031	2036	2041	2046	2051	2056
Workers	32,316	32,670	33,446	33,975	34,374	35,386	36,301	36,067	36,301
Jobs	30,735	33,284	36,029	37,661	39,220	40,470	41,670	42,359	42,970
Ratio	1.05	0.98	0.93	0.90	0.88	0.87	0.87	0.85	0.84

Source: TfNSW (2019)

Approximately 60% of SAP workers originate from Port Stephens LGA, followed by 14% from Newcastle LGA, 9% respectively from Maitland LGA and Lack Macquarie LGA, and 2% respectively from Mid-Coast LGA and Cessnock LGA.

Figure 3-9 Origin of Port Stephens workers, 2016

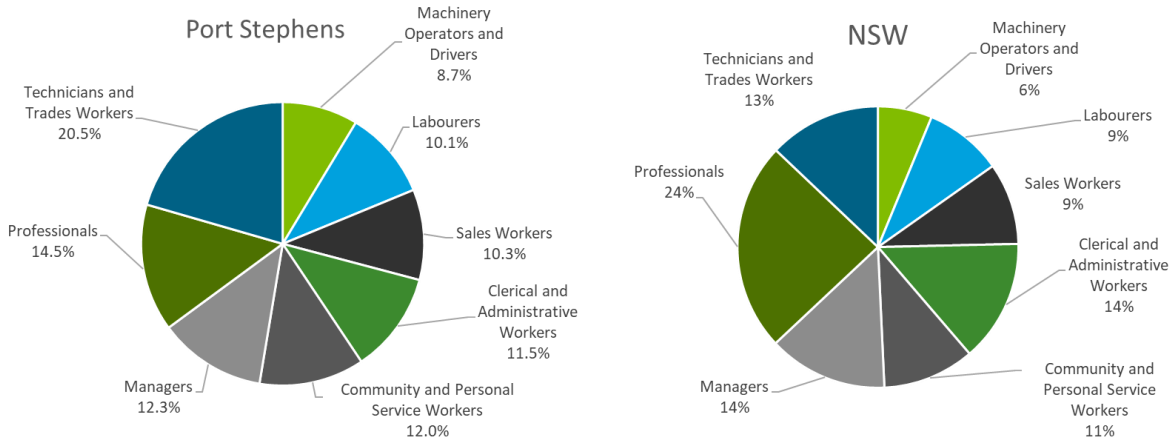


Source: Australian Bureau of Statistics Census of Population and Housing (2011 and 2016)

Occupations of workers in the LGA at the last Census are shown in Figure 3-10. Technicians and Trade Workers account for the largest occupational category at 20.5%, near half of which (9.3%) are Automotive and Engineering Trades Workers, working in the dominant industries of Defence, aviation, and aerospace. The chart also shows that Professionals, Managers, and Community and Personal Service Workers collectively account for 38.9%, with prominent subdivisions such as Specialist Managers (Managers), Carers and Aides (Community and Personal Service Workers) and Design, Engineering,

Science and Transport Professionals (Professionals). Port Stephens LGA has more Machinery Operators and Drivers, Technicians and Trade Workers, when compared to national workforce occupation shares, and has a lower concentration of Professional workers than the national trend.

Figure 3-10 Occupations (ANZSCO 1-digit level) of workers in Port Stephens, 2016

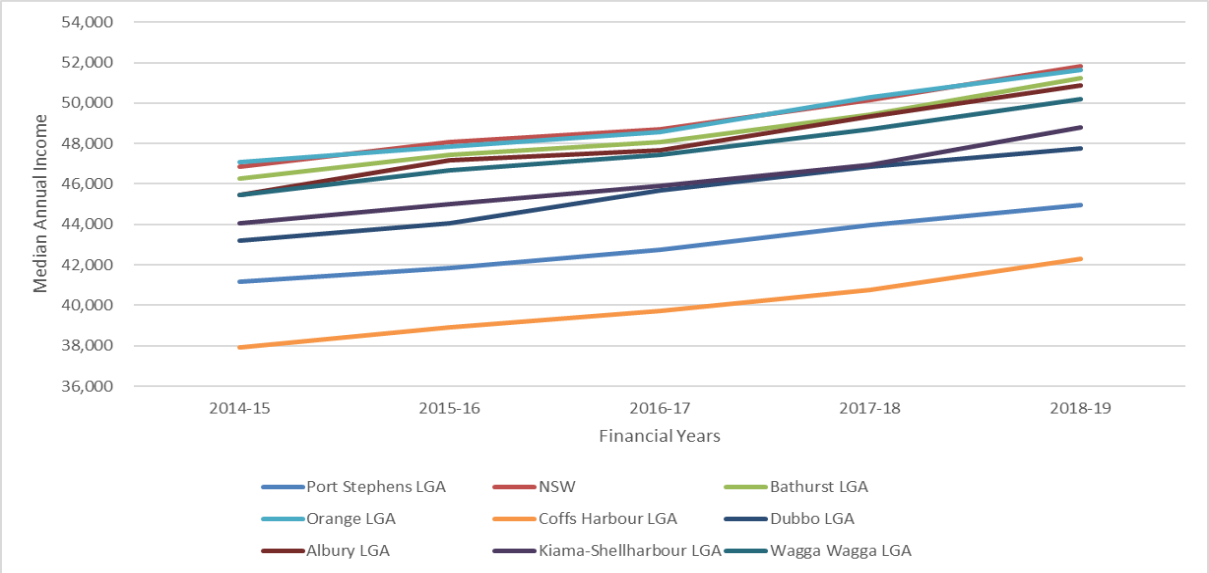


Source: Australian Bureau of Statistics Census of Population and Housing Journey to Work (2011 and 2016)

3.2.4. Income

Median Income in the Ports Stephens LGA have consistently earned lower median personal incomes relative to NSW (as a whole) over the last five years, as shown in Figure 3-11. The disparity between the region's income and the State's has widened more recently with a difference of 11.4% in 2017 compared with a gap of 8.1% in 2012. This is reflective of growing income inequality in regional areas, with capital city growth outpacing regional income growth. Port Stephen's median income also lags peer regional centres such as Kiama-Shell Harbour, Wagga Wagga and Dubbo. The median age of earners in Port Stephens is 47, compared to a median earner age of 42 in NSW. This is largely due to the age of the workforce in the region, the retirement status of many residents and the broader issue of retaining younger worker, especially those that have attained higher qualifications and technical skills. A similar issue is visible in Coffs Harbour, although this region also suffers from being further from major metropolitan centres like Newcastle and Sydney.

Figure 3-11 Median income of Port Stephens LGA and New South Wales, 2011-12 to 2016-17

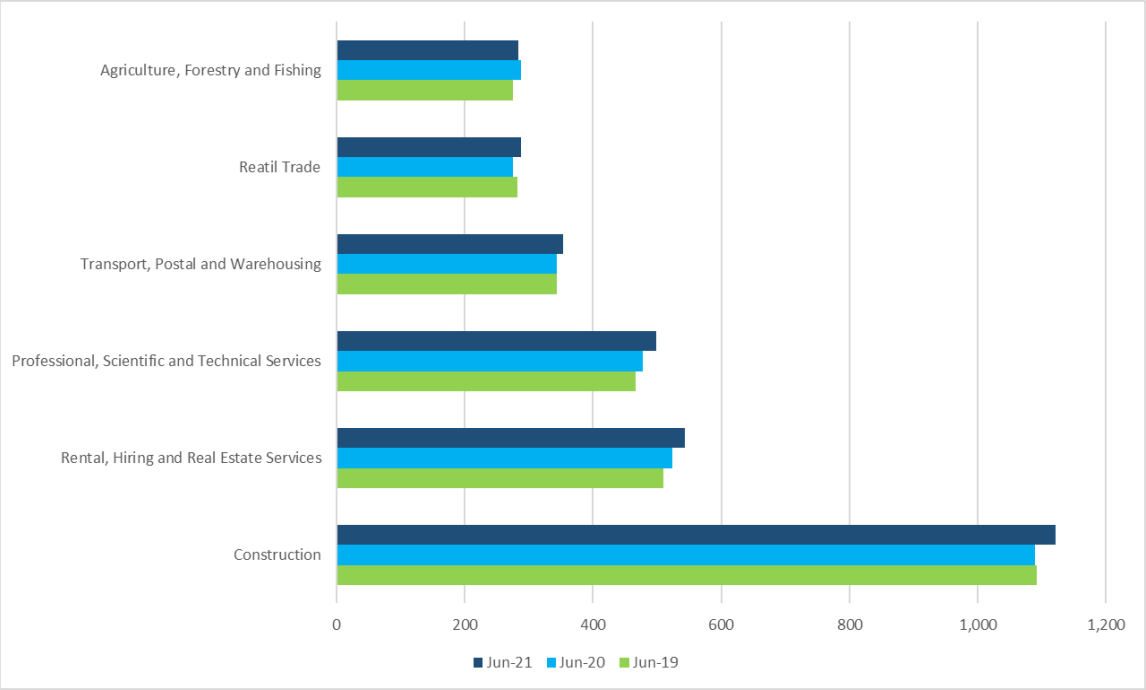


Source: Australian Bureau of Statistics (2020)

3.2.5. Businesses

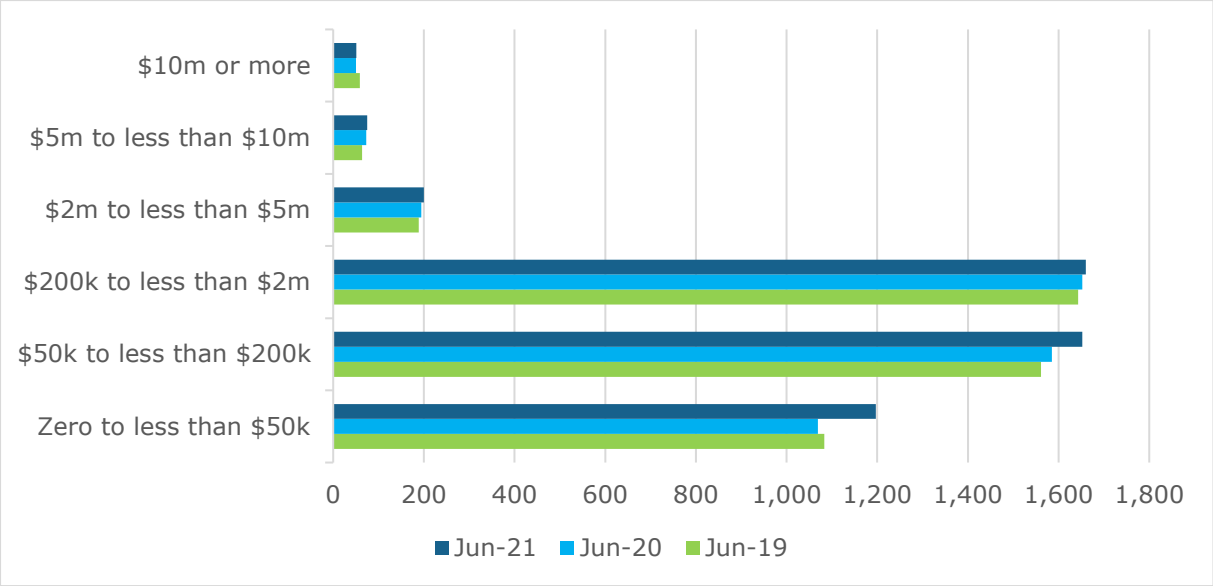
In 2019, there were 4,880 businesses in Port Stephens. The largest share were Construction firms, accounting for 22% of operating business as shown in Figure 3-12. Since 2017, growth has been strongest in the Construction sector, followed by Professional, Scientific and Technical Services. Analysis shows that Port Stephens has a solid base of businesses across a diverse range of industry sectors which could provide ancillary support to the Williamtown SAP. This, together with a successful construction sector, bodes well for the future expansion of Williamtown SAP to be underpinned by the existing business sector. While some industry sectors have many businesses, employment levels are low in general. This is notable in the industry category of Public Administration, which the Defence sector falls within, where a large number of people are employed. The three figures that follow demonstrate the largely small and medium enterprise make-up of the business activity in the region, with only three having over 200 staff and only 50 with a turnover over $10m per annum.

Figure 3-12 Count of Port Stephens businesses by 1-digit ANZSIC industry category for the top 6 industries, June 2021 and June 2019



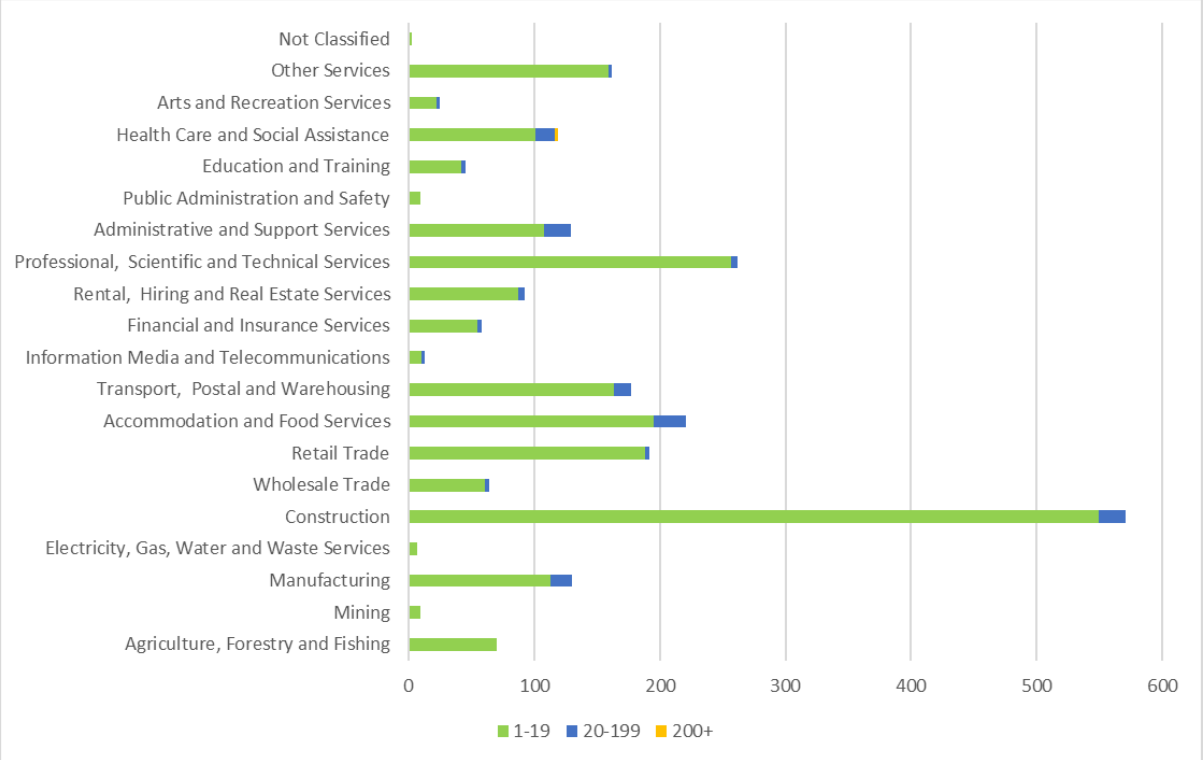
Source: Australian Bureau of Statistics (2021)

Figure 3-13 Count of Port Stephens businesses by Turnover, June 2021 and June 2019



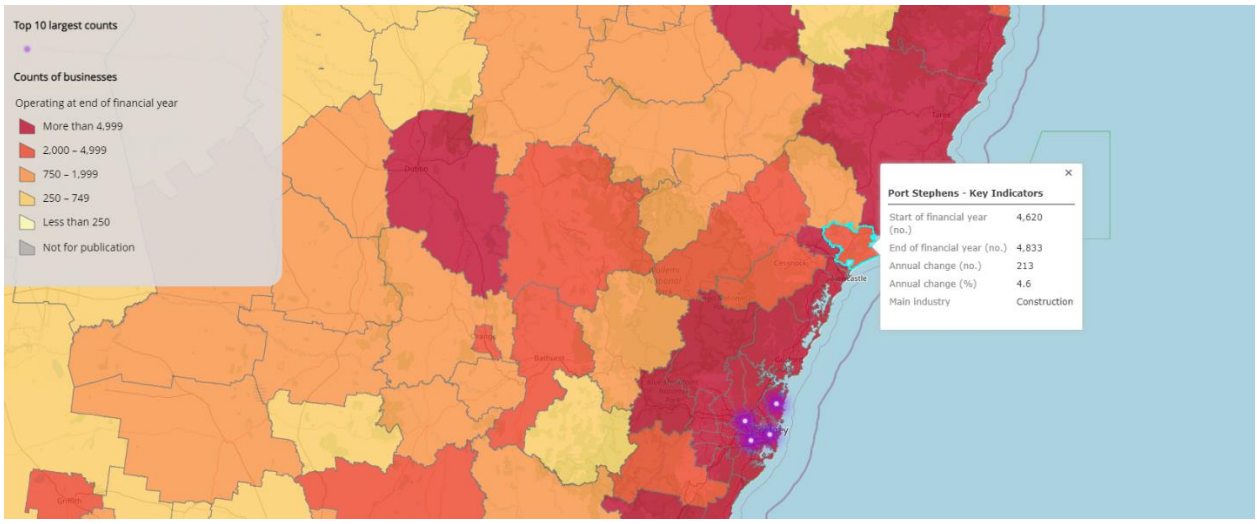
Source: Australian Bureau of Statistics (2021)

Figure 3-14 Count of Port Stephens businesses by Staff Employed, June 2021



Source: Australian Bureau of Statistics (2021)

Figure 3-15 Port Stephens Counts of Businesses, including Entries and Exits, July 2017 to June 2021.



Source: Australian Bureau of Statistics (2021)

3.2.6. Future demographics of the Williamtown SAP investigation area

Estimates from TfNSW[35] of future Williamtown SAP investigation area population and resident workforce are shown in Table 3-3.

Table 3-3 Population and resident worker forecasts, Williamtown SAP

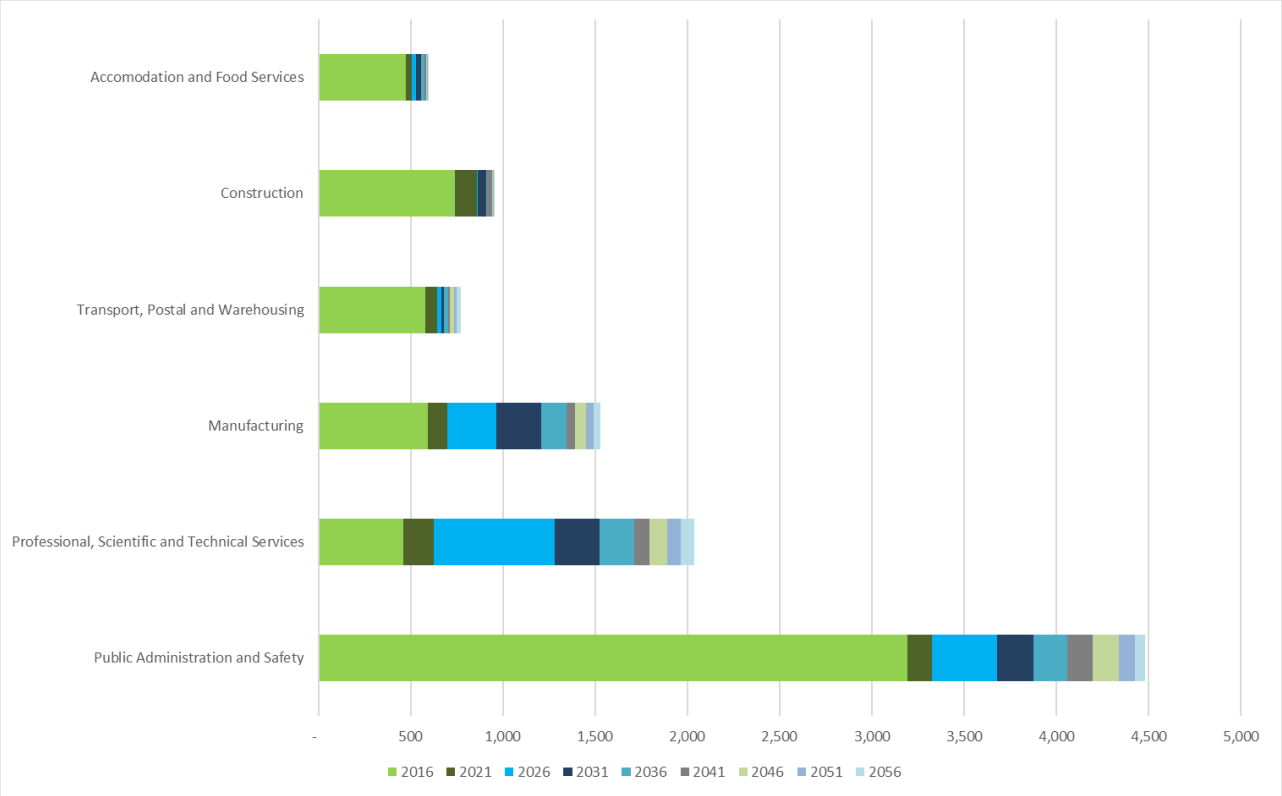
Measure	2016	2021	2026	2031	2036	2041	2046	2051	2056
Resident Population	727	749	783	810	832	866	897	909	933
Resident Workers	354	350	348	343	337	340	342	334	329

Source: TfNSW (2019)

Job forecasts for the Williamtown SAP are shown in Figure 3-16 for level numbers at 2016, and growth in 5-year increments to 2056. Employment increases are forecast to dominate the sectors of Public Administration and Safety, Professional, Scientific and Technical Services and Manufacturing. The Public Administration and Safety category is almost entirely made up of Defence employment. This chart shows that the majority of growth in these sectors is expected to occur between 2021 and 2026. Overall, the Williamtown SAP is expected to have 9,700 jobs at 2056, with 4,400 of these in Defence, and 1,800 in professional, scientific, and technical Services.

[35] Travel Zone Projections (TZP) from Transport for New South Wales aligns with DPIE 2019 population projections and incorporates NSW Treasury Employment forecasts.

Figure 3-16 Job forecasts (by 1-digit ANZSIC industry category) for the top employment industries, Williamtown SAP, 2016 estimates and incremental change to 2056



Source: TfNSW (2019)

3.3. Relationship with other regional airports

In considering the Hunter region's civil aviation and air freight capabilities, market sounding with key stakeholders identified that potential competitors for investment and growth include Sydney's Kingsford Smith Airport (KSA) and Western Sydney Airport (WSA), which will both be able (in the future) to provide higher passenger and freight volumes compared to Newcastle Airport. Whilst anecdotal evidence suggests there is appetite to utilise Newcastle Airport as the gateway for domestic and international travel and provide direct access to locally produced goods and equine services across the Hunter region – the airport is currently constrained by carrier appetite to operate services, airfield specification to hold larger planes, and volumes of freight being too low to be viable. As an operational RAAF base, comparison was also made with RAAF Base Amberley, a competing location for Defence related investment.

A comparison between Newcastle Airport, WSA, RAAF Base Amberley, and KSA against key industry drivers is provided in Table 3-4.

Table 3-4 Comparison between airports

Airport and Surrounding Precinct Purpose	Newcastle Airport	Western Sydney Airport (due to open 2026)	RAAF Base Amberley	Sydney Kingsford Smith Airport
Civil aviation	✔ *Limited by RAAF*	✔ *Unconstrained international airport*	✘ *Operated by RAAF*	✔ *Runway length is longer than Newcastle Airport. Limited by land and curfew limits on plane movements.*
Freight	✘ *Limited, low volume**	✔ *Major international freight and logistics precinct opportunity*	✘ *Nil focus*	✘ *Limited land for freight use, however looking at expansion options.*
Defence	✔ *RAAF Base*	✘ *No existing presence, strategic rather than operational activity planned for future*	✔ *RAAF Base*	✘ *No existing Defence presence*
Agribusiness	✘ *No major endowments**	✔ *Major agribusiness presence established around site; future airside specialist precinct planned*	✘ *Nil focus*	✘ *No major endowments*
Advanced manufacturing	✔ *Defence contractor establishment*	✘ *No existing presence, but planned for future*	✘ *Defence contractor presence around base, Aerospace and Defence Support Centre Proposed*	✘ *Nil focus*
Commerce	*30 minutes to regional centre i.e., Newcastle*	*Direct local access to several established business, industrial and town centres in a 30 min driving radius*	*Direct local access to Ipswich*	*Direct access to Sydney city*

Source: Deloitte analysis (2021), Service Need Report (PwC, 2020)[36]

*Note: With recent announcements to upgrade the Newcastle Airport runway, opportunities may emerge to grow freight and agribusiness at Williamtown.

[36] Ibid, P.19.

4. Overview of Williamtown SAP

4.1. Original investigation area

The Williamtown SAP investigation area is shown in Figure 4-1. The original investigation area covered an area of 11,400 hectares within the Port Stephens LGA and covers rural, agricultural, residential, commercial, and light-industrial lands. The study area is characterised by low lying floodplain in the south and west, drinking water catchment within the northern portion, sensitive wetlands which serves as a main drainage point, and PFAS contamination from past activities at the Defence base.

Figure 4-1 Williamtown SAP Original Study Area

Source: Deloitte Analysis (2021)

The study area experiences flooding in three different mechanisms including regional flooding (from Hunter River flood events), local flooding (from rainfall events), and tidal inundation (tides in Fullerton Cove and Port Stephens). These vary in terms of scale and frequency across the study area. However, regional flooding is the more predominant source of flooding and is used as the basis for flood planning.

The majority of the study area is situated above the Tomago Sandbed aquifer – a main source for the regions drinking water supply. The aquifer is recharged from rainwater that lands directly on the sand surface and has a network of more than 500 bores used to extract water prior to treatment at Grahamstown Water Treatment Plant before being distributed to consumers in the Hunter region. As the aquifer is the region's main water source supply there may be constraints on developable land within the Williamtown SAP.

PFAS has been used in the Williamtown area from as early as the 1970's at various establishments in the region and used most extensively in firefighting foams at Newcastle Airport, RAAF Base Williamtown, and Rural Fire Services establishments at Salt Ash, Raymond Terrace and Williamtown. Other sites outside but within the vicinity of the study area include NSW Fire and Rescue Services Tarro, Our Lady of Lourdes Primary School Tarro, and Total Fire Solutions Heatherbrae. The presence of PFAS was announced in September 2015 on the EPA website. The majority of the PFAS contamination is located on the southern portion of the study area and includes the Newcastle Airport, RAAF Base and DAREZ, and if left unaddressed as a precinct wide issue, it could impact on proposed future development plans.

The area is home to the Worimi Aboriginal Land Council, who have a significant presence in Williamtown and are owners of land. The Murrook Cultural Centre was developed to gather sustain, protect, and teach Aboriginal Culture to all people with an emphasis on Worimi culture being the land and people of the area.

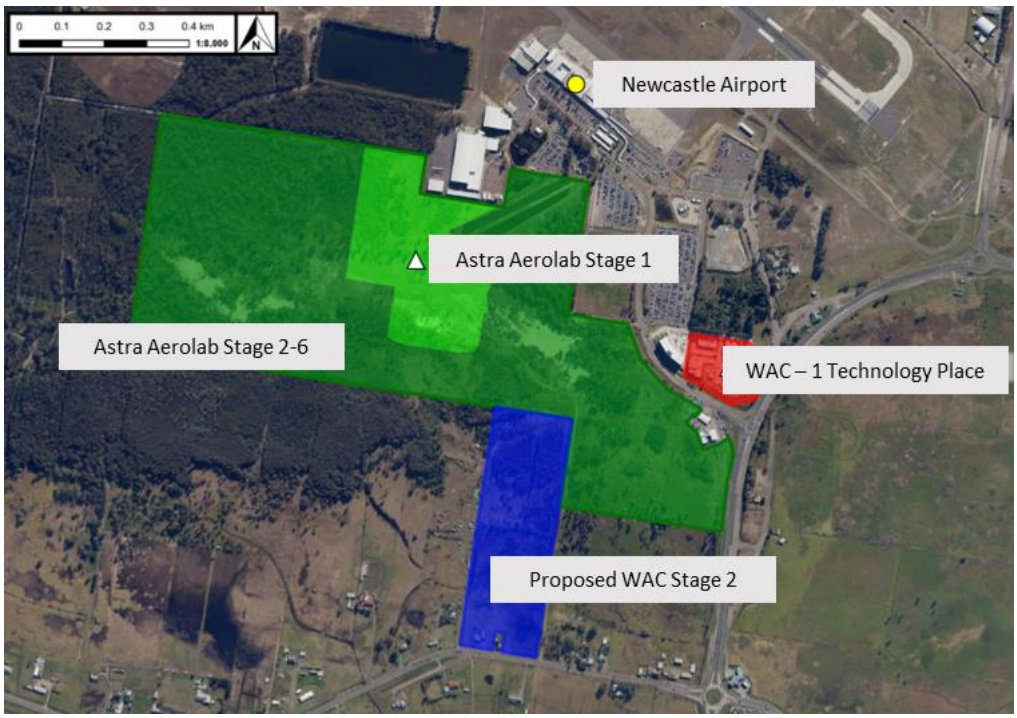
Towards Fullerton Cove, there is an active sand quarry which was approved in 2018. The Cabbage Tree Road Sand Quarry functions to provide sand utilised in concrete and other sand products, both within local markets and Sydney. The quarry is anticipated to be operational for a period of ten to fifteen years.[37]

Significant existing infrastructure within the Williamtown SAP includes Newcastle Airport, RAAF Base Williamtown and the DAREZ). The study area sits in a common thoroughfare between Newcastle and the northern Hunter Region and north-east towards holiday destination of Port Stephens. These are discussed further in Section 4.3.2.

4.2. Current and committed land use

Current precinct status and land availability is show in Figure 4-2 and Table 4-1.

Figure 4-2 Land use in DAREZ and WAC



Source: Deloitte Analysis (2020)

[37] Aurecon Williamtown SAP Strategic Concept Design 2020

Table 4-1 Current Land Use Status

Precinct	Status	Available land (Ha)	Current utilisation (Ha)
Airport	Developed	6.8	6.8
Astra Aerolab Stage 1	Under development	8.0	0.0
Astra Aerolab stages 2-6	Future Development	38.0	0.0
WAC – 1 Technology Place	Developed	3.0	3.0
WAC – Proposed - Stage 2	Proposed	8.3	0.0

Source: PwC (2020)

The SBC identified a strong demand for additional land in the Williamtown SAP investigation area:

- RAAF (additional 7ha required by 2040)
- Defence Contractors (additional 19.8ha required by 2040)
- Aerospace industry (additional 8.5ha required by 2040)
- Educational institutions (additional 3ha required by 2040)
- Amenity (additional 12ha required by 2040).

Based on forecast land demand, the SBC highlighted the need to make an additional 24.9ha available by 2040, which included Astra Aerolab.

The future of employment in DAREZ land development is expected to be specialist industrial or commercial development centred on ancillary Defence and aerospace activity. The NSW government has committed to development of the Astra Aerolab Stage 1 (which construction has commenced for), a major technology and innovation precinct within the Williamtown SAP. Newcastle Airport has committed funding for new infrastructure and site preparation for this development, which is ultimately expected to generate 5,500 jobs for the precinct.

1 Technology Place is occupied by several major contractors including Boeing, Lockheed Martin and Raytheon. A proposal for development of an additional parcel of land, Proposed WAC - Stage 2, will require rezoning from rural to light industrial and logistics uses.

Baseline employment for the Williamtown - Medowie – Karuah Statistical Area Level 2 (SA2), which proxies for the Williamtown SAP, as developed by Transport for NSW as part of the Travel Zones Projections data set is shown in Table 4-2 below.

Table 4-2 Employment projections for Williamtown - Medowie – Karuah SA2 (i.e., Williamtown SAP)

Data source	2019	2021	2026	2031	2036	2041	2046	2051	2056
TfNSW 2019	Na [38]	6,100	7,400	8,200	8,700	9,000	9,300	9,500	9,700

Source: TfNSW (2020)

[38] TfNSW TZP-19 data is only available in 5-yearly increments starting from 2016. A technical summary of the analysis involved in these projections and relevant limitations can be located at https://opendata.transport.nsw.gov.au/dataset/employment-projections . This data is built using DPIE population forecasts and NSW Treasury Employment forecasts.

4.3. Two key drivers of economic demand

The Australian Government recently announced its commitment to invest in Australia's Defence Industry over the next ten years to improve the nation's Defence and security, with an indicative budget out to 2040:

> *The Government is providing long-term funding certainty for Defence so it can deliver the Force Structure Plan set out in this document. To provide this certainty, the Government is continuing its policy of providing a 10-year funding model for Defence, first articulated in the 2016 Defence White Paper. This will provide Defence, including the Australian Signals Directorate, with total funding of $575 billion to 2029. The total funding of $575 billion over the decade includes around $270 billion in capability investment...*[39]

It is anticipated that some of these investments will occur in Williamtown to support its existing air domain programs and expansion, particularly for the F-35 Joint Strike Fighter program located in Williamtown. Though the specific spend by the program in the Williamtown area is not known, the Joint Strike Fighter Program be delivered at Williamtown is a $16b commitment, giving an indication of the scale of activity expected over the next two decades.

The announced investment, together with projected growth generated from existing Defence and aerospace infrastructure at Williamtown, form the two key drivers of demand for the Williamtown SAP, i.e., investment and growth drivers which are described over the following sections.

4.3.1. Investment driver: Defence programs and capabilities at Williamtown

Of the ten Sovereign Industrial Capability Priorities (SICP), five of these were assessed as being relevant for the Williamtown SAP and these are summarised in Table 4.3. This assessment revalidated the importance of the F-35 Joint Strike Fighter, E-7A Wedgetail and other air capabilities as being important to the Defence strategy. As these programs are currently based at Williamtown, it is envisioned that these programs will remain and continue to expand and grow as part of the Williamtown SAP40.

Table 4-3 Sovereign Industrial Capability Priorities relevant to Williamtown SAP

SICP	Description	Relevance for Williamtown SAP
Munitions and small arms research, design, development, and manufacture	Munitions and small arms will continue to support the Australian Defence Force's military capabilities and are to be delivered primarily by Defence industry through acquisitions and sustainment projects. Sovereign capability for the manufacture of propellants, munitions, ammunition, and small arms is a priority for Defence[41].	In the context of Williamtown SAP, this may be relevant to advanced manufacturers and the abundance of research bodies who have housed themselves in and around the area. Combat Controllers and Air Force Security Forces are based at Williamtown and are both heavily reliant on small arms and munitions.
Aerospace platform deeper maintenance and structural integrity	Australian Defence industry must possess the capability to undertake maintenance on complex aerospace platforms throughout the platform's full lifecycle. This capability is needed particularly for the rotary and fixed wing aircraft, as well as large remote piloted aircraft. Developing this capability within the Defence industry will lower strategic and operational risks.[42]	Specific programs for Williamtown which are inherent with this capability include the F-35 Joint Strike Fighter, E-7A Wedgetail, F/A-18 Hornet, Hawk Lead in Fighter, Pilatus PC-21, and the Loyal Wingman Program (likely to be based at Williamtown), which all require complex and specialised maintenance operations and require significant Defence industry involvement.

[39] Australian Department of Defence, *Defence Force Structure Plan* (2020) p.19
[40] Further consultation with Air Vice Marshall Hoffman in early February 2021 will serve to provide further clarity and validation on programs relevant for Williamtown.
[41] Australian Government Department of Defence, *Defence Industrial Capability Plan* (2018)
[42] Ibid

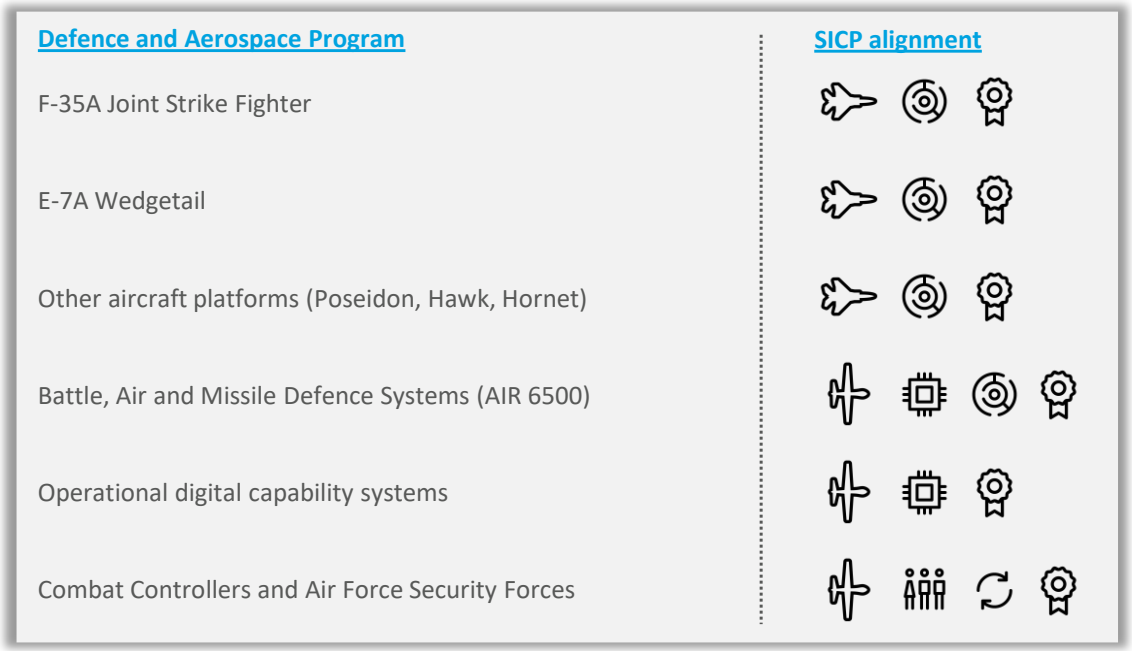
SICP	Description	Relevance for Williamtown SAP
Enhanced active phased array and passive radar capability	Australian are world leaders in phased array radars, which allow detection of opposition forces to assist in offensive and defensive operations. Australian industry must maintain this competitive advantage by possessing the ability to design, develop, manufacture, maintain and upgrade these systems[43].	This capability applies to potentially all aircraft platforms based at RAAF Williamtown as well as ground-based systems such as AIR 6500 Joint Air Battle Management System.
Advanced signal processing and Surveillance and intelligence	Australian industry has a role to play in development and implementation of surveillance and intelligence technologies which will enable Australia to maintain strength *"…in the areas of cyber and information security, radar, sonar and acoustic technologies, electronic warfare operational support (including threat recognition, targeting, and planning), and signature management."*[44]	This capability will be applicable to all operational digital capability systems across the five capability domains (Sea, Land, Air, Space and Cyber) operated across the nation including Williamtown.
Test, evaluation, certification, and systems assurance	This SICP consists of Defence and Defence industry sharing the responsibility of providing the test, evaluation, certification and systems assurance of Defence platforms and systems. This ensures appropriateness and longevity of equipment, platforms, and systems. Australian industry must have a suitably skilled workforce to enable this capability.	This capability will be applicable to all systems across Defence; hence, it is applicable to all Williamtown equipment, platforms, and systems.

Source: Australian Government Department of Defence and Deloitte Analysis (2021)

Through consultations undertaken as part of this study, the following Defence and aerospace programs were identified as being relevant as part of the Williamtown SAP (refer to Figure 4-3). These are outlined over the following sections. Through the market sounding process, stakeholders generally agreed that the expansion of these Defence programs within Williamtown will serve to catalyse growth within the Williamtown SAP, and provide certainty for Defence primes, and their supply chains to further grow in the area and attract further investors and businesses over time.

[43] Ibid
[44] Ibid

Figure 4-3 Williamtown SICP alignment



Source: Australian Government Department of Defence and Deloitte Analysis (2021)

F-35A Joint Strike Fighter

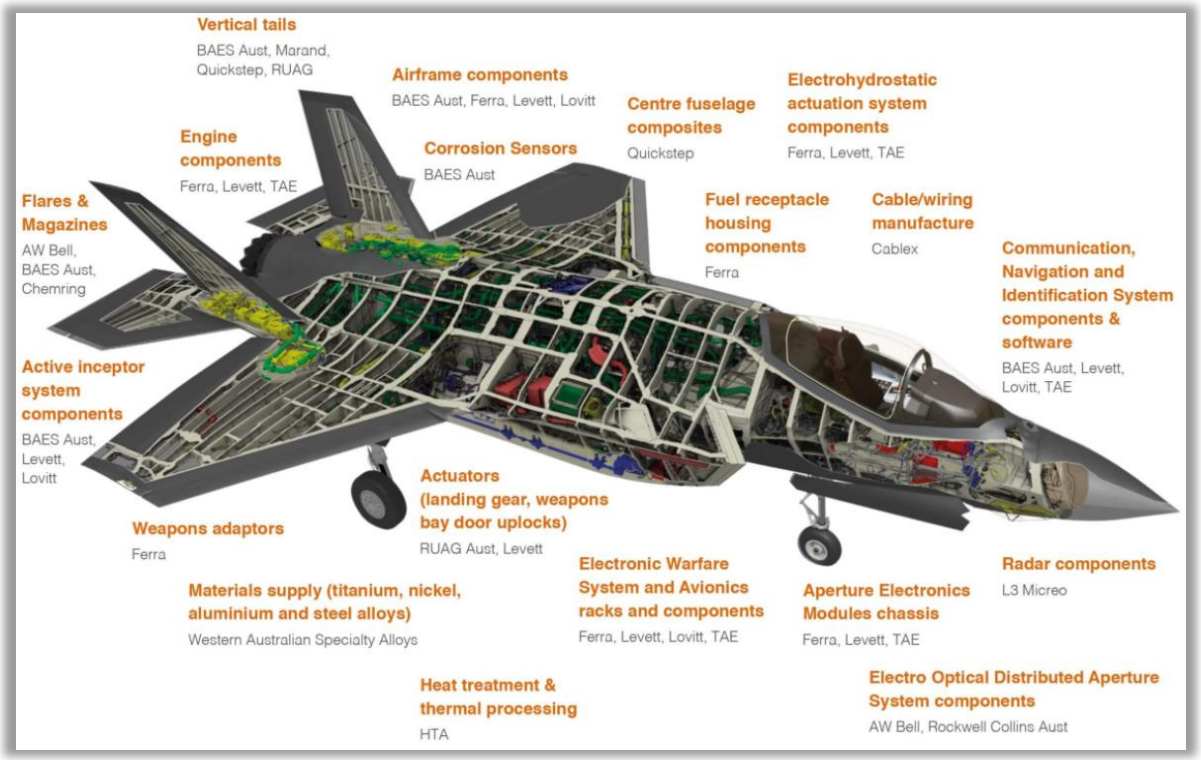
The Lockheed Martin F-35 Joint Strike Fighter is billed as a catalyst for the fifth-generation revolution, changing the face and capability of the Royal Australian Air Force (RAAF) and the wider Australian Defence Force (ADF). Over the coming years, Australia will purchase 72 of the advanced fifth-generation fighter aircraft as part of the $17 billion AIR 6000 Phase 2A/B program – which is aimed at replacing the ageing F/A-18A/B Classic Hornets that have been in service with the RAAF since 1985. To date over a dozen of the aircraft have been delivered to Williamtown. The government has committed to 72 aircraft, with 50 to be based at Williamtown and the rest at RAAF Base Tindal.[45] The RAAF now has more than 40 qualified F-35A pilots and 220 maintainers trained on the F-35A and in December 2020, Defence determined they have reached initial operating capability, meaning the capability is ready for military operations, albeit at a limited capacity to the declaration of final operating capability, when all platforms have been acquired and introduced into service[46].

Australia's participation in the JSF program was identified as a key driver to demand as RAAF Williamtown has been identified as the home base for the Australian squadron. The structure of the JSF program is based on a regional / global sustainment program. As such, facilities developed in Australia for sustainment of the Australian Fleet will allow establishing industries to expand their operations as regional and global contracts are awarded. The existing contracts awarded under the JSF program have identified a demand for two, 2-3 bay hangar facilities airside, with an additional 2.5 hectares of warehousing required for sustainment. A further 2.45 hectares for office-based engineering support and related industries was identified. There are active efforts being undertaken to attract additional sustainment work within the wider Asia Pacific region, which if successful, would require additional land and workforce at Williamtown. This may further support Australian industry involvement in the global supply chain. BAE Systems Australia, who currently undertake sustainment work on the Australian fleet stationed at Williamtown, are looking to expand their operations through a JSF regional sustainment hub for the Asia Pacific in Williamtown.[47]

The Australian Defence Industry involvement in the F-35 JSF is extensive, as illustrated ins Figure 4-4.

[45] F-35A Lightning II, https://www.airforce.gov.au/technology/aircraft/strike/f-35a-lightning-ii
[46] https://www.abc.net.au/news/2020-12-28/australias-joint-strike-fighters-ready-for-deployment-pass-trial/13017700 accessed January 2021
[47] Market Sounding and Demand Report (PwC, 2020)

Figure 4-4 JSF Industry Involvement



Source: Australian Department of Defence - CASG[48]

E-7A Wedgetail

The E-7A Wedgetail is based on a Boeing 737-700, with the addition of an advanced Multi-Role Electronically Scanned Array (MESA) radar, and ten advanced mission crew consoles which can track airborne and maritime targets simultaneously. These highly advanced aircraft provides an Airborne Early Warning and Control (AEW&C) platform that can gather information from a large variety of sources, analyse it and then distribute it to other assets.[49] The RAAF took first delivery of the Wedgetail aircraft back in 2010, with full operating capability was achieved in 2015.

Six E-7A Wedgetails currently located at RAAF Base Williamtown. The Wedgetail AEW&C program has been and continues to be supported by Boeing Defence Australia (BDA), with support from Boeing's Airborne Surveillance Command and Control team in the US and a network of suppliers.

Other aircraft platforms (Poseidon, Hawk, Hornet, Loyal Wingman)

F-18 Hornets

The F/A-18 aircraft are multi-role fighters, capable of air-to-air and air-to-ground missions. The Royal Australian Air Force (RAAF) has operated McDonnell Douglas F/A-18 Hornet fighter aircraft since 1984. The F/A-18A/B Hornets are based at RAAF Base Williamtown and RAAF Base Tindal (Northern Territory). These aircraft are entering their end of lifecycle, and are in the process of being replaced by F-35's.

Hawk Lead-In Fighter

The Hawk LIF is an advanced military jet trainer aircraft which prepares student pilots to master the controls of combat aircraft and trains the RAAF's fast jet aircrew for operational conversion to the F/A-18 Super Hornet, EA-18G Growler and the F-35 Joint Strike Fighter.

[48] Joint Strike Fighter, https://www1.defence.gov.au/about/capability-acquisition-sustainment-group/our-structure/air/jsf/industry-participation
[49] Market Sounding and Demand Report (PwC, 2020)

Loyal Wingman

This program, being led by BDA and the RAAF, seeks to produce three prototype manned-unmanned teaming (MUM-T) concepts for military application. BDA refers to these drones as the Airpower Teaming System (ATS), as they are designed to accompany manned aircraft and putting lower cost unmanned assets at risk during operations.

As part of the Program, BDA and the RAAF have recently conducted the fuselage structural assembly for the prototype of the first Loyal Wingman aircraft. The aircraft is one of three prototypes that will be developed as a part of the Loyal Wingman Program. Other companies involved include BAE Systems Australia, RUAG Australia, Ferra, and AME Systems. BAE Systems delivered hardware kits including flight control computers and navigation equipment for the programme. RUAG delivered the landing gear system; and Ferra supplied precision machine components and sub-assemblies. Market sounding stakeholders noted that BDA would need to be located near the F-35 site to be able to operate maintenance and manufacturing at Williamtown. The first Loyal Wingman prototype will help BDA toward the production of the ATS for the global Defence market.[50]

Poseidon Program

Based at the RAAF Base Edinburgh in Adelaide, the P-8A Poseidon is part of Australia's future maritime patrol and response strategy. The P-8A aircraft and MQ-4C Triton Unmanned Aircraft Systems (UAS) will replace the AP-3C Orions, which are undergoing phase out. The government has recently committed to acquiring 15 P-8A Poseidon aircraft. The P-8A is built specifically as a military aircraft including advanced sensors and mission systems. In March 2019, Boeing secured a US $326 million contract to improve the Australian P-8A Poseidon. The Williamtown SAP could be a key lever in the partnership between Australia and the Poseidon Program and would leverage the jobs and investments that this opportunity would create in the area.[51] The Program could have synergies with the Wedgetail aircraft, given they are both based on the 737 platform.

Battle, Air and Missile Defence Systems (AIR 6500)

AIR 6500 involves the development of a multi-domain joint battle management system (JBMS) to enable coordination of air battle management, joint weapons employment, and ground-based air Defence in operational theatres.[52] Lockheed Martin Australia will be the Prime lead on the Program, in conjunction with several Australian Industry SMEs.

Other Digital Capability Systems

Air Force operations and training relies on IT systems to maintain contact between aircraft, deployed personnel, and command positions. These systems support the multi-role aerial capability. This is done through cable, radio, microwave, and satellites; Air Force also operate some of the world's most sophisticated surveillance and intelligence gathering systems.[53]

Digital Capability Systems are innately linked with the training and operations utilising aircraft at Williamtown.

Combat Controllers and Air Force Security Forces

The Combat Control capability provides air-to-surface integration specialists to ground units across a range of mission profiles from uncertain to high threat environments. They are part of the Air Forces No. 4 Squadron (4SQN) and operate out of Williamtown.[54] Air Force Security Forces also operate out of the airbase, and mainly of relevance to Williamtown are military police as well as airbase protection and security.[55]

Fundamental Inputs to Capability

Achieving a capability requires more than purchasing equipment. A capability is provided by one or more systems and is made up of the combined effect of multiple inputs. The inputs are known as the Fundamental Inputs to Capability (FIC) and are described in *Australian Defence Doctrine Publication 00.2 Preparedness and Mobilisation*. Understanding FIC enables Defence to better understand and manage the whole-of-life workforce and funding implications of a new capability.

Capability is therefore viewed as the effects provided by a 'system' of interlocking and interdependent FIC, comprised of the following:

- **Personnel:** personnel inputs to capability include consideration of recruiting, conducting individual training, and developing and retaining the necessary people with appropriate core skills to meet Defence needs. Personnel includes all people within Defence, both military (permanent and Reserves) and civilian. In developing capability proposals,

[50] Ibid
[51] Ibid
[52] https://www.australiandefence.com.au/news/northrop-grumman-puts-out-call-for-air-6500-support
[53] https://airforce.defencejobs.gov.au/about-the-airforce/technology
[54] https://www.airforce.gov.au/news-and-events/news/your-combat-control-career-starts-here
[55] https://airforce.defencejobs.gov.au/jobs/combat-and-security/

projects must clearly define what workforce (from Defence and industry) will be required when, and with what competencies and skill sets

- **Organisation:** organisation is the appropriate personnel establishment, balance of competencies and structure to accomplish Defence tasks and to ensure appropriate command and control. This provides the underpinning structure for Defence
- **Collective training:** collective training applies across combined, joint, single-service and unit levels. To optimise performance, organisational elements must undertake a comprehensive and ongoing collective training regime validated against the preparedness requirements for operations, derived from government guidance
- **Major systems:** major systems include significant platforms, fleets of equipment and operating systems designed to enhance Defence's ability to engage military power. Major systems are core components of capability, and often comprise systems of principal items in their own right, or equipment which regularly requires more detailed reporting and management
- **Supplies:** supplies must be available for units and force elements to conduct the necessary training activities and ongoing administrative tasks required
- **Facilities and training areas:** facilities include buildings, structures, property, plant, equipment, training areas, civil engineering works, base support areas and associated through-life maintenance and utilities necessary to support capabilities, both at the home base and at deployed locations. Training areas include any area of land, sea, undersea or air that may be designated for military manoeuvres or simulated wartime operations involving planning, preparation, and execution, carried out for the purpose of training and evaluation. Training areas may contain a variety of ranges within their boundaries. Ranges include all air, land and/or sea areas used for Defence live-firing weapons practices, tests, or operations. Training areas also contain facilities and infrastructure that support training
- **Support:** support includes infrastructure and services that are integral to the maintenance of Defence effort in Australia and worldwide to support deployed Defence capability. It includes, but is not limited to, training/proficiency support; supply support, movement, and transport; infrastructure support; garrison and other shared services support; housing, relocations, and family support; health support; research and development; communications and information technology support; and administrative services. Agencies that could provide support include:

    i) Other Defence outputs (e.g., Navy, Army, Air Force, Intelligence)
    ii) Defence output enablers (e.g., Defence Support and Reform Group (DSRG), Chief Information Officer Group (CIOG), etc)
    iii) Owner support agencies
    iv) Civil/private industry/contractors
    v) Other government agencies (e.g., AusAID and Emergency Management Australia)
    vi) International support base agencies.

- **Command and management:** command and management include the responsibilities, defined command and control mechanisms, doctrine, security, processes, and procedures to enhance the military effectiveness of Defence. Command and management underpin Defence's operating and management environments through enhanced command and decision-making processes, procedures, and management reporting avenues. Command and management processes at all levels are required to plan, apply, measure, monitor and evaluate the functions an agency performs, with due cognisance of risk assessment and subsequent risk management.

Understanding whether these capabilities have changed or are expected to change from those in place over the last decade will inform whether Defence intend increasing activity at Williamtown[56].

4.3.2. Demand driver: Existing infrastructure

Newcastle Airport

Newcastle Airport is a gateway to The Hunter Region with a national economic contribution of nearly $1.2 billion per annum, this includes an employment contribution of more than 5,600 jobs.[57] In 2019 there were five airlines servicing the region: Jetstar, Virgin Australia, QantasLink, FlyPelican, and Regional Express.

The top three routes included Brisbane, Gold Coast and Sydney. Over 1.2 million passengers pass through the airport each year. This is forecast to increase to over 2.6 million passengers by 2036.[58] In 2018 the airport hosted a trial of international flights to New Zealand, though this was discontinued. It is noted that COVID-19 has had a significant impact on air travel. However, due consideration has been given to pre- and post-COVID-19 affectations.

[56] Ibid
[57] MacroPlanDimasi, Williamtown Aerospace Precinct – Employment Area Analysis, June 2019
[58] Newcastle Airport Pty Ltd, Newcastle Airport Vision 2036

Air freight at Newcastle Airport operates only on a domestic capacity carried by QantasLink and Virgin Australia. A recent assessment undertaken into the potential international air freight demand suggests that there is potential for a total of 20,519 tonnes of freight to be exported through the Newcastle Airport, increasing to 48,700 tonnes by 2040.[59]

The Jetstar heavy maintenance facility was closed in late 2020, displacing a number of workers. The Federal Government has also announced a $66 million upgrade of the Newcastle Airport runway to international standards in the recent budget, allowing the airport to cater for larger international aircraft, including Boeing 787s and Airbus A330s.

Defence and Aerospace Related Employment Zone

The existing DAREZ, adjacent to RAAF Base Williamtown, contains the Astra Aerolab Business and Technology Park (Astra Aerolab) and the Williamtown Aerospace Centre (WAC) including 1 Technology Place and Proposed WAC - Stage 2.

The strategic importance of the DAREZ[60] is highlighted in terms of:

- The important and critical dimension it could potentially add to economic activity,
- The importance of protection and support to operations of RAAF Base Williamtown,
- A critical need for employment lands in close proximity to the existing base and airport,
- Its strategic location at the junction of road links to Newcastle and the F3 Highway, and
- Environmental management needs including flooding, soils, and habitat management.

The Williamtown SAP will be able to leverage the DAREZ works to date, has a strong strategic location within The Hunter Region, and will strengthen the existing Defence and aerospace industry.

Several Defence 'Primes' have significant operations in Williamtown, which are directly related to the programs they are supporting in the region:

- Boeing: Wedgetail Program, Hornet Program, and
- BAE Systems: F35 JSF Program.

During the market sounding process, it was reiterated that the scale of investment by Defence industry is largely dependent on the contracts they win, or programs which are based in the region.

Figure 4-5 shows the incumbent companies situated in 1 Technology Place, as well as the broader airfield.

[59] Morrison Low (2019), Newcastle Airport International Air Freight Demand Forecasts and Economic Impact Assessment

[60] https://www.portstephens.nsw.gov.au/grow/local-area-planning-strategies/williamtown-defence-and-airport-related-employment-zone-land-use-strategy

Figure 4-5 1 Technology Place

Source: Market Sounding and Demand Report (PwC, 2020)[61]

RAAF Base Williamtown

RAAF Base Williamtown[62] is an Air Force base which has been part of The Hunter since the late 1930s when the Defence Practice Area was first designated at Williamtown. RAAF Base Williamtown provides significant economic value to the region, directly employing 3,500 people with combined salaries in excess of $280 million per annum. The base is also the workplace of several contractors supporting the major programs and industry housed in and around Williamtown, with a total of approximately 4,700 workers on base.[63] Housing is also significant in the area as Defence Housing Australia (DHA) holds 857 properties in the region, with an annual economic contribution of $17.9 million in rent, this does not included members opting to purchase private residences.

There has also been significant capital works in the base in preparation for the Joint Strike Fighter's introduction in 2019. Completed capital works include:

- The first two stages of the Williamtown Redevelopment (costed at $368 million)
- New Air Combat Capability Works (costed at $679m)
- Aircraft Clear Water Rinse Facility (costed at $3 million)
- A runway extension (costed at $200m).[64]

In addition, the base also provides significant social value to the local community, with over 2,000 families living in the community, attending local schools, playing in sporting teams and contributing to local volunteer organisations and community groups.

An estate base plan is currently in draft for RAAF Base Williamtown, which will outline the capital requirements and growth 'inside the fence' out to 2040.

[61] Market Sounding and Demand Report (PwC, 2020)
[62] https://www.airforce.gov.au/about-us/bases/new-south-wales/raaf-base-williamtown
[63] Defence Stakeholder Interview
[64] https://www.airforce.gov.au/about-us/bases/new-south-wales/raaf-base-williamtown

5. Market Sounding Findings

5.1. Purpose and approach

Market sounding was undertaken to understand the demand for land and economic activity in the study area, as well as planning and development factors that contribute towards making Williamtown SAP an attractive place to do business. Notably, this report and market sounding activities build on previous work undertaken for the Williamtown SAP (by PwC and MacroPlanDimasi, respectively).

The market sounding approach included identifying potential industries that could be accommodated by Williamtown SAP and would be considered as either adjacent or ancillary industries to the (current) Defence and aerospace industry. The rationale for this approach was to test a '*what could be possible*' scenario through considering opportunistic industries, as well as a more traditional scenario, to help inform the master planning process. An overview of the industries and stakeholders interviewed during the market sounding are summarised in the Table 5-1.

The interviews were held via teleconference, with introductions led by the Department of Regional NSW and questioning facilitated by Deloitte (refer to Appendix A for the types of questions asked during the interviews).

Interview findings were synthesised and summarised into key themes to inform the scenario development process.

Table 5-1 List of stakeholders consulted

Industry	Stakeholders consulted[65]
Defence and Aerospace	• Boeing Defence Australia • Lockheed Martin Australia • Future Air Traffic Control Fixed Radars – Hensoldt • Centre for Defence Industry Capability • Defence Estate & Infrastructure Group • Joint Capabilities Group • AirMan Ops • Defence NSW • TAE Aerospace • Air-Vice Marshall Hoffman • Defence Surveillance & Control Systems Program Office (S&CSPO) • Bohemia Interactive Simulations
Advanced Manufacturing	• Williams River Steel • CISCO (smart base) • Exact Tech Australia
Energy	• Energy Estate • Newcastle Institute Energy and Resources
Freight and Logistics	• Port of Newcastle • Joint Capabilities Group • Transport Associations
Agribusiness	• Canngea • Booma
Planning and Development	• Hunter Business Chamber

[65] Conversations captured with stakeholders are confidential in nature and therefore have been provided separately to the Department of Regional NSW to inform their ongoing discussions with stakeholders around the Williamtown SAP

Industry	Stakeholders consulted[65]
	• Committee for the Hunter • Hunter Joint Organisation of Councils • Colliers International • Adjoining landowner consortium • Knightsbridge Estate Group • Australian Logistics Council
Tourism and Hospitality	• Destination Sydney Surrounds North • Hunter Tourism • Newcastle Tourism Infrastructure Group

Source: Deloitte Analysis (2021)

5.2. Key themes

Overall, findings from the market sounding supported the service need identified for the Williamtown SAP (refer to Section 5) and determined that there is a market failure – in terms of planning for the area (e.g., the correct amenities and infrastructure were not in place to support and attract investments), which, if left unaddressed, may result in a siloed approach in development and less economic development and job growth opportunities. Further detail around the market failure is discussed in Section 5.4.

However, given current the proximity of Defence industries and programs, as well as key transport/movement assets (i.e., Newcastle Airport) the Williamtown SAP presents several potential land use opportunities and implications. These constraints and opportunities are discussed in detail in the following sections – with data captured during the market sounding informing the scenario development process (refer to Section 7).

Findings from this market sounding were consolidated with previous work and validated through desktop research to develop key themes for the Williamtown SAP. Key themes provide a broad view on the (revalidated) service need and (identified) opportunities for the Williamtown SAP. Opportunities identified were assessed to develop economic scenarios for the Williamtown SAP, which quantify potential land use opportunities and assess the implication of these for the Williamtown SAP (used to inform future master planning for the Williamtown SAP).

Overall, key themes from the market sounding included:

1. Need for Williamtown SAP to establish enabling infrastructure (such as roads and public transport access, communal office spaces) and amenities (shared use, retail, and leisure) to support and attract workers and investment in the region
2. Need to focus on the development of skills needed within the community through targeted training programs, and also address the perception that there is a shortage of skilled workers (where there is no shortage), as identified in previous market sounding work
3. Need for a coordinated government driven investment attraction strategy to support the establishment, expansion, and development of businesses within the Williamtown SAP
4. Need for a coordinated and competitive government approach to attract investment for the Williamtown SAP
5. Opportunity for growth of the existing Defence industry leveraging unprecedented level of Defence industry grants/programs
6. Opportunity for expansion of adjacent sectors (such as the Aerospace industry)
7. Opportunity for growth through incorporation of non-adjacent sector (agribusiness) and support sustainable precinct development.

A summary of the collective findings supporting these key themes is presented in further detail in the following sections.

1. Need for Williamtown SAP to establish enabling infrastructure (such as roads and public transport access, communal office spaces) and amenities (shared use, retail, and leisure) to support and attract workers and investment in the region

Enabling infrastructure is required to attract investment and workers: stakeholders identified that enabling infrastructure (such as utilities, road upgrades, public transport, and secure digital services) were key considerations to support businesses and attract and retain investment for the Williamtown SAP. Some stakeholders indicated that the area was currently not well facilitated by transport links, with driving the predominant mode of transport. There was shared sentiment that greater transport options, particularly in the Newcastle to Williamtown corridor, were important to the area given that there was a lack of public transport upon arrival at the airport.

Key to attracting investment is accessibility, with transport links facilitating precinct activation: consultation with a major real estate company suggested that one of the first considerations to attract investment is accessibility (i.e., is the location well facilitated by transport, road, rail, and public transport). While another Stakeholder commented that when considering locations for expansion, the choice would be to select an area closer to transport hubs. Several stakeholders noted that greater transport connection was required in Williamtown (to make the SAP competitive with other comparable regional centres/hubs), as well as faster transport links to allow the SAP to leverage growth in neighbouring regions (e.g., Newcastle and Port Stephens). One stakeholder commented that Williamtown was isolating, with very few things to do, and not a particularly nice place to stay.

Improved IT infrastructure will enable the precinct to leverage current future market trends: one stakeholder focussed on the need to get the IT infrastructure correct from the beginning, as this would set the precinct up in a 'nice way 'noting the current and future trends around the digital workplace and cybersecurity. Secure and fast networks (5G) was mentioned by several stakeholders as being critical to their operations.

Shared amenities are beneficial for attracting Small and Medium Enterprises: there appeared to be an appetite by stakeholders for shared and collaborative office spaces/ conference areas. One stakeholder suggested this would be beneficial to attracting smaller start-ups, which bring with them some of the brightest talent in the country. Given that the Primes are talent driven businesses, they would want to have a presence – alike to what is occurring at Lot 14 in South Australia. Security within the precinct was noted as a significant advantage, not only to Defence, but other sensitive businesses such as data centres, and even a cannabis manufacturer who was considering investment in the SAP.

Amenities provide improved precinct attraction and liveability and will facilitate precinct-wide activation for the SAP: to support and attract a skilled workforce to the area stakeholders commented that commercial activities needed to be well facilitated to adjoining retail facilities and amenities (such as cafes, shops, etc), as well as common-use facilities (such as serviced apartments and conference facilities).

> *"There is value in greater amenities at Williamtown, gym, cafes, walking areas, as the area needs to be able to attract talent. There needs to be enough there to make it an attractive place to work."*
> *– Williamtown SAP Market Sounding Stakeholder, 2021*

Given the Defence 'Primes' are talent driven businesses, it is important that they locate in areas where people want to work and live for the long term. Improving these amenities will increase the probability they locate at Williamtown, and the scale at which they operate.

These outcomes build on and support previous consultations for the Williamtown SAP which indicated that: *access to skilled workers, office/warehousing/hanger space, shared facilities and infrastructure, and investment attraction incentives were important factors in influencing the location of Defence contractor establishment. In addition, potential investors identified that they would actively consider Williamtown as a location for business investment if additional airside access is made available. Infrastructure both within and outside the base to improve amenity and establish a campus style environment. This includes high quality affordable accommodation, new business park facilities, educational institutions, cafes, sporting, and recreation facilities.*[66]

Insights

- **A lack of enabling infrastructure (roads, public transport, IT etc.) and amenities (shared spaces, conference areas, retail, and leisure facilities) has resulted in a failure to trigger investment and attract workers to the Williamtown SAP area. The network infrastructure investment requirement outweighs the benefit any one organisation can realise disincentivising early movers.**

[66] PwC, Williamtown Special Activation Precinct Market Sounding and Demand Report, February 2020

2. Need to focus on the development of skills needed within the community through targeted training programs, and also, to address the perception that there is a shortage of skilled workers where there is no shortage, as identified in previous market sounding work

Given the current Defence industry focus there is a skilled/technical workforce available: stakeholders identified that there is no difficulty in finding skilled workers, given workers skills in the region are applicable to manufacturing, mining, agriculture and Defence industries, which have been the focus of the region historically.

There is a perception of a skills shortage: given the heavy focus towards these industries, current capabilities within Williamtown are perceived as more fragmented in nature – leading to the perception of a skills shortage/gap.

Training opportunities are required to meet the demand of future industries (where they differed from Defence) and retain a skilled workforce: though no shortage in skills was identified, stakeholders noted that where future industries differ from those seen historically located in the area, retraining of workforces may be required to meet the requirements of future industries (and retain personnel within Williamtown). The need for training and retention of skilled workforces with Williamtown was remarked as a key consideration for the area, which required establishing a vibrant and attractive area to work with opportunities for continual career development through providing amenities (e.g., cafes, gyms, and retail spaces). In addition, stakeholder comments that training facilities/programs within the SAP (and in proximity to business/jobs) would present opportunities for long term careers – that is, a pathway from training to employment all located within the SAP.

Stakeholders were receptive to the idea of a communal training facility located on site, which could support reskilling for businesses within the SAP and engage industry participation.

Attracting and retaining a skilled workforce was depended on whether an area was appealing to work in and whether there were opportunities for career progression: stakeholders indicated that "*transport and amenities (e.g., coffee shop and retail spaces) [are] required for a place to be attractive to work in*" and "*scale of industries and programs needed for personnel to see career progression*". Currently, there is a need for improved investment in transport and amenities for the area. Further, there are several dedicated Education facilities (TAFE and University of Newcastle) that delivered retraining courses and opportunities for skills suited to Science, Technology, Engineering and Maths (STEM) industries. However, stakeholders suggested that there was scope for further focussed TAFE and university courses (aligned to future industries) as well as potentially a university within the SAP.

These outcomes support previous consultations for the Williamtown SAP which indicated that: *there is a perception of a shortage of skilled workers such as aircraft technicians and engineers in the region. However, existing businesses noted that there was not a shortage of skilled workers. Further, these businesses have successfully recruited and retrained Defence personnel and employees from related sectors such as mining and software. In addition, there are several programs, initiatives and partnerships between industry bodies, educational institutions and business in the region which aim to ensure that there is a suitably skilled workforce available to meet current and future needs.* [67]

Insights

- **There are misperceptions around the Williamtown SAP study area are inhibiting future investment, which, to address, the government should consider providing a consolidated webpage with information regarding the Williamtown SAP to inform potential investors and businesses**
- **Attracting and retaining a skilled workforce was dependent on whether an area was appealing to work in and whether there were opportunities for career progression. To ensure that the Williamtown SAP provides an appealing destination experience, government should consider precinct-wide investment, such as improved retail, leisure, and education amenities/facilities.**

[67] ibid

3. Need for a precinct-wide approach to land use planning to support the establishment, expansion, and development of businesses within the Williamtown SAP

Key planning and development constraints need to be addressed: stakeholders identified that for the Williamtown SAP to attract and support investment, major constraints (such as flooding, PFAS) needed to be addressed; with PFAS management required as well as upgraded hydrology (to address flooding and storm water) and sewage infrastructure. Current infrastructure and flooding mitigations were noted as inadequate, and PFAS contamination was noted as an ongoing and key concern for businesses in the area.

Appropriate land use planning is required to support future development: stakeholders noted that the underlying land use and zoning required to establish and expand business/operation was not in place, and where required would involve a lengthy process. Current businesses suggested there is demand for commercial and aviation industries, but rural zoning in the area (e.g., RU2 zoning) which limits development opportunities and restricts commercial and aviation industry uplift.

These outcomes support previous consultations for the Williamtown SAP which indicated that: *a precinct-wide solution to PFAS, flooding and drainage [is required]. Businesses are reluctant to invest in Williamtown due to the negative perceptions regarding the implications and risks of PFAS contamination. There are complex drainage issues in Williamtown which are unable to be effectively managed by Council. Flooding, PFAS and drainage cannot be effectively or efficiently managed on a site-by-site basis [i.e., require a precinct-wide approach]. The length of time taken for the private sector to receive development approval is increased due to flooding, PFAS and drainage issues. Investment opportunities have been lost in Williamtown as land is not appropriately zoned and development applications have not been approved in a timely manner, with streamlined planning is required to enable rezoning, reduce development approval timeframes, and activate land supply. [Further] the land in the Williamtown SAP investigation area is not appropriately zoned for Defence and aerospace industry uses.*[68]

Insights

- **Addressing development constraints (flooding and storm water management, PFAS and sewage infrastructure) and providing appropriate land-use planning (zoning) is required to support the development of the Williamtown SAP. Reducing market uncertainty and driving greater coordination and collaboration across land-owners and investors will be important for catalysing economic activity.**

4. Need for a coordinated government driven investment attraction strategy to support the promotion of the Williamtown SAP for new and existing business establishment, expansion, and development.

A coordinated government-driven investment attraction strategy is required: stakeholders suggested there was a need for "*collaboration between state and local governments*" to provide a streamlined approach for investment attraction and development of the Williamtown SAP. Stakeholders noted that there appear to be "*several things happening at once*" for the area. However, it was also noted that there is limited collaboration/consolidation of activities between different agencies.

The current investment attraction strategies are not competitive compared with other Australian States: the market sounding identified a need for a competitive government approach to attracting investment for the Williamtown SAP, noting that opportunities are lost to other inter-state locations, where there is a consolidated "concierge" system (website[69]) which provides an overview of opportunities, grants and funds provided by State-governments to support and attract businesses to region/Williamtown SAP.

One stakeholder noted the need for government to provide more certainty in the offerings of grants and incentives, especially in terms of the duration of the programs. The participant stated that it was tough to make commercial decisions which are contingent on funding, when the funding can be arbitrarily pulled out from under them at any point.

These outcomes support previous consultations for the Williamtown SAP which indicated that: *due to the high commercial value of airside land, there is a desire for coordinated development to maximise land use outcomes. Several investment attraction initiatives are being undertaken independently by Local and State government agencies including Defence NSW, ORED, DPIE Regional, RDA Hunter, HunterNet and Council. Agencies are often targeting investment attraction opportunities with the same business in isolation and with inconsistent offers and incentives, particularly with respect to the Williamtown*

[68] ibid
[69] Advance Queensland, Industry Attraction Fund, https://advance.qld.gov.au/industry

SAP. The market sounding process identified several lost investment opportunities due to other States providing more attractive investment incentives.[70]

Insights

- **There is a market perception that the Williamtown SAP has several misaligned government strategies, which results in market uncertainty regarding the area (as well as susceptibility to misinformation in the market). A coordinated government-driven planning and investment strategy is required to ensure that a consolidated view of supporting information is provided to the market to inform businesses.**

5. Opportunity for growth of the existing Defence industry leveraging unprecedented level of Defence industry grants/programs

Demand for additional land use requirements is expected to grow organically to support growth in the Defence industries: stakeholders noted that a large portion of business growth is organic (i.e. expansion of existing industries/ businesses/ adjacencies), with existing/awarded Defence contracts identifying demand for additional facilities to support current activities (i.e. two 2-3 bay hangar facilities airside, with an additional 2.5 hectares of warehousing, 2.45 hectares for office based engineering support as well as related industries).

Growth is supported by the existing Defence and Aerospace hub as well as Defence programs: growth in the Defence industry is predominantly supported by the proximity of the RAAF Base at Williamtown and the Newcastle Airport, as well as a pre-existing Defence cluster/hub at WAC and DAREZ. Furthermore, existing programs such as the JSF have been identified as a key driver of future growth for Williamtown, supported by the current Wedgetail, AIR6500 and the upstream Hawk lead in fighter replacement programs; with demand likely to be generated where programs eventuate. In addition, existing Defence contractors identified additional land equating to 11 hectares of combined hangar and warehousing space and workforce as programs rolls out in the region.

These outcomes support previous consultations for the Williamtown SAP which indicated:

- *Williamtown Aerospace Precinct – Employment Area Analysis (MacroPlanDimasi market sounding, 2019): by 2025 there was (high probability) for demand of approximately 88ha at the Williamtown SAP, with 70.8ha for Defence contractors (remaining split between non-Defence aerospace, supplier firms, RAAF off-base activities and amenities). These projections were estimated to increase to a total of 143ha of land required (with 101ha for Defence contractors) by 2030*
- *Market Sounding and Demand Report (PwC, 2020): the greatest opportunity identified for Williamtown SAP was to establish a national and international Defence hub, building on the region's proximity to the RAAF Base at Williamtown, the presence of Defence contractors in the region and significant investment opportunities within the JSF Program. Opportunities exist in terms of the existing infrastructure including RAAF Base Williamtown, Newcastle Airport, 1 Technology Place and the development of the Astra Aerolab, and JSF Program including the additional contracts to be let for the sustainment of the global JSF Fleet and the establishment of a Regional Sustainment Hub in Williamtown. Further growth in a Defence industries cluster presents several benefits for the area, such as increase productivity, increased innovation, business establishment and expansion, and facilitation of knowledge and learning.*

Demand for this opportunity will be further investigated as part of the Scenario Analysis (refer to Section 7).

Insights

- **Growth and demand for the Williamtown SAP is supported by the existing Defence and Aerospace hub as well as Defence programs, which are expected to grow organically in the future – requiring further land/ amenities to support growth. Growth in these industries can support precinct activation and be leveraged to expand adjacent industries within the Williamstown SAP**
- **Potential land use opportunities (and the implications) arising from 'organic' growth in the current state of the Williamtown SAP are discussed further as part of the 'Scenario 1' analysis.**

[70] ibid

6. Opportunity for expansion of adjacent sectors (such as the Aerospace industry)

Current infrastructure supporting the Defence hub provides a comparative advantage to also support adjacent industries: stakeholders indicated that there is a competitive and comparative advantage that Williamtown presents, with pre-existing trunk infrastructure (e.g., NBN, fibre optics, secure network) that support the Defence industry in the area and would also provide a comparative advantage for adjacent industries to succeed and expand in the area.

In addition, given its' regional location and Defence hub, Williamtown presents a low risk and secure location to support the Aerospace (and space) activities. Adjacent industries would also consider the proximity of the Newcastle Airport and pre-existing Aerospace Centre as comparative advantages of Williamtown (compared with other locations across Australia). Stakeholders also noted that similar to current Defence capabilities at Williamtown, they would need aerospace would need to be supported by air side access.

Investment in adjacent industries (such as aerospace) presents ancillary benefits, through the development of supporting markets such as advanced manufacturing (which can leverage investments in the Aerospace industry): a major aerospace company commented that planning to Williamtown as an aerospace precinct would likely "*automatically facilitate the right kind of inputs, such as advanced manufacturing*". However, this was contingent on additional support from the community and government to ensure the correct infrastructure and planning process were in place. Furthermore, desktop research further supports a potential opportunity for expansion of Aerospace industries, noting that space-related activities present ancillary benefits/impacts for a region, given "*the space sector provides essential data and services*"[71]; and highlights that there are ancillary and supporting benefits associated with these industries, such as support for manufacturing as well as emergency management (i.e., bushfire readiness).

> *"Opportunity to be one of the first locations which outlines a pathway for development of space activities within the precinct…"*
> *– Williamtown SAP Market Sounding Participant, 2021*

There is a government focus towards increasing capabilities in the Space industry: The *Advancing Space – Australia Civil Space Strategy 2019-2028*, indicates that, nationally, there is a focus on increasing capability (supported by the Space Infrastructure Fund) and delivering success through robotics and automation as well as research and development. [72]

These outcomes support previous consultations for the Williamtown SAP which indicated there are *opportunities to support growth in the existing Defence and aerospace industries through for common-user facilities and equipment including workshops, classrooms, conference/meeting rooms, convention spaces, testing facilities and training facilities with simulated working environments. There is an opportunity to grow freight volumes at Newcastle Airport to support the growth of the Defence and aerospace cluster including Defence manufacturing and technology, Defence logistics and advanced manufacturing equipment.*[73]

Demand for this opportunity will be further investigated as part of the Scenario Analysis (refer to Section 7).

Insights

- **Current infrastructure supporting the Defence activities also provide a comparative advantage to support growth of adjacent industries, given supporting markets/ ancillary services (such as advanced manufacturing) also support adjacent industries (Aerospace). Resulting in an opportunity to grow adjacent industries for the Williamtown SAP**
- **Potential land use opportunities (and the implications) arising from growth for the Williamtown SAP through the expansion of adjacent sectors is discussed further in the 'Scenario 2' analysis in Section 7.**

[71] Definition of the Australia spec sector, https://www.industry.gov.au/data-and-publications/definition-of-the-australian-space-sector
[72] Advancing Space – Australia Civil Space Strategy 2019-2028, https://publications.industry.gov.au/publications/advancing-space-australian-civil-space-strategy-2019-2028.pdf
[73] ibid

7. Opportunity for growth through incorporation of non-adjacent sectors and support sustainable precinct development

Leveraging current infrastructure and skills can grow ancillary service (which also support non-adjacent industries) through knowledge-transfer: stakeholders indicated potential for future development to leverage the existing infrastructure (i.e. Newcastle Airport) and skilled workforce (i.e. Defence primes) which currently supports the Defence and aerospace industries at Williamtown to grow ancillary industries/services – such as advanced manufacturing, clean technologies and agri-business. Given the existing Defence activities and workforce could support knowledge transfer to support advanced manufacturing and clean technology research and business operations; and the proximity of (relative) low-cost land parcels within the Williamtown SAP to Newcastle Airport presents an opportunity for agri-business to be established and operate.

Growth in ancillary services (advanced manufacturing clean tech) and industries (agri-business) supports broader government objectives as well as sustainable precinct development: through leveraging existing industries and supporting infrastructure and workforce there is potential for growth in ancillary industries, which would support economic outcomes for the Williamtown SAP, as well as overarching government objectives with regards to Industry 4.0 and clean energy targets.

"…Opportunity to be more involved in the manufacture of composite materials for space and defence, particularly if the manufacturing site is close to the customer; ...future trends includes energy and agriculture…"
– Williamtown SAP Market Sounding Participant, 2021

Energy and Agriculture have been identified as future trends for the area: the market sounding responses suggest that future trends to consider for the area include energy and agriculture. Two stakeholders looking at innovative agriculture methods were interviewed as part of the process, in the areas of vertical farming and cannabis production, who were strongly considering investment in the SAP. Proximity to the airport for exports, and the high security of the area were strong selling points for these businesses.

Leveraging the proximity of Newcastle Airport can lead to growth in and demand for non-adjacent industries: the market sounding responses also indicated that there is demand in the region to support other industries such as tourism, which can be expanded through leveraging the precinct's proximity to Newcastle Airport. In addition, growth in demand for tourism may also lead to demand for additional common use amenities in the area (such as serviced accommodation).

"…with the SAP and the area there is more scope for bringing other businesses into the area…You have the Nelson Bay Peninsula with a lot of traffic for general business and have a business zone, [and] the demand will be there.
– Williamtown SAP Market Sounding Participant, 2021

Demand for this opportunity will be further investigated as part of the Scenario Analysis (refer to Section 7).

Insights

- **Leveraging Newcastle Airport and the current skilled workforces can support growth in other industries (such as agri-business and tourism) – with knowledge-transfer from ancillary services that currently support Defence activities (such as advanced manufacturing and clean technologies) and the proximity of airport to large parcels of available land, providing a sustainable growth model to create, grow and support demand for tourism and agriculture**
- **Potential land use opportunities (and the implications) arising from growth for the Williamtown SAP through the expansion of non-adjacent sectors is discussed further as 'Scenario 3 and 4' in Section 7.**

Overall Competitive Advantage of the Williamtown SAP

Stakeholders noted the competitive advantages of locating their business in Williamtown compared with other similar regional towns included:

1. The availability and low cost of land (compared with Newcastle and Western Sydney)
2. The Port of Newcastle close by to the Williamtown SAP has land available and cheap relative to other Ports, and it is the only Port connected to in land rail
3. Interconnectedness with other major cities via the Airport – it is an accessible small city/rural area
4. Cheaper workforce than Sydney – lower living costs generally translate to lower wage expectations
5. Several offerings within close proximity: wineries in land, beaches, lakes, substantial cities close by (Newcastle, and Sydney beyond that)
6. The nature of the Williamtown SAP will speed up approval processes relative to other areas; and as supported by previous work (Williamtown SAP Market Sounding and Demand Report (PwC, 2020))
7. The greatest opportunity and competitive advantage for the Williamtown SAP is to establish it as a national and international Defence hub, supported by the RAAF Base at Williamtown, the existing presence of Defence contractors and investment opportunities provided by on-going and future Defence programmes (such as the JSF Program).

Overall, key themes from the market sounding (combined with previous work) support the service need identified in Section 5. As well as identifying several opportunities for land use to enable precinct-wide activation of the Williamtown SAP, including:

- Supporting 'organic' growth in current industries and hubs (Defence)
- Exploring growth of adjacent/complementary industries (aerospace)
- Exploring opportunities for growth in non-adjacent/ancillary industries (e.g., agribusiness).

In the following sections, potential opportunities are explored further as scenarios for the Williamtown SAP, to understand the economic implication of the current and projected demand (and land use requirements), and potential 'needs' are explored further to determine market failures (cause, effect and interventions) for the Williamtown SAP in the following sections.

5.3. Key findings and insights

Key findings of relevant industries/programs for the Williamtown SAP, their indicative land use, and any specific requirements of land if it were allocated for their use are outlined in Table 5-2. Indicative footprints do not include buffer requirements.

The indicative land use requirement information from stakeholders has supported further analysis by Deloitte for scenario development, which provides an additional perspective around how Defence and aerospace capability has the potential to catalyse new programs and ancillary industries.

Table 5-2 List of indicative land use by stakeholder

Program / Industry	Indicative land footprint required	Description of land use	Time Horizon
1. Existing programs and industries			
F35 Joint Strike Fighter	No change	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
Hawk Lead-In Fighter	No change	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
Wedgetail	No change	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present

Program / Industry	Indicative land footprint required	Description of land use	Time Horizon
Hornet	No change	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
Loyal Wingman (Teaming Air Vehicles)	No change	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
RAAF Base Williamtown	7 hectares	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support, accommodation and amenity	Present; additional footprint required by 2040
Defence Contractors	19.8 hectares	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support, accommodation and amenity	Present; additional footprint required by 2040
Newcastle Airport	6.8 hectares	Expansion of apron and terminal facilities, pedestrian plaza, aero-bridges, car parking, business precinct and additional food, beverage and retail facilities	Present; currently fully developed
Tertiary skills and education	3 hectares	Education facilities, 3 ha identified	Present; additional footprint required by 2040
Astra Aerolab Stage 1	8 hectares	Aerospace related manufacturing facilities, cafes, parks and cycle ways	Under development and sale
Astra Aerolab Stages 2-6	38 hectares	Aerospace related manufacturing facilities, cafes, parks and cycle ways	5Y-10Y
1 Technology Place	3 hectares	Commercial and industrial space, airport terminal related services, general office space	Present; currently fully developed
Proposed WAC - Stage 2	8.3 hectares	Warehouse, logistics and distribution, workshop and assembly space, commercial and light industrial space	Present; not yet zoned for described land uses.
I2N Hub Williamtown		Office space	Present
2. New or expanded Defence programs			
F35 MROU Asia Pacific Fleet Sustainment	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	5Y

Program / Industry	Indicative land footprint required	Description of land use	Time Horizon
P8-Poseidon Sustainment	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
Classic FA-18 and EA-18G Growler Replacement	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	10Y
Wedgetail Sustainment and Replacement	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	10Y
Hawk Lead-In Fighter Replacement	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Tenders Submitted
F35 Replacement Evaluation and Design	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	20Y
C-130J Hercules Replacement	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	10Y
KC-30A Replacement	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	15Y
Air 6500 Joint Air Battle Management and Missile Defence System	No current commitment	Mix of hangar facilities, warehousing for sustainment and office space for engineering and program support	Present
3. New adjacent industries			
Data management and storage	2-5 hectares	Warehouse, logistics and distribution, commercial office space	20Y
Physical storage, warehousing, logistics	10 hectares	Warehouse, logistics and distribution	20Y
Advanced manufacturing	5 hectares	Warehouse, logistics and distribution, workshop and assembly space, commercial and light industrial space	20Y
Freight and Logistics	2 hectares	Warehouse, logistics and distribution, commercial office space	20Y
New skills and education investment / initiatives	1-2 hectares	Office space	20Y
Civil Aviation Training	1-2 hectares	Education and training facilities	20Y
Cyber security	1 hectare	Commercial office space	20Y

Program / Industry	Indicative land footprint required	Description of land use	Time Horizon
Space	8.5 hectares required for aerospace industry	Aerospace related facilities, R&D facilities, commercial office space	20Y; additional footprint required by 2040
4. New non-adjacent industries			
Innovative energy types: Hydrogen	2-3 hectares	R&D space, office space	Ultimate
Innovative agribusiness industries: Hydroponics / Vertical Farming / Aquaponics	5-10 hectares	Addition of vertical farming facilities, office space	5Y
Tourism and Hospitality - Major Investment (Ikea, Theme Park, Racecourse etc.)	Ikea Canberra as a reference point: 3 hectares for store, 2 hectares of car parking, half a hectare for back dock / loading / logistics	Retail facilities, car parking, commercial office space	Ultimate
Health and residential care	2 hectares	Office space	Ultimate

Source: Deloitte Analysis (2021)

5.4. Market failures

The Treasury CBA Guidelines for Special Activation Precincts identify two market failures where Government intervention may be warranted: network externalities and coordination failures. Both failures are impacting the organic development of the Williamtown SAP investigation area.

The Williamtown SAP investigation area faces several transport, utility, and amenity barriers impeding the precinct reaching its full potential. In particular, the area is prone to regular flood events, requiring major water infrastructure and management investments to be made to make the site safe, accessible, and productive. Legacy Defence activity has resulted in PFAS contamination impacting large parts of the area, limiting broader land use until remediated. The site also requires significant utility services and/or infrastructure capacity to be added for potable water, wastewater, and power and local road augmentation to make the area ready for complex and high value advanced manufacturing and Defence and aerospace activity, as has been proposed for the site. While all these matters have till date been mitigated on a case-by-case basis, the cost and effort of doing so introduces a barrier to entry for many business activities. The SAP seeks to mitigate these risks through a series of management and infrastructure solutions.

With intended land use and current land ownership fragmented across multiple private and public owners, the incentive for any one party to undertake these enabling works is low. The relative upfront cost for these investments compared to the lagged and network nature of the benefits creates a disincentive for investment, creating a situation whereby no initial party develops infrastructure or moves into the SAP because of the uneven distribution of costs and benefits (i.e., a network market failure).

The ability for other users to wait and let others carry the financial burden drives free rider behaviour further discouraging any early mover activity. In this environment organisations are unlikely to collaborate or co-invest to deliver this infrastructure without greater planning certainty. The effort of coordinating numerous parties to deliver large scale infrastructure can take significant effort and expertise which no one party is willing to provide. This lack of coordination can therefore lead to duplicated geological, planning, and technical infrastructure studies being prepared by organisations as well as the risk of duplicate and/or future infrastructure augmentation or remediation works to enable serving of activity beyond the proponent's core use. This is inefficient and risks division, contest and capital waste. As a result, this is a real risk that no party seeks to act unless the other elects to act first, creating a self-fulfilling cycle of inaction (i.e., a coordination market failure).

The SAP provides an opportunity to address these constraints and help incentivise the acceleration of economic activity in the investigation area through two clear roles:

1. The provision of funding for early and enabling works to provide a utility infrastructure and services foundation that will help attract new tenants and investors to the precinct and grow the network user base and utilisation to support future expansion of the network.
2. Align private and public landowners through coordinated planning discussions to a structure plan and governance arrangements that drive greater certainty, transparency, and coordination across the investigation area, resulting in a lower marginal cost for delivering the infrastructure across all users

A summary of these failures and proposed interventions is provided in Table 5-3 below.

Table 5-3 Summary of market failures and proposed interventions identified for Williamtown SAP

Market Failure	Description	Implication	Proposed Intervention
Network Externalities	*The incentive for any one party to undertake enabling infrastructure works (i.e., for flooding mitigation, road access etc) is low due to the large upfront cost and the distributed and lagged benefits realisation.*	*This creates a disincentive for investment, whereby no initial party develops infrastructure because of the uneven distribution of cost burden to benefits. This slows the precincts growth and associated business activity and job opportunities.*	Develop infrastructure plan for the SAP that identifies utilities and amenities that will be provided to help provide businesses with confidence on government commitment, and also reduce cost of entry. Investment in enabling infrastructure will address barrier of entry for organisations, increase the attractiveness and vibrancy of the area, and provide a competitive offering for the SAP catalysing private investment in the SAP.
	Uncertainty around the extent and impact of PFAS contamination and the results in a negative perception of the SAP.	*Could deter investors as the overall negative perception of the SAP could impact their business and ability to attract talent.* *Creates community angst and if left unaddressed may impact the delivery of the SAP.*	Government investment to ensure that land within the SAP is commercially viable and attractive for investment.
	The opportunity to resolve precinct wide flooding and drainage constraints is also provided by the SAP.		Government investment to ensure that land within the SAP is commercially viable and attractive for investment.
Coordination		*May limit the types of industries that could be possible in the SAP.*	Development of a land use strategy that outlines the types of industries considered in the short, medium and long term followed by necessary land zoning amendments.
	A lack of a precinct-wide mitigation of flooding and PFAS contamination, or adequate storm water drainage and sewage infrastructure (currently indicated by the market to be inadequate).	*Increases cost to set up for businesses when considering Williamtown compared with regional centres and precincts (e.g., Newcastle and Western Sydney).*	Government investment to ensure that land within the SAP is commercially viable and attractive for investment.

Market Failure	Description	Implication	Proposed Intervention
	Uncertainty around extent and impact of flooding and PFAS contamination results in a negative perception of the SAP.	*Could deter investors as the overall negative perception of the SAP could impact their business and ability to attract talent.* *Creates community angst and if left unaddressed may impact the delivery of the SAP.*	In addition to government investment to address flooding and PFAS contamination, appropriate stakeholder and community consultation needs to be undertaken on how the issues will be addressed overtime.

6. Land Use Principles

The Williamtown SAP will enable the Hunter Region to grow as a national and international Defence hub and a centre of excellence for Australia's aeronautics, aerospace, and Defence industries – thereby boosting the local economy and generating jobs in the region. Throughout the consultation process, most stakeholders agreed that Williamtown is well positioned to become a Defence and aerospace hub. However, there is a need to improve accessibility and amenity in order to attract investors, businesses, workers and visitors. It was also noted there are opportunities to consider adjacent and ancillary industries to support the hub.

These considerations for the Williamtown SAP can encapsulate many of the same properties observed in Special Economic Zones (SEZ) internationally but applied to a domestic and regional context. These are typically used by the governments to entice foreign investment through the fiscal and regulatory instruments at their disposal. Globally at 2019, there were 5,400 SEZs, non-of which are in Australia. These specialist zones may provide useful insights into shaping the Williamtown SAP.

SEZs are defined by two features:

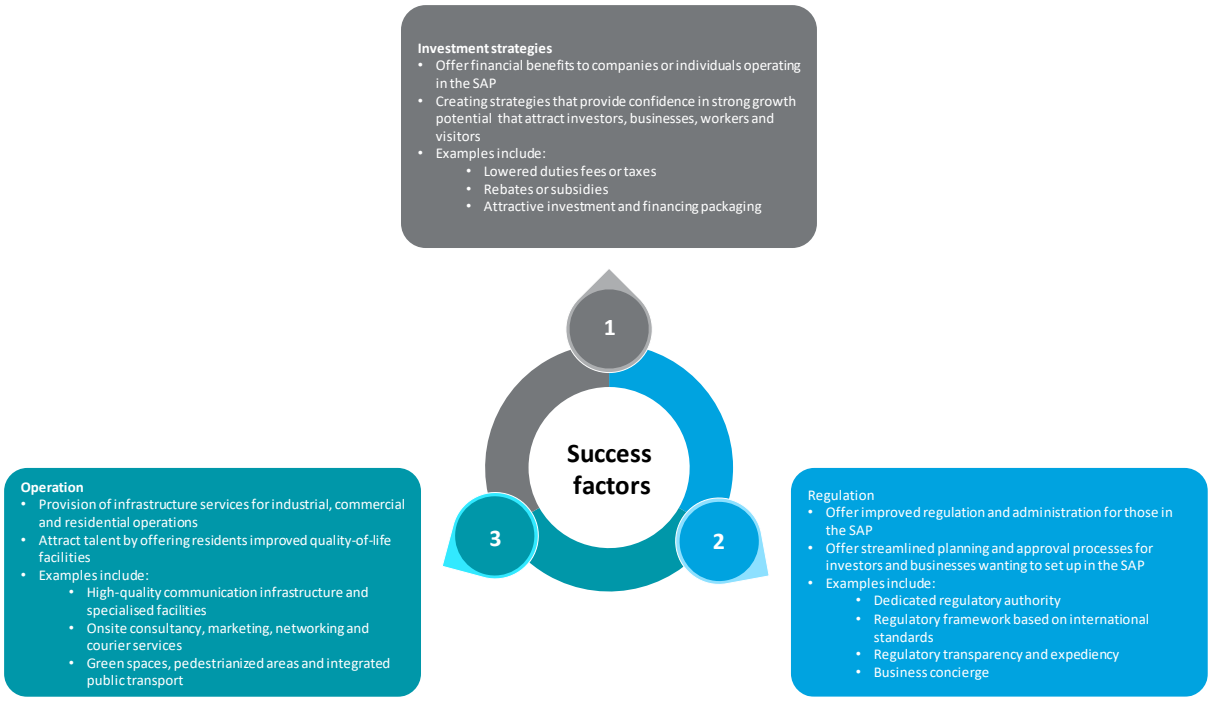
- **Unique regulatory frameworks to facilitate investment strategies** – these may be interventions that reduce the amount of tax companies pay, the costs associated with trade and certain rules are examples of regulatory framework changes that benefit companies and industries
- **Purposeful clustering of entities within a value chain(s)** – combining various links in the value chains together such as logistics, operations and services, the efficiency of the overall chain is increased. This then leads to the formation of certain zones specific to one type of industry such as Innovation Zones, Logistics Zones, or Multi-sectorial Zones (that are on the opposite end of the spectrum and have no distinct focus).

The establishment of the Williamtown SAP has a similar purpose to specialised economic zones:

- **To undertake economic reform** – driving economic growth, as part of a broad national economic policy and industry development strategy – in this case in niche industries
- **Protection of local industries** – fostering support for regional industries that are aligned with national reputation and skill base, creating comparative advantage
- **Alleviate high start-up costs** – reduction in start-up costs can remove barriers to entry and incentives can encourage market entry and investment.

Three key success factors of a success SAP can be inferred from commonly seen attributes to successful SEZs as shown in Figure 6-1.

Figure 6-1 Success factors for SEZ's



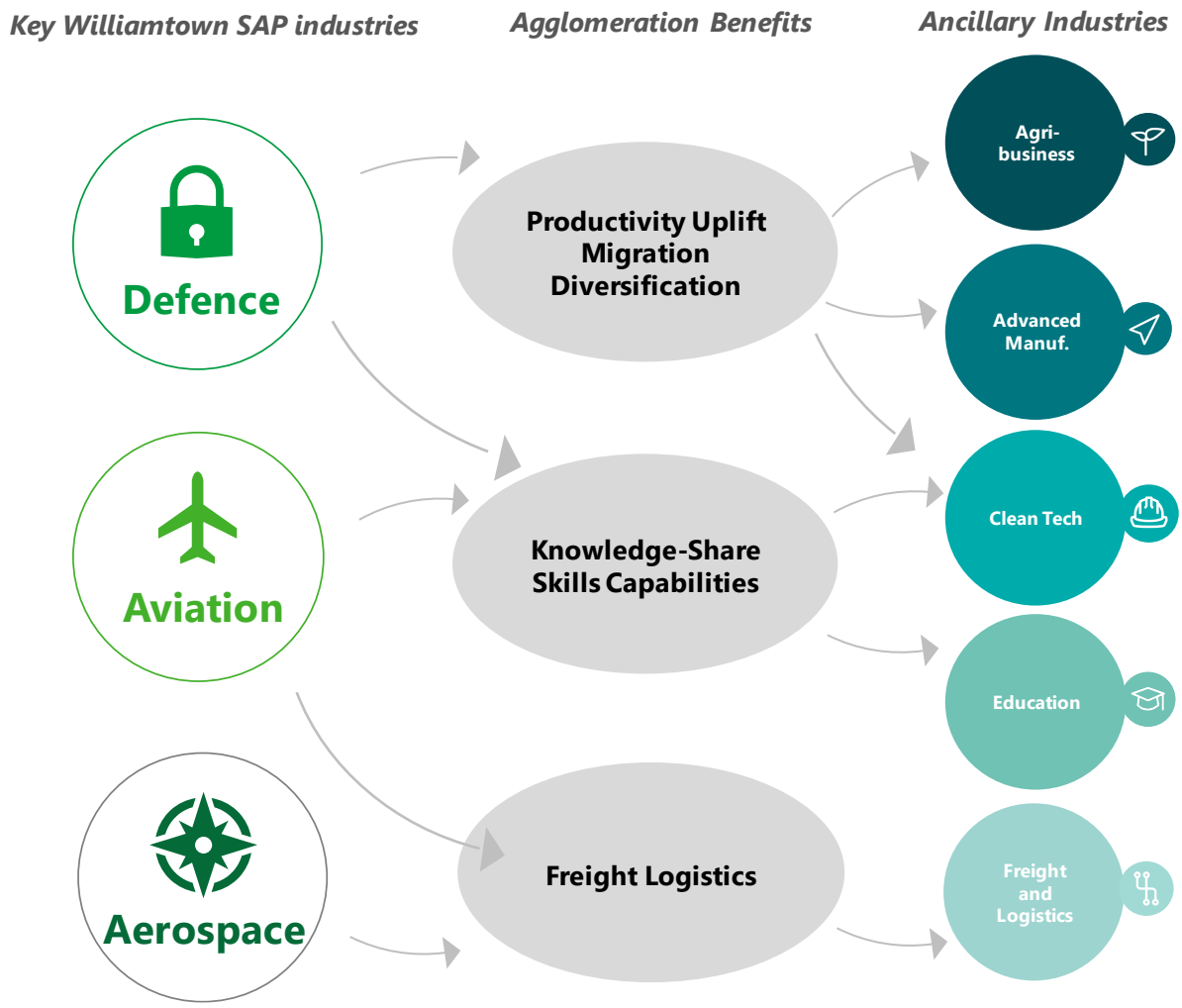
Limitations have previously been identified in planning processes leading to constraints related to rezoning land, and reduced investment as opportunities have been lost. Key **workforce**, **industry**, **infrastructure** and **policy enablers** required to support priority sectors in Williamtown SAP to reach their full potential in the development of industry scenarios. These

- **Size of the reasonable market capture:** assessment of the quantum of opportunity identified in the market sounding (current and emerging), considering baseline regional forecast growth and aggregate national/international investment, drawing on economic conditions
- **Development risks**: identify barriers and challenges that may impede the Williamtown SAP fulfilling its potential, and potential government responses
- **Policy:** assess how current and proposed policies are likely to support (or impede) the development of priority sectors
- **Workforce:** identify workforce needs and gaps, including skills and training pathways
- **Infrastructure:** analysis of infrastructure gaps and subsequent infrastructure and other public investment needs (including both hard and soft economic infrastructure)
- **Inter-regional opportunities:** identify potential inter-regional linkages (particularly across the Hunter region) and export opportunities
- **Unlocking regional business potential:** identify opportunities to enhance regional entrepreneurship, collaboration and cooperation, particularly in relation to SMEs and large businesses, including through industry clustering
- **Supply chains:** consider how existing supply chains can be utilised or re-deployed to enhance development of priority sectors.

These limitations and challenges were explored during the market sounding and common themes were identified and can be found in Section 5.

Additionally, adjacent and ancillary industries such as freight, advanced manufacturing, education and regionally positioned agribusiness sectors may have a role to play in the Williamtown SAP and present agglomeration benefits (as shown in Figure 6-2) with the proposed Defence and aerospace hub. Potential also remains for tertiary industries to position themselves within the Williamtown SAP, catalysed by growth in secondary sectors. This includes tourism operators for the Hunter region requiring proximity to the Airport, food processing plants and other service and support industries.

Figure 6-2 Benefits to the regional economy from the Williamtown SAP



Source: Deloitte Analysis (2021)

While a precinct like the Williamtown SAP is relatively unique – with no comparable equivalent in Australia – there are a few aerospace and Defence clusters that can be found abroad that share similarities with Williamtown. The following is a brief discussion of the most relevant examples.

CASE STUDY 1 Adelaide, South Australia - Australia

Adelaide is home to three dedicated Defence industry precincts. One of which is the Edinburgh Defence Precinct, a key national Defence research, manufacturing and sustainment hub housing RAAF Base Edinburgh, Defence Science and Technology and major Defence companies.

Source: Defence South Australia (2020)

Success Factors and Relevance to Williamtown SAP

Locational advantage: located 25 kilometres north of Adelaide, the precinct has easy access to major transport routes, with links to the national highway network, port facilities and the Adelaide–Darwin rail line.

Skills base: several key initiatives are in place to ensure South Australia has the highly skilled workforce in place to deliver key Defence projects, including the Attack class submarines and Hunter class frigates. The precinct consists of four sites and more than 6,500 personnel.

Ancillary industries: companies have access to South Australia's peak business advocacy body, Business SA. Offering a range of services, advice and training, Business SA works to ensure the broader economic environment is conducive to successful business, and helps businesses reach their full potential, including in export markets.

Incentives: South Australia combines low business costs, an exceptional quality of life, a knowledge-based economy, a world-class education system, and a strong Defence and manufacturing heritage.

CASE STUDY 2 Redbank, Queensland - Australia

Rheinmetall Defence Australia has now established its Australia-New Zealand Headquarters and Military Vehicle Centre of Excellence (MILVEHCOE) at Redbank in Ipswich from which it will deliver the $5.2 billion LAND 400 Phase 2 project.

Source: Queensland Government

Success Factors and Relevance to Williamtown SAP

Locational advantage: spanning 11 hectares, the MILVEHCOE is expected to contribute more than $1 billion to the Queensland economy.

Skills base: more than 450 jobs will be created for Queenslanders both at the facility and through the local supply chain.

Ancillary industries: in addition to three simultaneous vehicle production lines, the 30,000m2 building contains a weld shop, armoury, prototyping workshop, turret and simulator assembly, paint booths, heavy maintenance and a large warehouse area.

Incentives: the Queensland government used its experience in large capital works projects to oversee the construction of the MILVEHCOE. The $170 million state-of-the-art MILVEHCOE is the most advanced military vehicle manufacturing facility in Australia and an asset of national significance.

CASE STUDY 3 Oklahoma – USA

The US state of Oklahoma has two major aerospace clusters focused around Oklahoma City and Tulsa, with more than 1,100 aerospace entities employing 120,000 people.

Source: Federal Aviation Administration (2020)

Success Factors and Relevance to Williamtown SAP

Locational advantage: firms in the industry explicitly stated their reasons for locating to the cluster were due to the proximity of local military bases which had state support of aerospace and Defence industries.

Skills base: relocation allowed leverage of the skilled workforce in the region.

Ancillary industries: education centres provide support to the state's Defence and aerospace industries. For example, the Federal Aviation Administration (FAA) Mike Monroney Aeronautical Centre playing a central role in supporting the training efforts of the FAA and US Department of Transportation, totalling 80,000 students a year. Supporting business activities is the Oklahoma Aerospace Commerce and Economic Services – a body founded by the state legislature dedicated to developing the state's aerospace industry.

Incentives: fiscal incentives include tax credits equal to five percent of the compensation of hired engineers, double if the engineer was hired from a local university or college.

CASE STUDY 4 Somerset / South West – United Kingdom

Bristol and Bath are home to major hubs of the domestic aerospace industry. Collectively these two cities host 800 aerospace firms, employing 98,000 residents with the local industry valued at approximately £7 billion. Historically Defence-based, Somerset has expanded to include wider aerospace activities and advanced manufacturing.

Source: South West Aerospace (2020)

Success Factors and Relevance to Williamtown SAP

Ancillary industries: major educational institutions based in the region, particularly the University of Bristol, are renowned for the close links to the aerospace industry and retention of students working in the area after graduation. Supporting industry is the South West Aerospace and the Invest Bristol & Bath which offers extensive support for firms to relocate and grow in the region. The Department for International Trade works closely with South West Aerospace to encourage FDI from overseas firms to invest in the region.

Incentives: business incentivise from the National government for the sector include the Research and Development Tax Relief program that aims to support innovating industries such as aerospace. Through the program, small and medium sized businesses can make a deduction of 230% from their yearly profits if their projects are approved under the program.

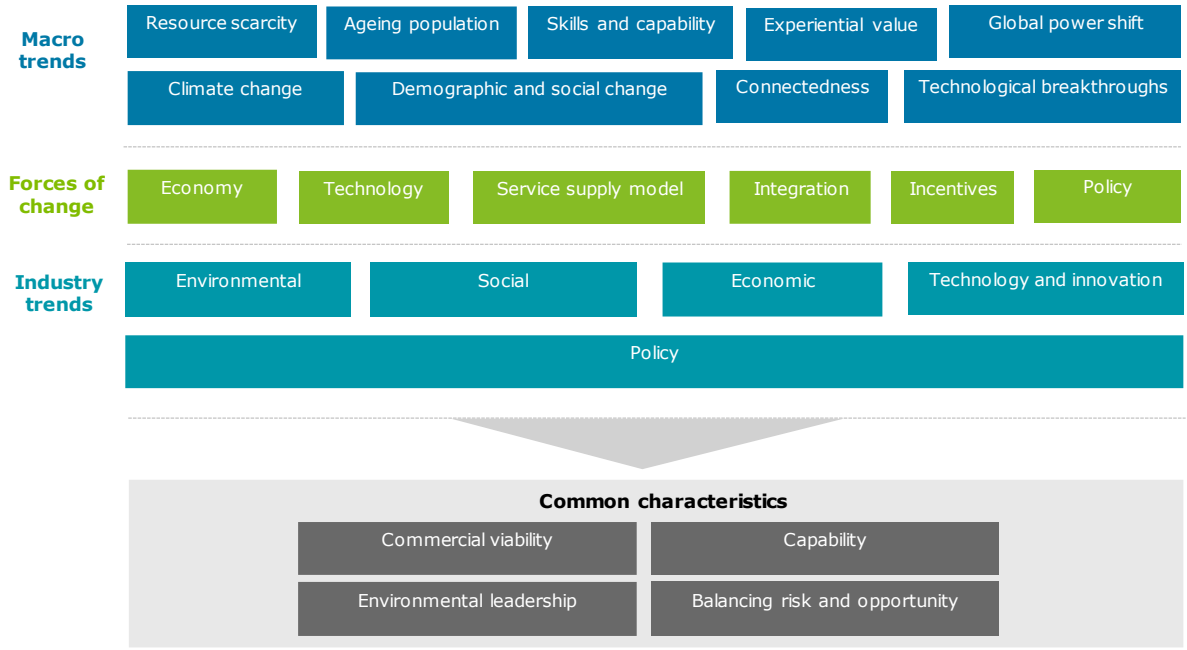
7. Scenarios and Implications

7.1. Scenario development considerations

Maximising the economic potential of the Williamtown SAP requires development of a balanced land use mix between highly specialised niche industries, and ancillary industries across the broader Hunter region. Specific consideration will be given to synergies between industries, and potential for new and emerging sectors in order to achieve desired catalytic outcomes for the Williamtown SAP to guide investment and investment strategies.

Analysis of current and emerging regional industries which have clear and demonstrable local advantages that align with global demand opportunities, such as agribusiness, are best placed to deliver sustainable and ongoing economic growth and prosperity in the Williamtown SAP. Consideration has been given to synergies between emerging macro and industry trends, together with broader forces of change, where common characteristics of industry opportunity will flourish, as shown in Table 7-1.

Table 7-1 Scenario development considerations



Source: Deloitte Analysis (2021)

The scenarios developed represent a mix of different futures, dependent on influences of macro trends, industry trends or forces of change. There are several industries which can be located at the Williamtown SAP, but have differing market strengths, relevance and synergy with critical SAP functions. Desired industry development outcomes are also required to balance factors such as workforce training needs, industry cluster development, infrastructure investment, supply chain capabilities, land use needs, and other issues as relevant.

Alternative futures will benefit from co-location with core SAP industries of Defence and aviation. These primary industries are critical to the precinct operation under each scenario, with secondary and tertiary upstream and downstream sectors developing from investment strategies and policy headwinds. Secondary and tertiary industries will also benefit from shared precinct infrastructure, freight and logistics networks, and value chain synergies. The scenarios are designed to add incremental value through the addition of adjacent, non-adjacent sectors, and gains are made through development of a sustainable SAP.

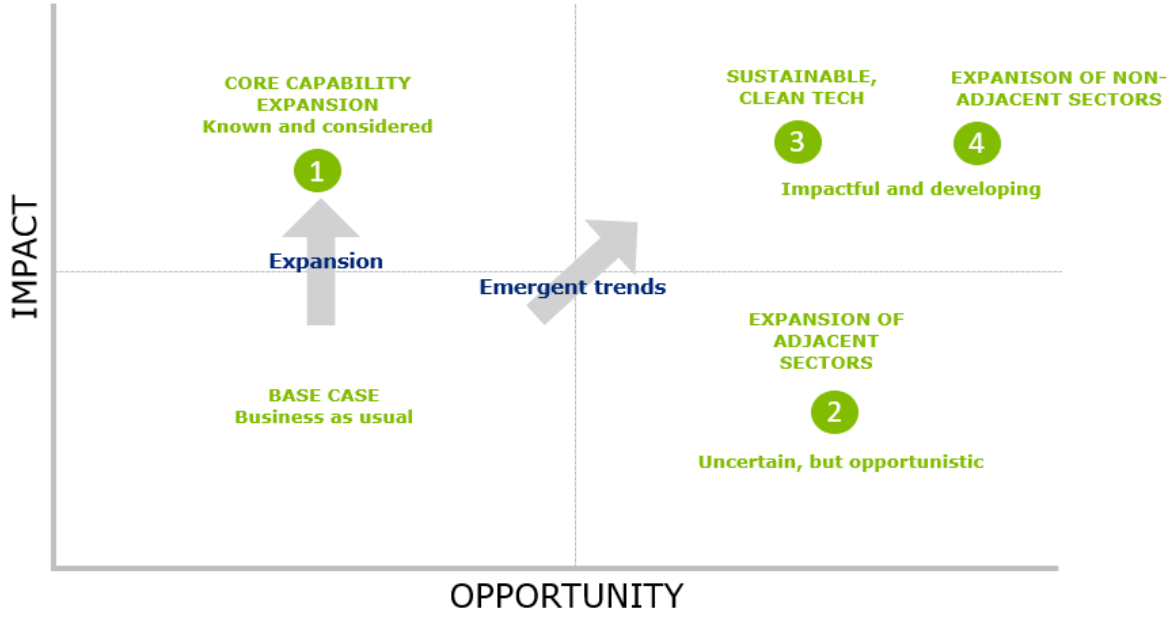
Scenario development is considered to maximise incremental benefits of co-location of adjacent industries as well as non-adjacent industries. The following scenarios have been considered:

- Base Case 1 – Assumes no additional interventions or investment and Williamtown SAP grows organically
- Base Case 2 – Assumes no additional investment and growth is centred on Astra Aerolab development

- Scenario 1 – Expansion of existing Defence capability
- Scenario 2 – Expansion of adjacent sectors focussed on the space industry
- Scenario 3 – Clean tech, sustainable precinct development
- Scenario 4 – Incorporation of non-adjacent sectors focussed on agribusiness.

Mapping the scenarios on a scale of increasing impact and opportunity provides insight into how dependent the alternate futures will be on macro trends and additional investment required to achieve outcomes, as shown in Figure 7-1, which highlights considerations by impact and opportunity.

Figure 7-1 The impact and opportunity of the base case and each scenario



Source: Deloitte Analysis (2021)

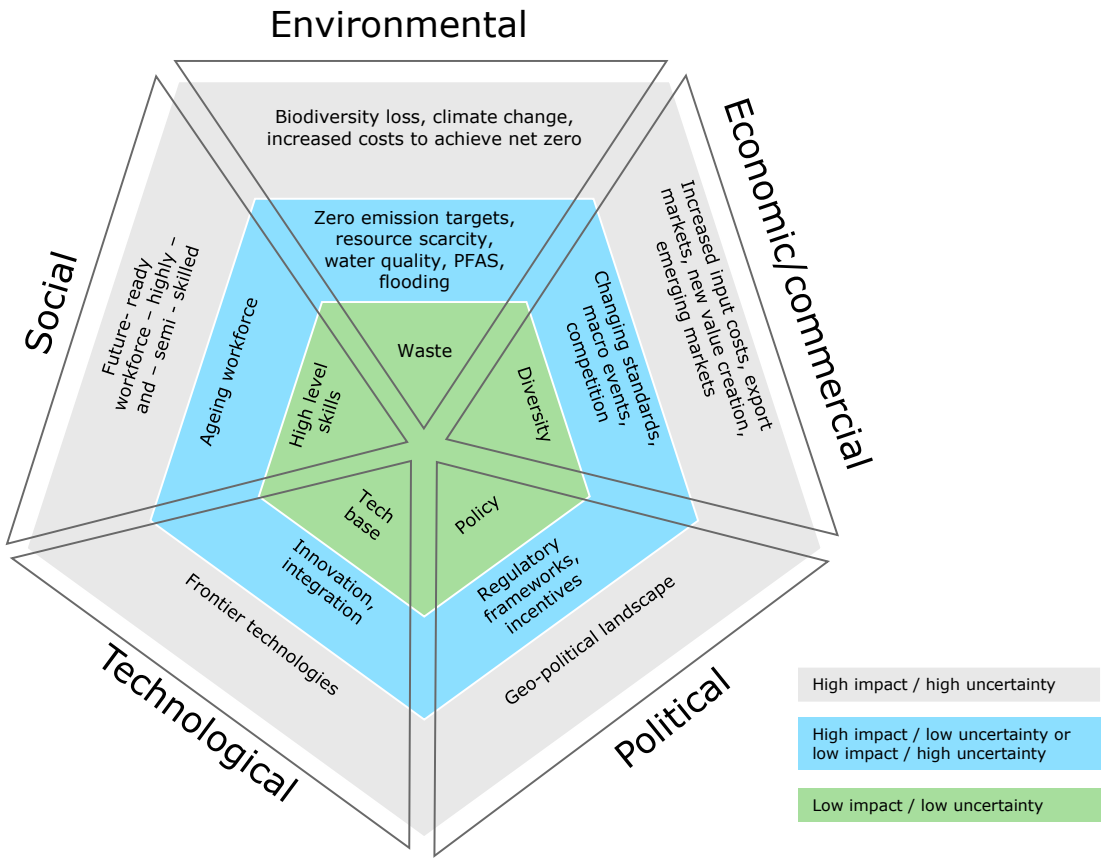
Development of scenarios have been considered from 5 perspectives, and their relevance to Williamtown SAP:

- Environmental
- Economic and commercial
- Social
- Technological
- Political.

The existing status quo has low uncertainty and limited impact on the Williamtown SAP and the region's economy, requiring no additional investment. A "business as usual" approach has limitations in changing markets and provides limited choice for investors wanting to establish a presence in the Williamtown SAP. As markets evolve, this approach will increasingly restrict willingness to invest over time, making this a "lost opportunity".

Challenges in scenario development include a detailed understanding of market demand and regional competition and applying this to create an optimal mix of industries which will pivot effectively off competitive advantages, co-location and include businesses suited to the Williamtown SAP area. The scenarios represent possible futures based on current information and emergent trends, with the most likely growth path applied to specific industries. Consideration in scenario development has been given to core forces of change, and the scale of impact these may have on the Williamtown SAP vision. The impacts are highlighted in Figure 7-2.

Figure 7-2 SAP development considerations



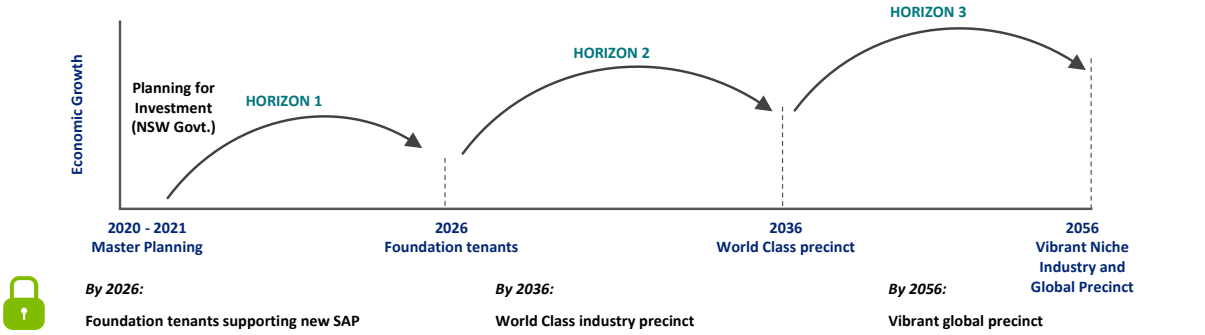
Source: Deloitte Analysis (2021)

The highest level of uncertainty and impact largely involve considerations involving higher levels of investment to achieve incremental outcomes. For example, the cost of investment to attract businesses positioned in emerging markets may be an uncertain value proposition and gains may be too long-term to make this a viable consideration.

7.2. Three Horizons approach

The Three Horizons framework, developed by McKinsey, explains the evolution of businesses seeking to retain market presence and relevance. Horizon One represents core business, Horizon Two emerging opportunities and Horizon Three represents new opportunities. This concept will guide development of the Williamtown SAP over the short, medium and longer term. The concept, as shown in Figure 7-3, outlines core programs and enablers for transition. Horizon 1 represents the short term to 2026, Horizon 2 represents the medium term to 2036 and Horizon 3 represent the long term or ultimate view to 2056.

Figure 7-3 Three Horizons framework



	By 2026: Foundation tenants supporting new SAP	By 2036: World Class industry precinct	By 2056: Vibrant global precinct
Williamtown SAP	• Compelling Defence precinct offering • Defence -centric jobs for SAP • Anchor tenants stimulating innovation • Appropriate workforce skills • Accessibility and connectivity for workers	• 1st choice for target adjacent businesses • New high value jobs created for SAP • Corresponding local and export value contribution • High sustainable mode share	• [GRP contribution] • [Global Top 5] advanced manufacturing hub and talent attractor • [Innovation precinct measures]
Enablers	• Serviced integrated site • High connectivity road/rail/air • Amenity to encourage workforce retention through high quality spaces	• Commercial, industrial sequenced expansion • High amenity to attract skilled workforce to work locally • Infrastructure enabled for further stages • Fully integrated supply chains leveraging connectivity and regional competitive advantage	• Commercial expansion continuing • Thriving SAP with high amenity, civic, cultural and community uses
Workforce Skills	• Accredited microcredentialling courses • Stackable offerings to create own pathway to skilling and lifelong learning	• Recognised for industry leading qualifications • Strong uni / VET competition • Self/sustainably funded	• World class industry skills centre • Fully integrated in education ecosystem
Value Add	• Transitional facility • Initial supply chains established • Commercialisation through organic growth and investment strategies	• World leading Defence and Avionics core with strong growth in secondary industries • Opportunity for Government to divest ownership • Sustainability	• Contribution to NSW innovation and research – patents / commercialisation • Nationally significant Defence, Avionics, Space and niche manufacturing hub. • Regional hub, leveraging niche and local industries to leverage regional competitive advantage of local sectors.

Source: Deloitte Analysis (2021)

The transition from one Horizon into another requires different attributes for enablers, workforce skills and considerations for addition of value to the Williamtown SAP. The transition from Horizon 1 to 2 establishes a compelling Defence-focussed precinct, with anchor tenants, accessibility, and connectivity for workers. Improved amenity will encourage workforce attraction and retention through provision of high-quality spaces and health services. This transition will require strengthening of existing supply chains.

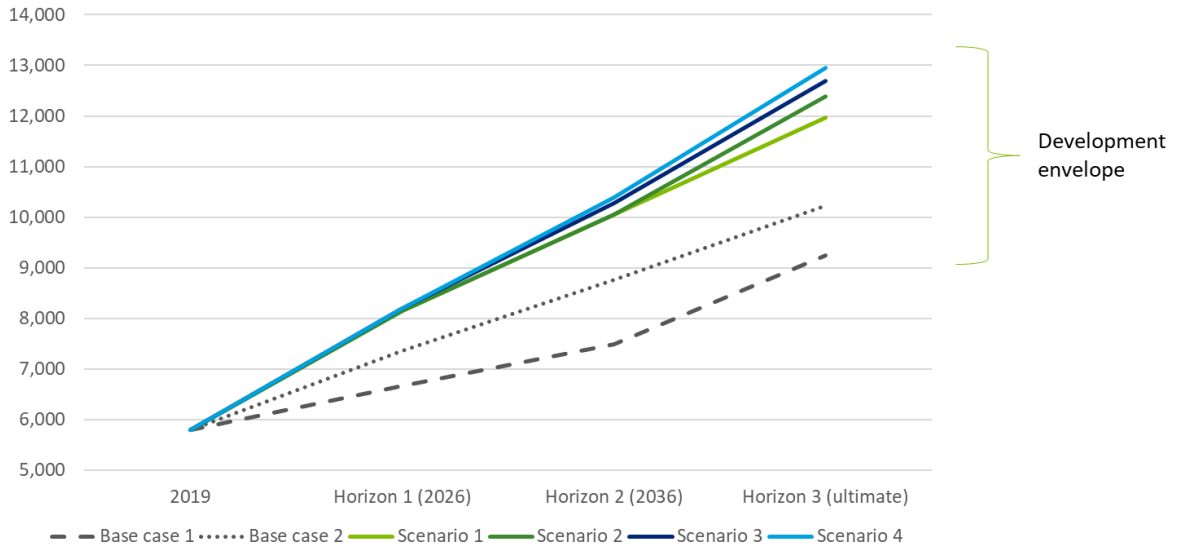
The transition from Horizon 2 to 3 will require clear pathways to education and training for the highly skilled workforce; additional amenity for the workforce, and an integrated research and innovation hub which can support core Defence and Aerospace sectors, but also other sectors which are expected to leverage the competitive advantage of the region.

The area defined by the Williamtown SAP boundary is significant in size. The final size of the precinct will be impacted by:

- The extent and longevity of existing and new Defence programs
- The success in establishing a core Defence and aerospace precinct
- The demonstrated benefits of agglomeration and co-location for other industry sectors in the region
- Macro-economic factors
- Attraction, retention and upskilling of the workforce.

The “incremental benefit” approach has been taken to development to ensure a cohesive vision and scenario development pathway which has, at its core, Defence capability. The growth scenarios have incremental benefits for employment in the Williamtown SAP, as shown in Figure 7-4. The development “envelope” at 2056 shows a potential ultimate growth range of 3,700 jobs, dependent on investment strategies, and extent of catalysation between Base Case 1 and Scenario 4.

Figure 7-4 Employment development envelope for Williamtown SAP



Source: Deloitte Analysis (2021)

7.3. Current and committed land use

Current precinct status and land availability is show in section 4, Figure 4-2 and Table 4-1.

The SBC identified a strong demand for additional land in the Williamtown SAP investigation area:

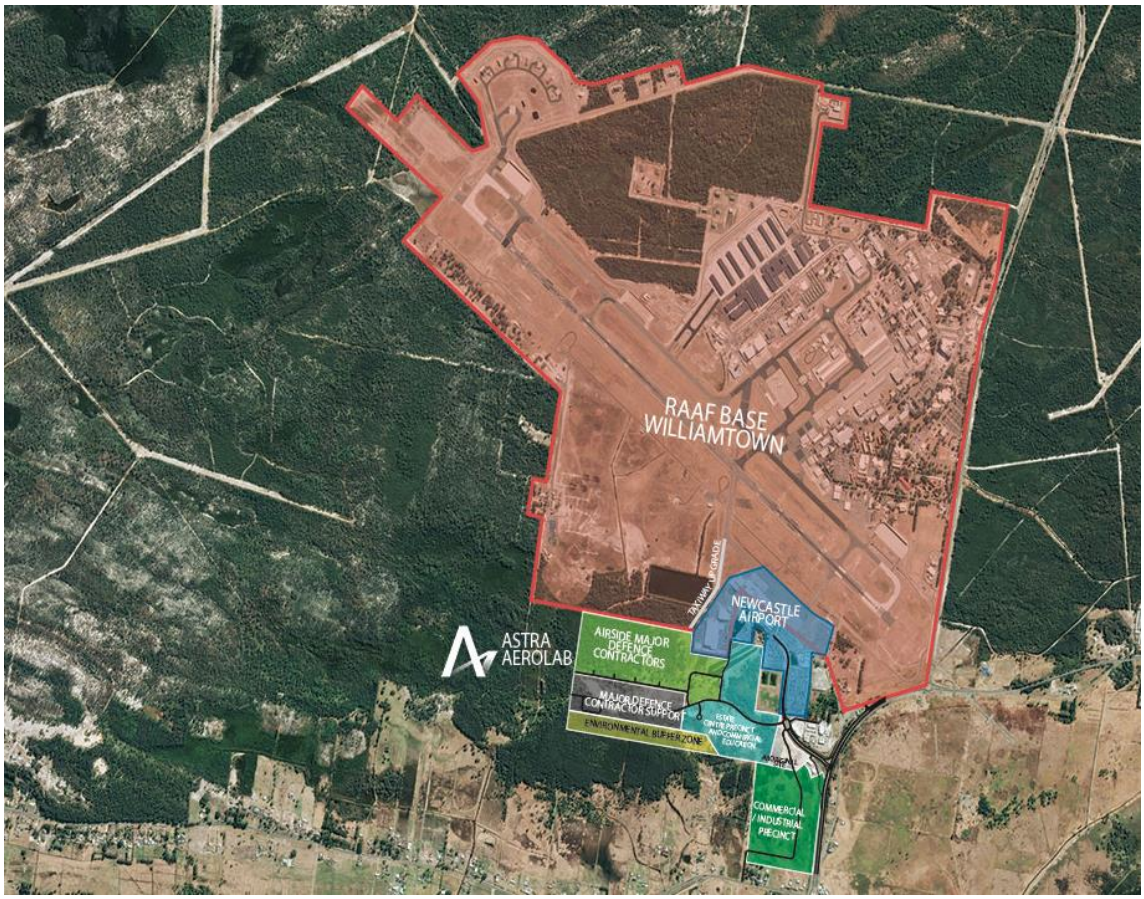
- RAAF (additional 7ha required by 2040)
- Defence Contractors (additional 19.8ha required by 2040)
- Aerospace industry (additional 8.5ha required by 2040)
- Educational institutions (additional 3ha required by 2040)
- Amenity (additional 12ha required by 2040).

Based on forecast land demand, the SBC highlighted the need to make an additional 24.9ha available by 2040.This included Astra Aerolab Stage 1 only.

The future of employment in DAREZ land development is expected to be specialist industrial or commercial development centred on ancillary Defence and aerospace activity. The NSW government has committed to development of the Astra Aerolab, a major technology and innovation precinct within the Williamtown SAP. Newcastle Airport has committed funding for new infrastructure and site preparation for this development, which is ultimately expected to generate 5,500 jobs for the precinct. Construction commenced in 2019, and stages are shown in Figure 7-5.

1 Technology Place is occupied by several major contractors including Boeing, Lockheed Martin and Raytheon. A proposal for development of an additional parcel of land, Proposed WAC - Stage 2, will require rezoning from rural to light industrial and logistics uses.

Figure 7-5 Map of the Astra Aerolab staging (this is now superseded by the SAP Structure Plan



Source: Astra Aerolab

Baseline employment for the Williamtown SAP is shown in Table 7-2, and has been sourced from projections from Transport for NSW (TfNSW), and includes a comparison with Deloitte forecasts. In developing baseline employment assumptions, our analysis has considered future committed projects within the Williamtown SAP, as well as organic growth expected to be generated by ancillary industries which support the main employment sectors of aviation, transport, military and manufacturing. Modelling of future employment and organic growth is considered in terms of relative competitiveness of the Williamtown SAP with other precincts and developments, at a sector and regional level.

7.4. Base Case

Two outlooks have been considered in Deloitte's forecasting:

- Base Case 1 assumes no additional interventions or investment within the Williamtown SAP, with organic growth occurring by sector and region and only Stage 1 of Astra Aerolab assumed to progress
- Base Case 2 includes employment growth for the Williamtown SAP including the Stages 2-6 of the Astra Aerolab development generating additional growth. This scenario assumes no additional investment or targeted incentives to catalyse growth.

Deloitte expects growth to slow in comparison to historic trends over the next two years, as the recovery from COVID continues, and vaccinations are expected to be rolled out. Deloitte expects population growth across New South Wales to average 1.08% per annum, slightly outpacing jobs growth between 2016 and 2056.

Port Stephens, among other regional areas, has benefited from recent population growth driven by movement of residents away from more densely populated capital cities. The LGA is also expected to attract residents over the next 36 years due to the attraction of lifestyle and amenity, as well as growing employment opportunities in the region. Job growth is expected to be slightly less than State employment growth, at 0.84% for Port Stephens versus 1.06% per annum to 2056, as shown in Table 7-2.

Table 7-2 SAP total employment projection summary by projection source

Data source	2019	2021	2026	2031	2036	2041	2046	2051	2056
TfNSW 2019	Na 74	6,100	7,400	8,200	8,700	9,000	9,300	9,500	9,700
Deloitte Base Case 1	5,800	6,200	6,700	7,000	7,500	8,000	8,400	8,800	9,300
Deloitte Base Case 2	5,800	8,000	7,400	7,900	8,800	9,100	9,400	9,800	10,200

Source: Deloitte (2020), TfNSW (2020)

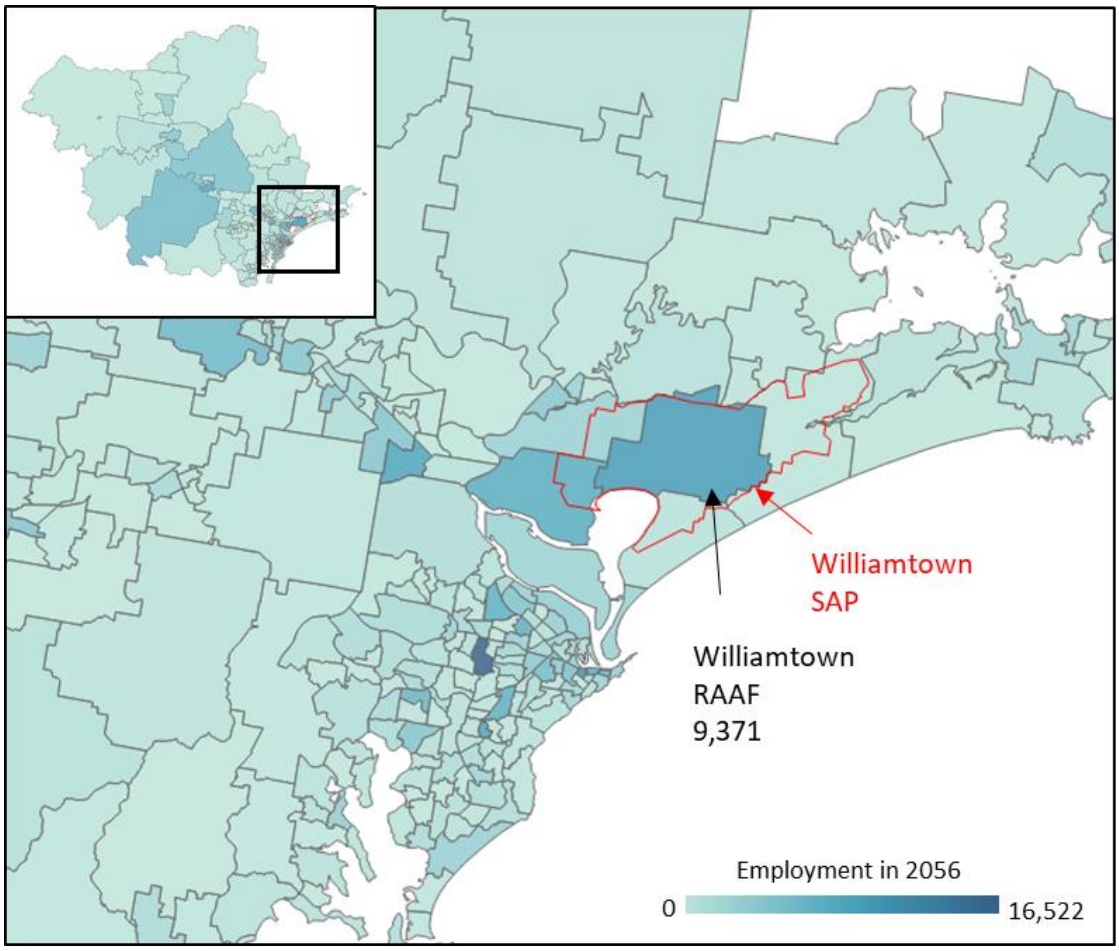
Under Base Case 1, employment is expected to grow by 2,600 jobs to 2046. Base case modelling is nationally constrained, and assumes growth occurs organically. Market competitiveness is implicit in this assumption, resulting in a conservative growth outlook with potential incentives and investment in similar industries drawing employment and tenants away from Williamtown SAP (e.g., MRO facility development in Essendon Fields). Only Stage 1 of Astra Aerolabs development is assumed to be committed to.

Base Case 2 includes the commitment to the Astra Aerolabs development (Stages 1 to 6), where employment growth is anticipated to be in the region of 3,600 jobs to 2046. This growth is expected to primarily be in the industry sectors of Defence, advanced manufacturing and aerospace sectors, with some catalysation in research, education and commercial enterprise. Minimal additional incentives or catalysation is assumed in Base Case 2.

The TfNSW figures sit within Deloitte forecasts for Base Case 1 and 2 for total employment, with the addition of 3,200 jobs between 2021 and 2046, compared with 2,600 jobs in Deloitte Base Case 1 and 3,600 jobs in Deloitte Base Case 2 over the same period. It is clear from the TfNSW forecasts that the growth is dependent on Defence (31.5%), professional scientific and technical services (37.7%) and Transport and Warehousing (10.8%) sectors. It can be concluded that while the TfNSW forecasts considers some expansion of Defence capability, it also considers staging of Astro Aerolab development, but does not encompass Proposed WAC - Stage 2, or full tenancy of 1 Technology Place.

74 TfNSW TZP-19 data is only available in 5-yearly increments starting from 2016

Figure 7-6 Total employment by Travel Zone in the Hunter Region and Williamtown, 2056



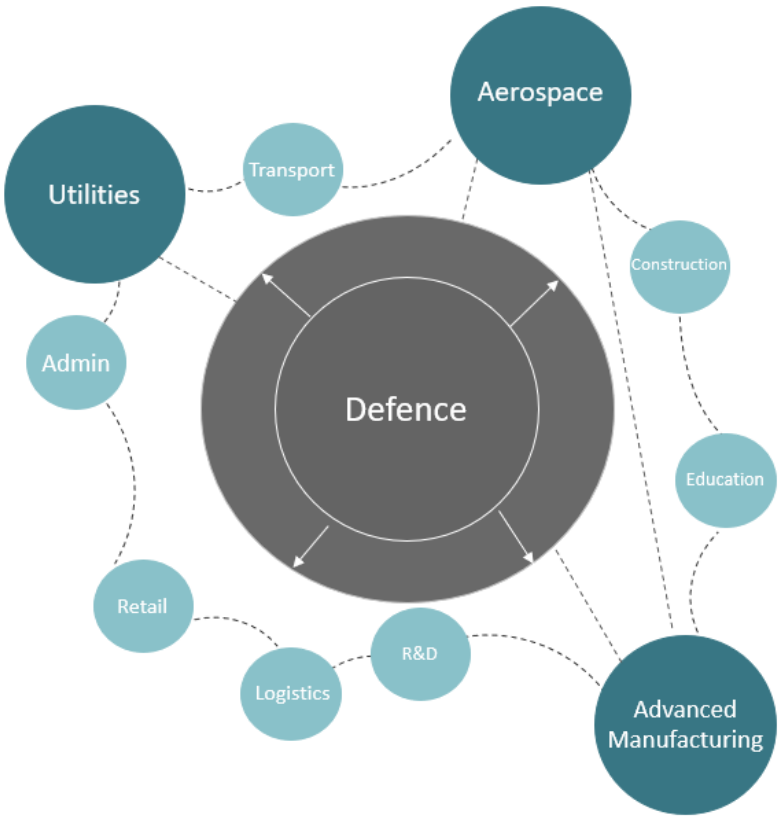
Source: TfNSW (2020)

7.5. Scenario 1 – Core capability expansion

Builds on existing Defence industry capability and known opportunities to a hub, with increased capability, supported by adjacent industries. This extension of the current position is a gradual development of existing capability. Minimal barriers exist under this scenario, and incentives required are lower than remaining scenarios. However, a “more of the same” scenario may expose the Williamtown SAP development to outside influences, where drivers of growth are externalised.

The Defence expansion narrative is underpinned by synergies with existing adjacent industries, intensifying growth for support sectors. This scenario also pivots off an existing skilled workforce and training initiatives, making it a low-risk option. This scenario invigorates the local economy through employment of highly skilled and highly paid workers, injecting spending into the local economy. This scenario allows expansion of next generation technology, developing intelligence and countermeasure capability, quantum technology, hypersonics, and cyber security amongst other specialised sectors, providing export opportunities. Linkages between core and ancillary industries are shown in Figure 7-7.

Figure 7-7 Core expansion scenario



Source: Deloitte Analysis (2021)

The expansion narrative is underpinned by committed Defence programs such as the F-35 Joint Strike Fighter capability, and core aviation tenants such as Boeing and Lockheed Martin. Secondary industries such as avionics, advanced manufacturing, utilities and space will be catalysed through co-location and leverage a highly skilled workforce to realise growth. A number of tertiary industries are expected to support the core functions of the Williamtown SAP, as well as the growing workforce in the precinct.

> "One of the key drivers out of Williamtown would be the Joint Strike Fighter [and] with BAE positioning themselves as a regional service centre there will be a natural gathering of capabilities."
>
> – Williamtown SAP Market Sounding Participant, 2021

The employment and land use profile for this scenario is shown in Table 7-3 for the short-term (Horizon 1), medium term (Horizon 2) and ultimate development (Horizon 3). The land use requirements include the base case. Over time it is expected that some of these industries may be subsumed by Astra Aerolabs land use allocation and freed up for alternate uses. This overview includes considerations highlighted during market sounding, as well as potential for the precinct under assumptions of expansion of core capability. The land use requirements consider a mix of built form requirements for each sector, and do not represent final design considerations, or consideration of buffer requirements.

Table 7-3 Total employment and land use profile under Scenario 1

	Employment (total jobs)			Land (Ha)		
	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	3,681	4,400	5,527	9	10	11
Defence contractors/Aerospace	904	1,543	2,035	28	35	38
Local service	1,535	1,790	1,883	4	10	12
Industry	1,530	1,770	1,843	3	5	6
Health & education	172	196	248	2	3	6
Amenity	317	350	430	7	8	10
Total	8,140	10,049	11,966	53	71	83

Source: Deloitte Analysis (2021)

Assumptions for additional land use include information identified in market sounding requirements for Defence, Defence contractors and education facilities.

Deloitte modelling includes identified land requirements for new and expanded Defence programs. In addition, catalysation of service industry requirements in the form of ancillary support industries, other health and support services and industry in the form of advanced manufacturing have been considered in land estimates, with consideration given to a mix of infrastructure requirements. Modelling also assumes land uptake which includes the Astra Aerolab development. Incremental employment and land use uptake is shown in Table 7-4 for Horizon 1, 2 and 3, showing the difference at each point in time from Base Case 1.

Table 7-4 Incremental employment and land use profile under Scenario 1

	Incremental employment (jobs)			Incremental land uptake (Ha)		
	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	72	791	1,918	9	10	11
Defence contractors/Aerospace	415	1,054	1,546	20.8	27.8	30.8
Local service	715	970	1,063	4.0	10.0	12.0
Industry	250	490	563	3.0	5.0	6.0
Health & education	5	29	81	1.8	2.8	5.8
Amenity	18	51	131	6.5	7.5	9.5
Total	1,476	3,385	5,302	45.1	63.1	75.1

Source: Deloitte Analysis (2021)

Growth in employment under Scenario 1 assumptions will require a mix of existing land supply, plus development of additional land which will need to be preserved for future use. Some employment growth will be accommodated in the existing land supply in the Astra development, the WAC, and RAAF land, where industries are able to access a range of land use types suitable for their uses, such as warehousing and office space. Consideration of the ultimate development potential of the existing land supply has been considered in assessment of new land supply requirements.

To inform future massing exercises, incremental land use profiles by industry and land use type by supply, for each development horizon, is shown in Table 7-5. Under this scenario, additional land supply will be required for warehouse and logistics operations, laboratories and workshops, and some education facilities. There will also be additional secured sites to be provided for under expanded Defence programs for activities such as munitions development. Under this scenario, at ultimate development, a further 23 hectares would be developed. Note existing supply represents existing unconstrained forecasts across the three time horizons.

Table 7-5 Incremental land use profile by type for Scenario 1 to inform massing design

		Horizon 1		Horizon 2		Horizon 3	
Industry	Land use Type	Existing supply	New supply	Existing supply	New supply	Existing supply	New supply
Defence contractor /aerospace/industry/local service	Warehouse / logistics	5.0	2.0	7.0	3.8	7.0	3.8
Defence contractor /aerospace/industry/local service	Office space	3.0	0.0	4.0	0.0	4.0	0.0
Defence contractor /aerospace/industry/local service	Lab / workshop	5.0	3.0	10.0	3.0	12.0	5.0
Defence contractor /aerospace/industry/local service	Manufacturing	6.0	2.0	10.0	3.0	11.0	4.0
Defence/ shared	Defence / Secure site	7.0	2.0	7.0	3.0	7.0	4.0
Education and health	Education/ Training / Health	1.8	0.0	2.8	0.0	4.0	1.8
Local service / amenity	Meeting/ Conference	1.0	0.0	1.0	0.0	1.0	1.0
Local service / amenity	Accommodation	0.5	0.0	0.5	0.0	0.5	0.0
Local service / amenity	Food and Beverage	0.3	0.0	0.3	0.0	0.3	0.0
Local service / amenity	Retail	2.0	0.0	2.2	0.5	2.2	0.5
Local service / amenity	Recreation /parkland	2.0	0.5	2.0	1.0	2.0	2.0
Aerospace	Specialist (e.g., cold storage, fuel storage)	1.0	1.0	1.0	1.0	1.0	1.0
		34.6	10.5	47.8	15.3	52.0	23.1

Source: Deloitte Analysis (2021)

7.6. Scenario 2 – Expansion of adjacent industries and new Defence programs

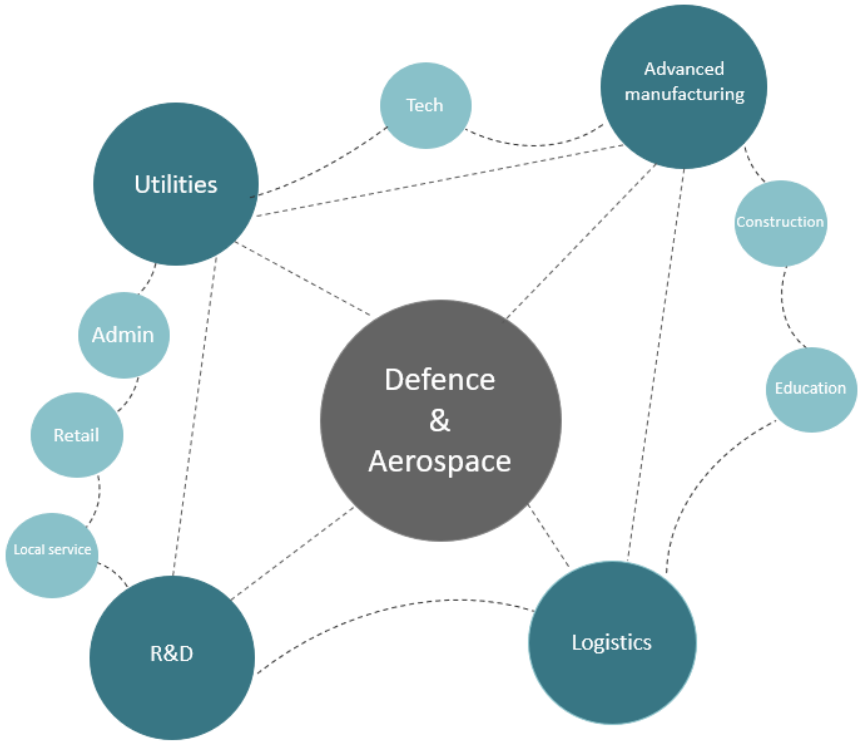
Game-changing development of a niche hub to support the growing aerospace industry would provide business and manufacturing opportunities in Australia's rapidly growing space sector, particularly in the development of materials as well as a wide range of commercial products.

> [One of the comparative strengths of Williamtown SAP for space launch operations] "will be that you have a low risk profile for the activities you are undertaking" and "the aligned skills with other groups [and programs] there…"
>
> – Williamtown SAP Market Sounding Participant, 2021

This scenario capitalises off an emerging multi-million-dollar market which has seen rapid expansion in Queensland with the formation of companies such as Gilmour Space Technologies and presents future opportunities for global exports. Investment in the aerospace and space industry within New South Wales within the Williamtown SAP will leverage the capability within Australia, where more than 50% of the revenue is already captured by NSW.

The NSW government has signed a memorandum of understanding with Australian space business accelerators, research organisations and STEM education providers to develop and grow the space industry in NSW, in Sydney CBD and the Western Sydney Aerotropolis. Establishing research, development and advanced manufacturing facilities within the Williamtown SAP will build on supply chains within the aviation and Defence industries, strengthening the skillset of the existing workforce, building synergies and linkages with adjacent industries, both in the Williamtown SAP, as well as externally within the Hunter and Newcastle regions. Linkages between core and ancillary industries are shown in Figure 7-8.

Figure 7-8 Adjacent industry expansion



Source: Deloitte Analysis (2021)

The employment and land use profile for this scenario is shown in Table 7-6 for the short-term (Horizon 1), medium term (Horizon 2) and ultimate development (Horizon 3). The land use requirements include the base case. Over time it is expected that some of these industries may be subsumed by Astra Aerolabs land use allocation and freed up for alternate uses. This overview includes considerations highlighted during market sounding, as well as potential for the precinct under

assumptions of expansion of core capability. The land use requirements consider a mix of built form requirements for each sector, and do not represent final design considerations, or consideration of buffer requirements.

Table 7-6 Total employment and land use profile under Scenario 2

	Employment (total jobs)			Land (Ha)		
	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	3,681	4,400	5,527	9	10	11
Defence contractors/Aerospace	904	1,543	2,035	28	35	38
Local service	1,535	1,790	2,044	6	12	15
Industry	1,530	1,770	2,088	8	15	20
Health & education	172	196	262	2	3	6
Amenity	317	350	430	7	8	10
Total	8,140	10,049	12,386	60	83	100

Source: Deloitte Analysis (2021)

Assumptions for additional land use include information identified in market sounding requirements for Scenario 2 for expansion of Defence, the airport, Astra Aerolab, 1 Technology Place and Proposed WAC - Stage 2, as well as expansion required for new and expanded Defence programs and some catalysation of ancillary support industries.

For scenario 2, land requirements are included for expansion for adjacent industries identified through market sounding for civil aviation training, new education facilities, warehousing and logistics facilities, advanced manufacturing activities and aerospace industry expansion, with consideration given to a mix of infrastructure requirements required. Incremental employment and land use uptake for Horizon 1, 2 and 3, showing the difference at each point in time from Base Case 1 is shown in Table 7-7.

Table 7-7 Incremental employment and land use profile under Scenario 2 (difference from Base Case 1)

	Incremental employment (jobs)			Incremental land uptake (Ha)		
	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	72	791	1,918	9	10	11
Defence contractors/Aerospace	415	1,054	1,546	20.8	27.8	30.8
Local service	715	970	1,224	6.0	12.0	15.0
Industry	250	490	808	8.0	15.0	20.0
Health & education	5	29	95	1.75	2.8	5.8
Amenity	18	51	131	6.5	7.5	9.5
Total	1,476	3,385	5,722	52.1	75.1	92.1

Source: Deloitte Analysis (2021)

Growth in employment under Scenario 2 assumptions will require a mix of existing land supply, plus development of additional land which will need to be preserved for future use. Some employment growth will be accommodated in the existing land supply in the Astra development, the WAC, and RAAF land, where industries are able to access a range of land use types suitable for their uses, such as warehousing and office space. Consideration of the ultimate development potential of the existing land supply has been considered in assessment of new land supply requirements.

To inform future massing exercises, incremental land use profiles by industry and land use type by supply, for each development horizon, is shown in Table 7-8. At ultimate development, a further 40 hectares would be developed. Under this scenario, as in Scenario 1, uptake of land within the Astra Aerolab and WAC developments is expected for warehouse, logistics, workshops and manufacturing activities, as well as airside activity which will require a secure environment. Education and health services will also be located within the existing expected land supply.

Additional land supply will be required for warehouse and logistics operations, laboratories and workshops, and some education facilities to accommodate growth in ancillary industries and local services. The location of supply for this land requirement will require road access, and internal connectivity for the growing workforce to access services, amenity and education facilities within the Astra and WAC developments. There will also be additional secured sites to be provided for Defence contractors for activities such as munitions development. Some Defence and secure land requirements will be required Airside, but development can be landside, with additional security provided. Note existing supply represents existing unconstrained forecasts across the three time horizons.

Table 7-8 Incremental land use by type for Scenario 2 to inform massing design

		Horizon 1		Horizon 2		Horizon 3	
Land use	Land use Type	Existing supply	New supply	Existing supply	New supply	Existing supply	New supply
Defence contractor /aerospace/industry/local service	Warehouse / logistics	7.0	4.0	7.0	7.0	7.0	9.8
Defence contractor /aerospace/industry/local service	Office space	3.0	0.0	4.0	0.0	4.0	0.0
Defence contractor /aerospace/industry/local service	Lab / workshop	7.0	4.0	12.0	6.8	12.0	12.0
Defence contractor /aerospace/industry/local service	Manufacturing	6.0	2.0	11.0	5.0	11.0	8.0
Defence/ shared	Defence / Secure site	7.0	2.0	7.0	3.0	7.0	4.0
Education and health	Education/ Training / Health	1.8	0.0	2.8	0.0	4.0	1.8
Local service/ amenity	Meeting/ Conference	1.0	0.0	1.0	0.0	1.0	1.0
Local service/ amenity	Accommodation	0.5	0.0	0.5	0.0	0.5	0.0
Local service/ amenity	Food and Beverage	0.3	0.0	0.3	0.0	0.3	0.0
Local service/ amenity	Retail	2.0	0.0	2.2	0.5	2.2	0.5
Local service/ amenity	Recreation /parkland	2.0	0.5	2.0	1.0	2.0	2.0
Aerospace	Specialist (e.g., cold storage)	1.0	1.0	1.0	1.0	1.0	1.0
		38.6	13.5	50.8	24.3	52.0	40.1

Source: Deloitte Analysis (2021)

7.7. Scenario 3 – Sustainable precinct development

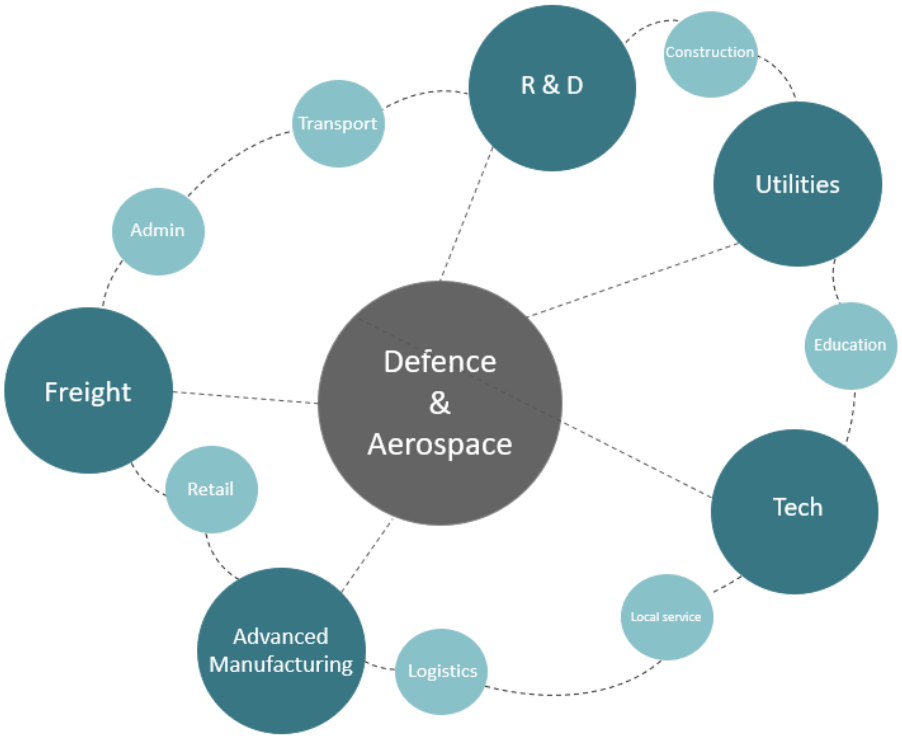
A sustainable precinct adopting clean technology and emissions reduction zones would pivot off government policy headwinds. Development of the Williamtown SAP in this space can support Defence and aerospace using sustainable energy solutions, both in utility and energy usage, as well as the development of sustainable infrastructure in the form of energy efficient buildings and so on.

The Defence industry is committed to managing natural assets and meeting environmental obligations to protect biodiversity. There is strong commitment to building energy resilience, reducing energy costs, and reducing emissions.75

> "If the SAP is developed in accordance with SDG [sustainable development goals] requirements, it opens up that whole green premium," [which if one of the plays for exports is being the global service centre for the JSF, some of these customers have strong commitments to net zero emissions, and so if we decarbonise our production that is an advantage if we are looking to export to those markets].
>
> – Williamtown SAP Market Sounding Participant, 2021

Recent initiatives have been made with large scale solar grids, as well as protection of vegetation. Although considerable progress has been made environmental management, further innovation can be spearheaded through creation of a sustainable SAP. Although there are advantages of decarbonisation for precincts bringing in economies of scale, major infrastructure interventions would be required and policy and incentive challenges are likely. Linkages between core and ancillary industries are shown in Figure 7-9.

Figure 7-9 Sustainable development scenario



Source: Deloitte Analysis (2021)

The employment and land use profile for this scenario is shown in Table 7-9 for the short-term (Horizon 1), medium term (Horizon 2) and ultimate development (Horizon 3). The land use requirements include the base case. Over time it is

75 Department of Defence, Environmental Strategy 2016-2036, (2016), accessible at: <https://www.defence.gov.au/estatemanagement/governance/policy/environment/Policy/EnvironmentStrategy2016.PDF >

expected that some of these industries may be subsumed by Astra Aerolabs land use allocation and freed up for alternate uses. This overview includes considerations highlighted during market sounding, as well as potential for the precinct under assumptions of expansion of core capability. The land use requirements consider a mix of built form requirements for each sector, and do not represent final design considerations, or consideration of buffer requirements.

Assumptions for additional land use include information identified in market sounding requirements for Scenario 1 for expansion of Defence, the airport, Astra Aerolab, 1 Technology Place and Proposed WAC - Stage 2, as well as expansion required for new and expanded Defence programs and some catalysation of ancillary support industries. It also includes additional incremental land use requirements for scenario 2, including expansion for adjacent industries identified through market sounding for civil aviation training, new education facilities, warehousing and logistics facilities, advanced manufacturing activities and aerospace industry expansion, with consideration given to a mix of infrastructure requirements required.

Market sounding identified opportunity for new energy sources such as hydrogen for location within the Williamtown SAP.

Table 7-9 Total employment and land use profile under Scenario 3

	Employment (total jobs)			Land (Ha)		
Land use	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2036	Horizon 2 2036	Horizon 3 ultimate
Defence	3,681	4,400	5,527	9	10	11
Defence contractors	904	1,543	2,035	28	35	38
Local service	1,586	1,898	2,151	6	12	15
Industry	1,530	1,890	2,288	10	18	23
Health & education	172	196	262	2	3	6
Amenity	317	350	430	7	8	10
Total	8,191	10,277	12,693	62	86	103

Source: Deloitte Analysis (2021)

Assumptions for additional land use include information identified in market sounding requirements for Scenario 3 for expansion of Defence, the airport, Astra Aerolab, 1 Technology Place and Proposed WAC - Stage 2, as well as expansion required for new and expanded Defence programs and some catalysation of ancillary support industries.

For scenario 3, land requirements are included for expansion for adjacent industries identified through market sounding for civil aviation training, new education facilities, warehousing and logistics facilities, advanced manufacturing activities and aerospace industry expansion, with consideration given to a mix of infrastructure requirements required. Incremental employment and land use uptake for Horizon 1, 2 and 3, showing the difference at each point in time from Base Case 1 is shown in Table 7-10.

Table 7-10 Incremental employment and land use profile under Scenario 3 (difference from Base Case 1)

	Incremental employment (jobs)			Incremental land uptake (Ha)		
Land use	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	72	791	1,918	9	10	11
Defence contractors/Aerospace	415	1,054	1,546	20.8	27.8	30.8
Local service	766	1,078	1,331	6.0	12.0	15.0
Industry	250	610	1,008	10.0	18.0	23.0
Health & education	5	29	95	1.75	2.8	5.8
Amenity	18	51	131	6.5	7.5	9.5
Total	1,527	3,613	6,029	54.1	78.1	95.1

Source: Deloitte Analysis (2021)

Growth in employment under Scenario 3 assumptions will require a mix of existing land supply, plus development of additional land which will need to be preserved for future use. Some employment growth will be accommodated in the existing land supply in the Astra development, the WAC, and RAAF land, where industries are able to access a range of land use types suitable for their uses, such as warehousing and office space. Consideration of the ultimate development potential of the existing land supply has been considered in assessment of new land supply requirements.

To inform future massing exercises, incremental land use profiles by industry and land use type by supply, for each development horizon, is shown in Table 7-11. Under this scenario, an additional 43.1 hectares of land will be required for ultimate development. Under this scenario, as in Scenario 1, uptake of land within the Astra Aerolab and WAC developments is expected for warehouse, logistics, workshops and manufacturing activities, as well as airside activity which will require a secure environment. Education and health services will also be located within the existing expected land supply.

Additional land supply will be required for warehouse and logistics operations, laboratories and workshops, and some education facilities to accommodate growth in ancillary industries and local services. The location of supply for this land requirement will require road access, and internal connectivity for the growing workforce to access services, amenity and education facilities within the Astra and WAC developments. There will also be additional secured sites to be provided for Defence contractors for activities such as munitions development. Some Defence and secure land requirements will be required Airside, but development can be landside, with additional security provided. Land set aside for clean energy and tech such as batteries and so on. Note existing supply represents existing unconstrained forecasts across the three time horizons.

Table 7-11 Incremental land use by type for Scenario 3 to inform massing design

		Horizon 1		Horizon 2		Horizon 3	
Land use	Land use Type	Existing supply	New supply	Existing supply	New supply	Existing supply	New supply
Defence contractor /aerospace/industry/local service	Warehouse / logistics	7.0	4.0	7.0	7.0	7.0	9.8
Defence contractor /aerospace/industry/local service	Office space	3.0	0.0	4.0	0.0	4.0	0.0
Defence contractor /aerospace/industry/local service	Lab / workshop	7.0	4.0	12.0	6.8	12.0	12.0
Defence contractor /aerospace/industry/local service	Manufacturing	6.0	2.0	11.0	5.0	11.0	8.0
Defence/ shared	Defence / Secure site	7.0	2.0	7.0	3.0	7.0	4.0
Education and health	Education/ Training / Health	1.8	0.0	2.8	0.0	4.0	1.8
Local service/ amenity	Meeting/ Conference	1.0	0.0	1.0	0.0	1.0	1.0
Local service/ amenity	Accommodation	0.5	0.0	0.5	0.0	0.5	0.0
Local service/ amenity	Food and Beverage	0.3	0.0	0.3	0.0	0.3	0.0
Local service/ amenity	Retail	2.0	0.0	2.2	0.5	2.2	0.5
Local service/ amenity	Recreation /parkland	2.0	0.5	2.0	1.0	2.0	2.0
Aerospace / Clean tech	Specialist (e.g., cold storage)	1.0	3.0	1.0	4.0	1.0	4.0
		38.6	15.5	50.8	27.3	52.0	43.1

Source: Deloitte Analysis (2021)

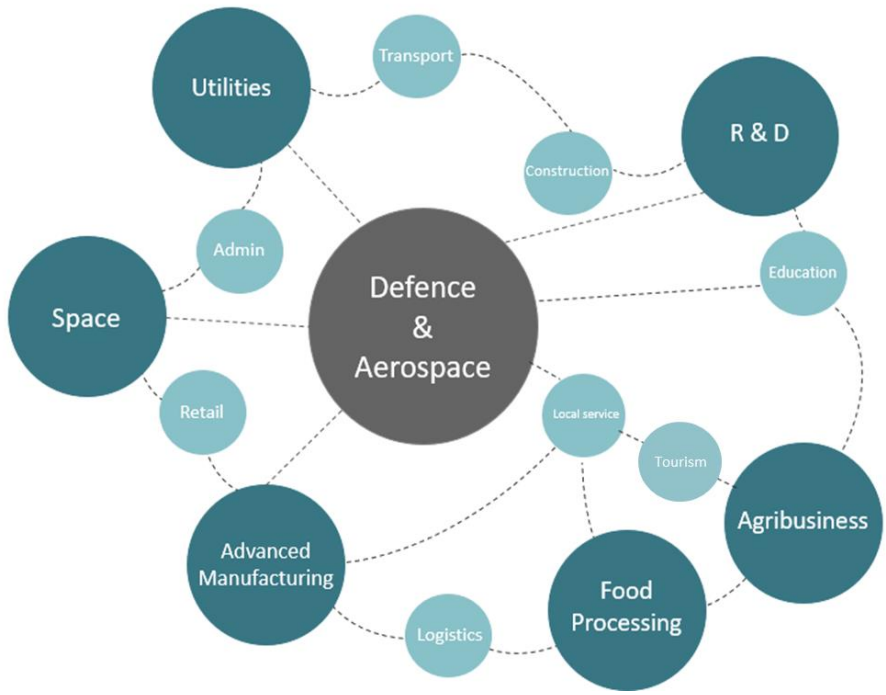
7.8. Scenario 4 – Expansion into non-adjacent industries

Expansion into non-adjacent industries will leverage the competitive advantage of the Hunter Region in two main areas – agribusiness and tourism. Revolutionizing food production, vertical agriculture is set to change the face of modern farming, enabling an abundant food supply with minimal use of increasingly scarce water resources and harmful chemicals. Moving into an era of high technology food production provides the Williamtown SAP with new opportunities which have synergies with supply chain and freight networks which exist in the region.

Vertical agriculture pivots off innovative and emerging technologies which have synergies with supporting increased automation, sustainability and integration with transport networks. The Williamtown SAP is positioned ideally to reach export markets and utilise expertise and other agricultural products in an advanced manufacturing capacity to ensure a world-class food production hub with global reach. This option builds on sustainable precinct development (Scenario 3), due to energy intensive demand for vertical farms due to artificial lighting and climate control.

The Hunter region's growing eco-tourism sector aligns well with sustainable development, and leverages the connectivity of Newcastle Airport, as well as destination experiences such as wine tours. Operators are anticipated to benefit from co-location in the Williamtown SAP. Linkages between core and ancillary industries are shown in Figure 7-10.

Figure 7-10 Non-adjacent industry expansion



Source: Deloitte Analysis (2021)

The employment and land use profile for this scenario is shown in Table 7-12 for the short-term (Horizon 1), medium term (Horizon 2) and ultimate development (Horizon 3). The land use requirements include the base case. Over time it is expected that some of these industries may be subsumed by Astra Aerolabs land use allocation and freed up for alternate uses. This overview includes considerations highlighted during market sounding, as well as potential for the precinct under assumptions of expansion of core capability. The land use requirements consider a mix of built form requirements for each sector, and do not represent final design considerations, or consideration of buffer requirements.

Assumptions for additional land use include information identified in market sounding requirements for Scenario 4 for expansion of Defence, the airport, Astra Aerolab, 1 Technology Place and Proposed WAC - Stage 2, as well as expansion required for new and expanded Defence programs and some catalysation of ancillary support industries. It also includes additional incremental land use requirements for scenario 2 and 3, including expansion for adjacent industries identified through market sounding for civil aviation training, new education facilities, warehousing and logistics facilities, advanced

manufacturing activities and aerospace industry expansion, with consideration given to a mix of infrastructure requirements required.

"If you were to provide any large-scale long duration energy security, whether that be applied into heavy industry or into the SAP, the SAP would seem a fairly sensible place to put that. Then there's the industrial ecosystem which goes around the energy security narrative, whether that's battery manufacturing or long duration hydrogen storage manufacturing."

– Williamtown SAP Market Sounding Participant, 2021

Further consideration has been given under scenario 4 for identification of Tourism and Hospitality industry requirements such as an IKEA, racecourse and so on.

"The visitor numbers would justify a major tourism attraction [theme park type idea] in the area."

– Williamtown SAP Market Sounding Participant, 2021

Table 7-12 Total employment and land use profile under Scenario 4

	Employment (total jobs)			Land (Ha)		
Land use	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	3,681	4,400	5,527	9	10	11
Defence contractors	904	1,543	2,035	28	35	38
Local service	1,586	1,925	2,342	8	13	16
Industry	1,530	1,957	2,340	12	20	25
Health & education	172	201	282	2	3	6
Amenity	317	355	432	7	8	10
Total	8,191	10,381	12,958	66	89	106

Source: Deloitte Analysis (2021)

Assumptions for additional land use include information identified in market sounding requirements for Scenario 4 for expansion of Defence, the airport, Astra Aerolab, 1 Technology Place and Proposed WAC - Stage 2, as well as expansion required for new and expanded Defence programs and some catalysation of ancillary support industries.

For Scenario 4, land requirements are included for expansion for adjacent industries identified through market sounding for civil aviation training, new education facilities, warehousing and logistics facilities, advanced manufacturing activities and aerospace industry expansion, with consideration given to a mix of infrastructure requirements required. Incremental employment and land use uptake for Horizon 1, 2 and 3, showing the difference at each point in time from Base Case 1 is shown in Table 7-13.

Table 7-13 Incremental employment and land use profile under Scenario 4 (difference from Base Case 1)

	Incremental employment (jobs)			Incremental land uptake (Ha)		
Land use	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate	Horizon 1 2026	Horizon 2 2036	Horizon 3 ultimate
Defence	72	791	1,918	9	10	11
Defence contractors/Aerospace	415	1,054	1,546	20.8	27.8	30.8
Local service	766	1,105	1,522	8.0	13.0	16.0
Industry	250	677	1,060	12.0	20.0	25.0
Health & education	5	34	115	1.75	2.8	5.8
Amenity	18	56	133	6.5	7.5	9.5
Total	1,527	3,717	6,294	58.1	81.1	98.1

Source: Deloitte Analysis (2021)

Growth in employment under Scenario 4 assumptions will require a mix of existing land supply, plus development of additional land which will need to be preserved for future use. Some employment growth will be accommodated in the existing land supply in the Astra development, the WAC, and RAAF land, where industries are able to access a range of land use types suitable for their uses, such as warehousing and office space. Consideration of the ultimate development potential of the existing land supply has been considered in assessment of new land supply requirements.

To inform future massing exercises, incremental land use profiles by industry and land use type by supply, for each development horizon, is shown in Table 7-14. Under this scenario, an additional 46.1 hectares of land will be required for ultimate development. Under this scenario, as in Scenario 1, uptake of land within the Astra Aerolab and WAC developments is expected for warehouse, logistics, workshops and manufacturing activities, as well as airside activity which will require a secure environment. Education and health services will also be located within the existing expected land supply.

Additional land supply will be required for warehouse and logistics operations, laboratories and workshops, and some education facilities to accommodate growth in ancillary industries and local services. The location of supply for this land requirement will require road access, and internal connectivity for the growing workforce to access services, amenity and education facilities within the Astra and WAC developments. There will also be additional secured sites to be provided for Defence contractors for activities such as munitions development. Some Defence and secure land requirements will be required Airside, but development can be landside, with additional security provided. Note existing supply represents existing unconstrained forecasts across the three time horizons.

Table 7-14 Incremental land use by type for Scenario 4 to inform massing design

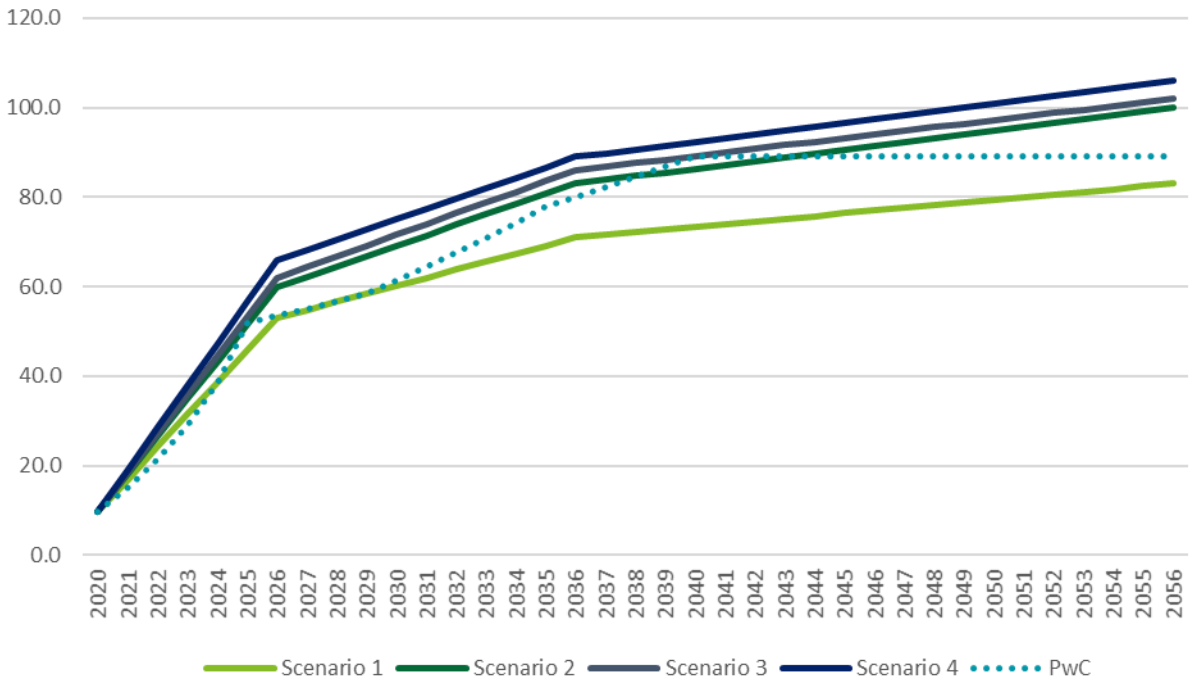
		Horizon 1		Horizon 2		Horizon 3	
Land use	Land use Type	Existing supply	New supply	Existing supply	New supply	Existing supply	New supply
Defence contractor /aerospace/industry/local service	Warehouse / logistics	7.0	6.0	7.0	8.0	7.0	9.8
Defence contractor /aerospace/industry/local service	Office space	3.0	0.0	4.0	0.0	4.0	0.0
Defence contractor /aerospace/industry/local service	Lab / workshop	7.0	4.0	12.0	6.8	12.0	12.0
Defence contractor /aerospace/industry/local service	Manufacturing	6.0	4.0	11.0	7.0	11.0	8.0
Defence/ shared	Defence / Secure site	7.0	2.0	7.0	3.0	7.0	6.0
Education and health	Education/ Training / Health	1.8	0.0	2.8	0.0	4.0	1.8
Local service/Amenity	Meeting/ Conference	1.0	0.0	1.0	0.0	1.0	1.0
Local service/Amenity	Accommodation	0.5	0.0	0.5	0.0	0.5	0.0
Local service/Amenity	Food and Beverage	0.3	0.0	0.3	0.0	0.3	0.0
Local service/Amenity	Retail	2.0	0.0	2.2	0.5	2.2	0.5
Local service/Amenity	Recreation /parkland	2.0	0.5	2.0	1.0	2.0	2.0
Aerospace / agribusiness	Specialist (e.g., cold storage)	1.0	3.0	1.0	4.0	1.0	5.0
		38.6	19.5	50.8	30.3	52.0	46.1

Source: Deloitte Analysis (2021)

7.9. Scenario land use key themes

Comparisons of scenario land use requirements are show in Figure 7-11, showing that the expectations for expansion of core Defence capability are lower for overall land needs than other the scenarios developed. Total land use needs increase incrementally as growth in adjacent and non-adjacent industries are considered.

Figure 7-11 Scenario land use

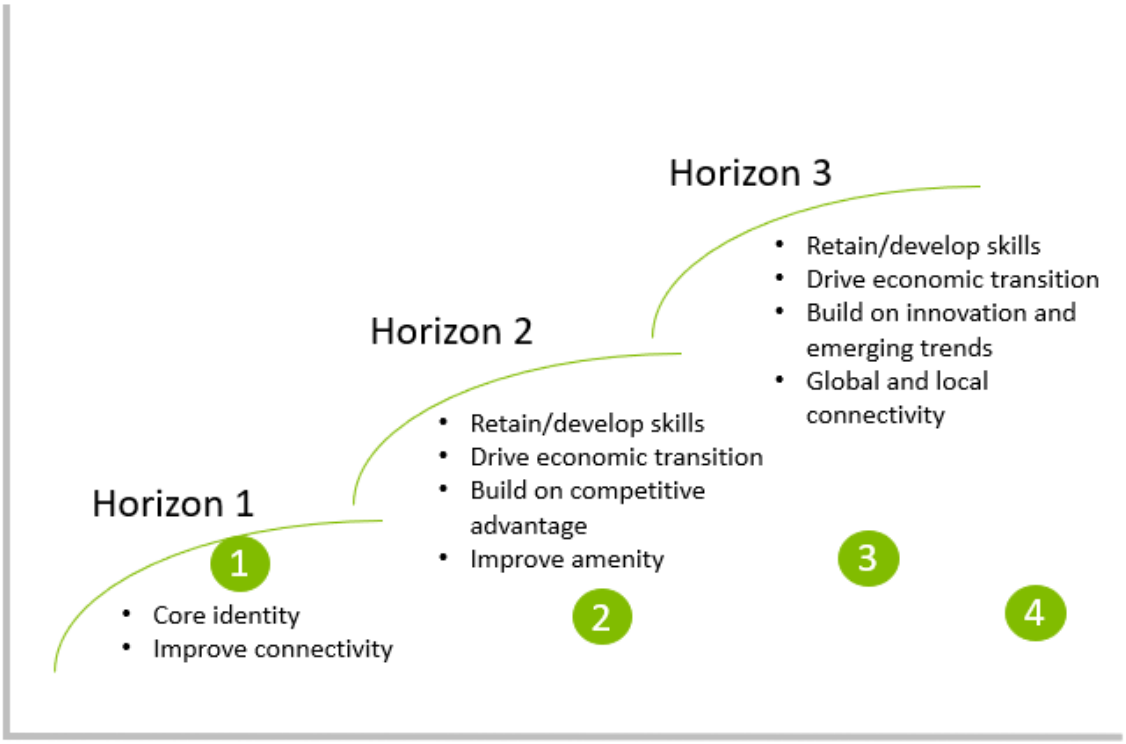


Source: Deloitte Analysis (2021)

7.10. Investment attraction principles and opportunities

The Williamtown SAP provides opportunity for the regional community to host a niche Defence capability which will boost economic growth. The key investment principles for each Horizon of development are outlined in Figure 7-12, and focus on establishment of a core identity in the short term to 2026, with improved connectivity. Principles for Horizon 2 and 3 are similar in nature and focus on retention and development of skills, economic transition and amenity improvements, with the ultimate potential to achieve global as well as local reach. Each investment stage will be dependent on calculated benefits, de-risking investment at each stage.

Figure 7-12 Investment principles



Source: Deloitte Analysis (2021)

The Williamtown SAP is a significant investment not only in the local economy, but in the Defence and aerospace sectors. While the precinct has potential to accommodate a range of industry sectors in the long term, the growth is likely to be organic and driven over time by demonstration of co-location benefits. The operation identity of the Williamtown SAP remains Defence and aerospace oriented. The scenarios which have been developed have sought to understand the potential of long-term growth, which is significant, given emerging trends and opportunities. Success will be dependent on connectivity, amenity and education of the workforce, with growth occurring organically through synergies created by location, sector symbiosis and accessibility to markets.

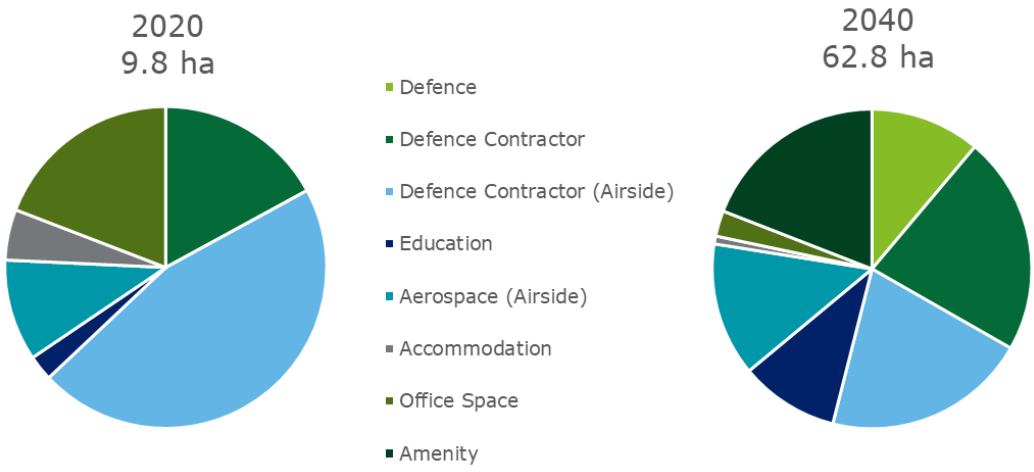
The scenarios serve to pressure test the allocation of land to ensure sufficient space has been allocated to serve anticipated precinct sectors, should ultimate potential be realised.

7.11. Previous work and differences in approach and assumptions

While previous analysis was extensive and incorporated the main considerations for the Williamtown SAP, there were a number of areas that previous reports did not address or model, namely:

- Lack of analysis/inclusion of ancillary industries – the analysis only considered the employment, value-added and land use of the core industries of the Williamtown base (Figure 7-13)
- Lack of consideration of induced land use effect of catalysation of core industries and their effect on secondary and tertiary sectors
- Only considers labour supply from within New South Wales – does not consider labour relocating/attracted to the region from outside the State
- Growth scenarios were only based on benchmarking aviation clusters and did not consider the specific characteristics or diversity of the region, nor the unique Defence attributes of Williamtown.

Figure 7-13 Base case land use



Source: PwC (2020)

Previous analysis conducted by PwC included Cost-Benefit Analysis (CBA) covering three scenarios:

- Base case – no intervention, assumed development of Aerolab Stage 1
- Non-infrastructure solution – includes undertaking Williamtown SAP master planning, implementation of streamlined planning approvals and providing business concierge/investment attraction support
- Infrastructure solutions – included the construction of various staging options for Site 3: Williamtown West and Astra Aerolab Stage 2-6, combined with the non-infrastructure solution components.

From these scenarios, five options were tested, the details of which are shown in Table 7-15.

Table 7-15 PwC economic assessment - project options summaries

Project Option	Option 1 – Base Case	Option 2 – Non-infrastructure	Option 3 – Infrastructure (Build all)	Option 4 – Infrastructure (site 3 only)	Option 5 – Infrastructure (staged development)
Aerolab Stage 1	✔	✔	✔	✔	✔
Aerolab Stage 2-6	-	-	✔	-	✔
Site 3 Area 3.1	-	-	✔	✔	✔
Site 3 Area 3.2	-	-	✔	✔	✔ (2030)
Site 3 Area 3.3	-	-	✔	✔	✔ (2035)
CBA Results					
Total FTEs (2040)	73	146	806	588	806
Total land take-up (Ha, 2040)	9	16	89	63	89

Source: PwC (2020)

Comparison of land use requirements in the short, medium to long term is shown in Table 7-16 for previous work and Deloitte's Scenario 4 which considers the ultimate potential for Williamtown SAP. Key differences in estimates of land use requirements are driven largely by differences in approach between PwC and Deloitte. Deloitte's scenario development

has covered market sounding as well as consideration of growth in ancillary industries. Estimates of land requirements for the Defence and aerospace sectors are lower in Deloitte's forecast due to uncertainty of future Defence programs. Land use requirements for adjacent and non-adjacent industries are higher in Deloitte's forecast, based on market sounding information and consideration of agglomeration benefits and symbiotic catalysation of ancillary industries.

Table 7-16 Comparison of land use requirements by sector

			Horizon 1 - 2026		Horizon 2 - 2036		Horizon 3 - ultimate	
Land use	Built form	2019	Deloitte	PwC	Deloitte	PwC	Deloitte	PwC
Defence	Defence related	0.0	9.0	7.0	10.0	7.0	11.0	7.0
Defence contractors/aerospace	Warehousing, workshop, manufacturing, aerospace, specialist uses	7.2	28.0	31.4	35.0	47.5	38.0	52.6
Health and Education	Storage, workshop, manufacturing	0.3	2.0	4.3	3.0	7.7	6.0	9.0
Industry incl. office space	Storage, workshop, manufacturing, specialist uses e.g., secure buildings	1.9	20.0	1.7	33.0	2.3	41.0	2.5
Amenity incl. accommodation	Office space, education training facilities	0.5	7.0	9.1	8.0	15.6	10.0	18.0
Total		9.8	66.0	53.5	89.0	80.1	106.0	89.0

Source: PwC (2020), Deloitte Analysis (2021)

8. Structure plan

8.1. Overview of structure plan

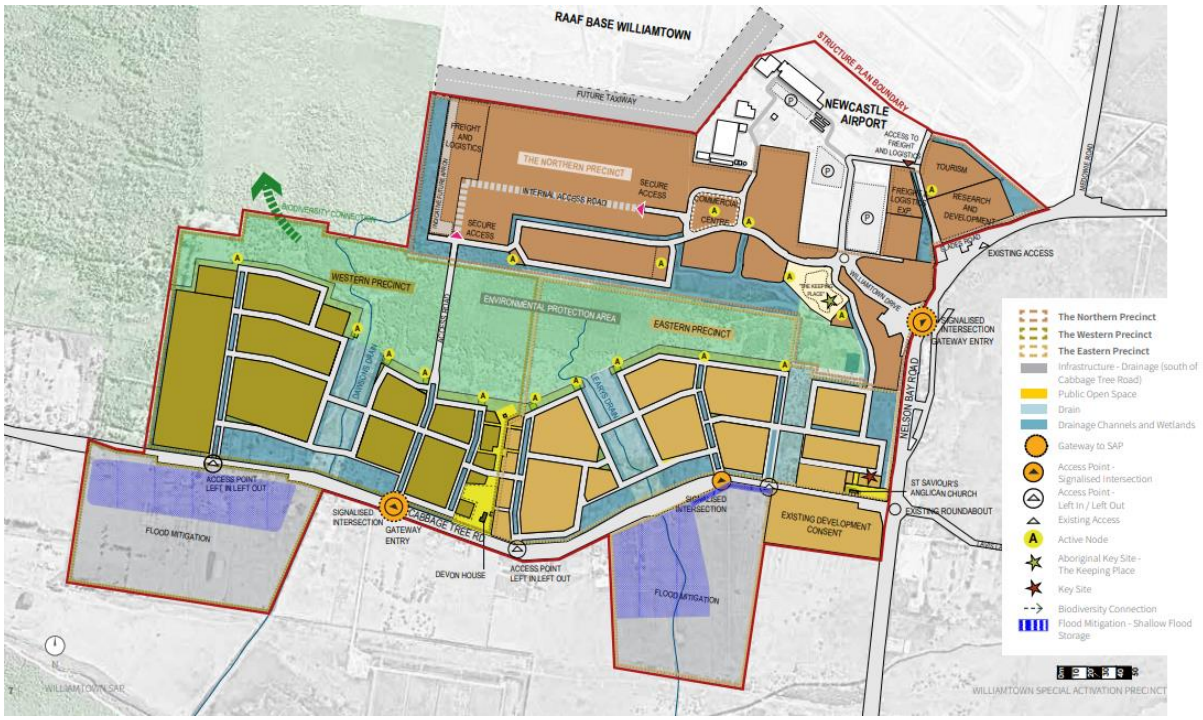
The Structure Plan ensures that the visions and principles of the Williamtown SAP are realised without impeding the existing approved development associated with the Newcastle Airport Master Plan. The Structure Plan provides a flexible framework to accommodate a range of proposed land uses and allows development to proceed with a staged approach focussed on meeting short term market demand for aerospace and Defence related industries, with airside access within the Northern Precinct. Several key changes have been incorporated that reflect the challenging nature of the Precinct and need for a consultative design approach.

The key changes are:

- The constructed portions of Stage 1 of Newcastle Airport Master Plan and resultant development parcels, street network and drainage solution has been adopted
- The active nodes that are under construction have been reflected in the Structure Plan
- The Structure Plan will expand on the existing active nodes envisaged under the approved Newcastle Airport Master Plan within western and eastern portions of the Northern Precinct. The expanded network of active nodes is programmed to offer a variety of breakout spaces and social infrastructure elements, all intended to play a different role within the Precinct depending on location, proposed adjacent land uses and features of landscape
- The Structure Plan has adopted the location of the northern commercial centre as outlined in the Newcastle Airport Master Plan
- The secure airside parcel has been expanded further to the south to respond to forecasted high market demand for airside lots and demand for flexible lot size arrangements. The Structure Plan identifies secure access locations for the Northern Precinct and indicative location of an internal access road serving these lots. As a result of the expanded airside parcel, the drainage elements (wetlands and channels) adjacent to the airside parcel have been realigned to accommodate the expansion
- Two freight and logistics hubs have been identified. An express hub is located in the north-east of the Northern Precinct and will receive and distribute smaller goods. A larger (5ha's) secure freight and logistics site is located within the secure airside parcel. It will have direct access to the planned taxiway and access from the proposed north-south road linking the secure airside parcel with Cabbage Tree Road and reducing heavy vehicle movement through the balance of the Northern Precinct
- Also consistent with the Newcastle Airport vision, the block south of the airside parcel has a smaller depth to accommodate finer grain lots, catering to the identified market demand for smaller sized land parcels
- Opportunities for tourism and research and development uses have been identified within the north east corner of the Northern Precinct in close proximity to the Newcastle Airport and easily accessible from Nelson Bay Road. The resultant Structure Plan comprises over 137 ha of developable land and incorporates a holistic flooding and drainage solution comprising a system of wetlands and linear channels.

The final structure plan is shown in Figure 8-1.

Figure 8-1 Final structure plan



Source: Hatch Roberts Day

The staging strategy recommended by Hatch Roberts Day highlights land provision in the Northern Precinct, which provides an extension to the existing Astra Aerolab development currently under construction. This Precinct provides a logical Stage 1 of the Williamtown SAP, by providing early airside access sites leveraging off the proposed taxiway extension and prioritisation for freight and logistics given the upgrade of the runway.

Market demand analysis undertaken by Deloitte has shown that there is a strong demand in the shorter term for uses associated with Defence and aerospace, particularly those uses requiring direct airside access. This Precinct also makes provision for research, development, freight, and commercial land uses which will support identified requirements to enable core Precinct industries as well as opportunities to provide facilities such as training hubs for the Precinct workforce.

The land use provisions for the Northern Precincts under the final structure plan is shown in Table 8-1.

Table 8-1 Land use provisions for the Northern Precincts under the final structure plan

Land use	Horizon 1 2026 (ha)	Horizon 2 2036 (ha)	Horizon 3 2056 (ha)	Provision under final plan (ha)
Defence and aerospace	24	30	34	20
Defence and aerospace (airside)	13	15	15	30
Commercial	5	6	8	5
Freight & logistics	3	5	5	7
Research and development	2	2	4	4
Tourism	-	-	-	3
Total	**47**	**58**	**66**	**69**

Source: Hatch Roberts Day

The largest land use accommodation is made for Defence and aerospace with 50 hectares allowed for across precinct and airside spaces in the structure plan over the three horizons. Less generalised defence land use has been provided for in the plan compared to forecasts with a priority placed on specialised airside access which was seen as a unique advantage of the precinct for attracting and growing tenant's presence in the precinct. In aggregate, across the airside and general land, provisions for defence are in lines with the three-horizon forecast for the sector. Of the other sectors freight and logistics has been allocated slightly more space than forecast in response to the growth opportunities the runway upgrade presents for trade and the horizontal processing model they employ. While commercial space is slightly less with vertical building designs able to accommodate office and warehouse growth requirements to meet needs. The region is blessed with numerous tourism destinations (including the Barrington Coast and Hunter Valley). The improved runway and flying options to and from Williamtown is expected to result in an increase in business and recreational travel through the airport. Hence an allocation has been made for tourism on site (i.e. additional hotel accommodation, increased tourism pick up and drop off services, car and recreational vehicle hire etc) which will support this activity. This aligns with the growth in self driven regional travel that has been growing over the last decade and recognises the relative cost advantage of flying into Williamtown versus a major city airport to commence such a trip. This also allows for Fighter World to be relocated and turned into a major experience destination for the area.

The Southern Precincts (Eastern & Western Precincts) are largely influenced by regional drainage impacts. Each of the precincts identify an area of land required outside of the development footprint to mitigate flood impacts and have been identified within the SAP boundary. Development of these precincts is envisaged to occur in the longer term once drainage solutions have been implemented and market demand requires. It is expected that as the demand matures over time that some land use allocations could be switched between the southern and northern precincts. This would be determined largely by prevailing market conditions. Land use provisions identified for the Southern precincts are shown in Table 8-2. The clarity of the structure plan allocations coupled with the long term flexibility to respond to changes and needs of the market is one of the precincts great planning and development strengths and will be attractive to current and future tenants and operators.

Table 8-2 Land use provisions for the Southern Precincts under the final structure plan

Land use	Horizon 1 2026 (ha)	Horizon 2 2036 (ha)	Horizon 3 2056 (ha)	Provision under final plan (ha)
Commercial	5	6	7	-
Advanced manufacturing	4	5	6	-
Research and development	4	5	5	-
Light industrial	6	15.2	22	-
Total	**13**	**31.2**	**40**	**68**

Source: Hatch Roberts Day

8.2. Alignment with economic growth

For the purposes of this report, the land use provisions made for the Northern precinct align with the economic growth identified through the Deloitte analysis. Drainage and connectivity issues associated with the Southern precinct have been resolved by the Structure Plan developed by Hatch Roberts Day. However, the structure plan does not assign specific land uses to sub-precincts, and instead provides an overall allocation of land that is available to meet expected future demand.

The core Defence and aerospace activities at Williamtown SAP are considered highly likely to drive uptake by existing and new Defence and aerospace operators. This is expected to translate into over 7,500 jobs over the three horizons. Similarly, demand was identified during the market sounding process, for commercial and freight and logistics land provisions. The commercial land is expected to attract education and workforce support facilities such as accommodation, food, and beverage outlets as well as education, training, and health support services. The freight sector is also identified to drive future land uptake, with proximity to Defence and aerospace contractors. Across support industries and local job services it is expected that close to 4,700 jobs of the horizons.

While there is no shortage of industrial land in the broader region, the availability of such land near an international and Defence enabled airport is limited in NSW. Therefore, it is expected that there will be strong demand for airside and adjacent land use by aerospace and Defence related advanced manufacturing and research and development activities.

Based on the land use and development staging provided in the structure plan, it is estimated that close to 13,000 jobs will be created through development of the SAP. The table below provides a breakdown of the direct employment that could be created and accommodated in the SAP. Defence related activities are expected to be the primary job contributor in the SAP with manufacturing, design and support functions making up the bulk of these employment. With such a strong existing presence in the precinct, growth and development of activity in the SAP is expected to occur in quite a measured way over the three horizons. In relative terms the greatest movement is expected to occur in the first horizon of the Structure Plan, however in absolute terms the growth is similar (i.e. between 2427, 2190 and 2577) across the three horizons.

Table 8-3 Estimate job impacts of Structure Plan realisation

		Employment (total jobs)			
Industry	**Description**	**2019**	**Horizon 1 2026**	**Horizon 2 2036**	**Horizon 3 ultimate**
Defence	Defence related	2,911	3,681	4,400	5,527
Defence contractors	Warehousing, workshop, manufacturing, aerospace, specialist uses	409	904	1,543	2,035
Local service	Storage, workshop, manufacturing	790	1,586	1,925	2,342
Industry	Storage, workshop, manufacturing, specialist uses e.g., secure buildings	1,257	1,530	1,957	2,340
Health & education	Office space, education training facilities	148	172	201	282
Amenity	Food, beverage, hotel and other accommodation, recreation, sporting facility, conference facilities.	248	317	355	432
Total		5,764	8,191	10,381	12,958

9. Summary

The $4.2 billion Snowy Hydro Legacy Fund is helping to deliver critical infrastructure, priority initiatives, and other long-term New South Wales (NSW) Government plans.

As Australia's premier fast jet fighter base, Williamtown is well positioned to capture a significant portion of key air domain related investment, as identified in the 2020 Defence Force Structure Plan, with an estimated $40.4 – $60.3 billion directed at Williamtown through investment in the following cornerstone and growing Defence programs located within, or related to, the Williamtown SAP:

- F-35 Joint Strike Fighter (JSF) ongoing acquisition and sustainment – $9.9 to $17 billion
- F-35 Replacement Evaluation – $300 to $400 million
- Additional Air Combat Capability – $4.5 to $7.6 billion
- Growler Replacement – $7.6 to $11.4 billion
- E-7A Wedgetail Upgrades and Replacement – $14 to $21.1 billion
- Joint Air Battle Management System – $1.8 to $2.8 billion.

These programs can be a catalyst for the development of the Williamtown SAP into a Defence and aerospace hub and have been explored further as part of a market sounding process undertaken with key stakeholders.

The Williamtown SAP investigation area covers 11,408 hectares within the Port Stephens Local Government Area (LGA) and sits in a common thoroughfare between Newcastle, the northern Hunter Region and north-east towards the holiday destination of Port Stephens. The area contains flood prone land and Per- and Polyfluoroalkyl Substances (PFAS) contamination from previous activities at the military base, which were considered as part of the master planning process undertaken for the Williamtown SAP.

With this potential strong pipeline for investment in key Defence programs located at RAAF Base Williamtown, there is clear incentive for private sector demand in the region. Through a market sounding process, two drivers for demand were identified: (1) demand driven by existing Defence programs that may grow substantially over time in response to the significant government announced $270 billion investment in Defence over the next ten years, in addition to the previous $200 billion outlined in 2016, and (2) demand driven by existing infrastructure.

As well as the opportunity for investment in the Williamtown SAP by the Defence Primes, there is also opportunity for their respective supply chains, the Australian Defence industry Small Medium Enterprises (SMEs). Reliable and increased funding into these programs is a key driver of growth, both in terms of the military base presence and the Defence industry located at Williamtown.

The market soundings revealed that there is interest in investing and developing within the Williamtown SAP, which is driven by the existing infrastructure, significant government investment announced for the Defence industry, and also specific programs like the F-35 Joint Strike Fighter program based in Williamtown.

The Williamtown SAP was considered by stakeholders to benefit from the availability and low cost of land (compared with Newcastle and Western Sydney), proximity to the Port of Newcastle, interconnectedness with other major cities via the Airport, access to a cheaper workforce than Sydney combined with the amenity benefits of close proximity to beaches, lakes, and the City of Newcastle.

There was uncertainty across stakeholders in governments intentions for the coordination and timing of investments in capabilities and programs, and how the existing flood prone and contaminated land within the area would be addressed.

The Williamtown SAP investigation area faces several transport, utility, and amenity barriers impeding the precinct reaching its full potential. In particular, the area is prone to regular flood events, requiring major water infrastructure and management investments to be made to make the site safe, accessible, and productive. Legacy Defence activity has resulted in PFAS contamination impacting large parts of the area, limiting broader land use until remediated. The site also requires significant utility services and/or infrastructure capacity to be added for potable water, wastewater, and power and local road augmentation to make the area ready for complex and high value advanced manufacturing and Defence and aerospace activity, as has been proposed for the site. While all these matters have still to be addressed on a case-by-case basis, the cost and effort of doing so introduces a barrier to entry for many business activities. The SAP seeks to mitigate these risks through a series of coordinated management and infrastructure solutions.

With intended land use and current land ownership fragmented across multiple private and public owners, the incentive for any one party to undertake these enabling works is low. The relative upfront cost for these investments compared to the lagged and network nature of the benefits creates a disincentive for investment.

Stakeholders advised that adopting a precinct-wide, coordinated approach to land use planning to address current concerns (flood managements, PFAS contamination, and storm water and sewages infrastructure constraints) and support the establishment, expansion, and development of businesses within the Williamtown SAP would give confidence to investors.

Stakeholders also identified the need for the development of skills within the community through targeted training programs, as well as addressing the incorrect perception that there is a shortage of skilled workers as further priorities.

Government lead coordination to address the identified constraints would create opportunities for growth of the existing Defence industry leveraging the unprecedented level of Defence industry grants/programs underway, provide opportunities for expansion of adjacent sectors (such as the Aerospace industry) and growth through incorporation of non-adjacent sector (agribusiness) and support sustainable precinct development.

Key land use themes identified during the market sounding process indicate that most stakeholders are open to a diverse range of sectors locating within the Williamtown SAP. Overall key land use themes include improvements in road and public transport access, as well as increased amenity to support workforce attraction and retention. Environmental constraints are also highlighted as a limitation to development by stakeholders. The “incremental benefit” approach has been taken to ensure a cohesive vision and development pathway which has, at its core, Defence capability.

The development “envelope” at 2056 shows a potential ultimate growth range of 3,700 jobs based on a mix of core capability expansion and catalytic growth. This is expected to occur across an ultimate precinct area of 106 hectares. It is expected that the SAP will see skilled job growth in the Defence and aerospace sectors, along with ancillary support services. The SAP also creates opportunities for agribusiness, eco-tourism, logistics and education to expand.

To achieve this, the Williamtown SAP should focus on fostering short to medium term opportunities while also laying the foundations for a longer-term plan. The initial focus should be on forming a strategy to address the market failures, including providing enabling infrastructure, targeting industries, and level of growth initially, before expanding out to the proposed ultimate state.

The analysis and modelling undertaken included assumptions for the benefits of co-location for adjacent and non-adjacent industries, the potential for workforce attraction and retention through improved amenity, and the extent of potential induced growth in ancillary industries which would benefit from locating at Williamtown SAP.

The master planning process concluded with the Structure Plan focussed on drainage system solutions and addressing a range of environmental constraints. The Structure Plan ensures that the visions and principles of the Williamtown SAP are realised without impeding the existing approved development associated with the Newcastle Airport Master Plan. The Structure Plan provides a flexible framework to accommodate a range of proposed land uses and allows development to proceed with a staged approach focussed on meeting short term market demand for aerospace and Defence related industries, with airside access within the Northern Precinct.

Key physical and operational elements of the area reflected in the Structure Plan include:

- The constructed portions of Stage 1 of Newcastle Airport Master Plan and resultant development parcels, street network, and drainage solution has been adopted
- The active nodes that are under construction have been reflected in the Structure Plan
- The Structure Plan will expand on the existing active nodes envisaged under the approved Newcastle Airport Master Plan within western and eastern portions of the Northern Precinct
- The Structure Plan has adopted the location of the northern commercial centre as outlined in the Newcastle Airport Master Plan
- The secure airside parcel has been expanded further to the south to respond to forecasted high market demand for airside lots and demand for flexible lot size arrangements
- Two freight and logistics hubs have been identified. An express hub is located at the north-east of the Northern Precinct and will receive and distribute smaller goods. A larger (5ha’s) secure freight and logistics site is located within the secure airside parcel
- Also consistent with the Newcastle Airport vision, the block south of the airside parcel has a smaller depth to accommodate finer grain lots, catering to the identified market demand for smaller sized land parcels
- Opportunities for tourism and research and development uses have been identified within the north east corner of the Northern Precinct, close to Newcastle Airport and easily accessible from Nelson Bay Road. The resultant Structure Plan comprises over 137 ha of developable land.

In summary, the Williamtown SAP provides an opportunity to address a number of identified constraints and to help incentivise the acceleration of economic activity in the investigation area through two clear roles, the provision of funding for early and enabling works to provide a utility infrastructure and services foundation and the alignment of private and public landowners through coordinated planning discussions to a Structure Plan and governance arrangement that drives greater certainty, transparency, and coordination across the investigation area, resulting in a lower marginal cost for delivering the infrastructure across all users.

Appendices

Appendix A: Interview questions

The full list of stakeholders consulted through the engagement is listed in Section 5.

The interview questions used to guide discussions during the market sounding interviews are outlined below. Not all questions were relevant to all stakeholder interviews, with discussions adapted accordingly.

Theme	Interview Question
Investment attraction	What would make the Williamtown SAP a more attractive location for you to establish/expand/invest in, compared to other regional areas?
	In your opinion, what is the government currently doing, or could be doing, to make the Hunter Region an attractive place to live and work?
	What would be a financial incentive for you to relocate/establish/expand your businesses into the Williamtown SAP? In addition, would this be an expansion of your current business (e.g. an additional location or bigger location), and how many employees would you anticipate as part of your next or expanded business location?
	What support (such as training, grants, and provision of developable land) would help you to expand/establish in the Williamtown SAP area and meet your business objectives?
	On a scale of 1 to 10, how would you prioritise the Williamtown SAP against other potential site options?
	On a scale of 1 to 10, what is the likelihood that you would invest in the Williamtown SAP now?
	On a scale of 1 to 10, what is the likelihood that they would invest once the precinct has scale/infrastructure (i.e. later)?
	On a scale of 1 to 10, what is your degree of concern around competitors also choosing to invest/establish operations in the Williamtown SAP?
Defence and Advance Manufacturing	What physical/digital infrastructure is required from a security perspective to enable defence contractors to be “move-in” ready?
	Are there any specific infrastructure considerations your business would require, such as: air side access, cold chain, secure energy, security, other?
	Are there any specific future transport infrastructure and accessibility needs (e.g. road, rail, public transport)?
	Are there any specific future utilities e.g. water, sewerage, power, telecoms (5G), secure network, open space, flooding mitigation, contamination fibre optics, security, specialist test equipment, simulators etc?
Business operations & growth	Where are the current targeted geographies for your products and operations? Are you planning to target new geographies?
	What level of investment ($) would you consider in the region? Including indicative turnover (p/a) related to new investment? In addition: - Would grants or other financial assistance be required for the business to expand/move? - Any other assistance required?
	In your opinion, what do you see as major infrastructure and non-infrastructure constraints for businesses looking to expand or establish in the region?
	Would you envision the indicative land footprint requirement for future expansions be: below up to 25 ha, up to 50ha, up to 100 ha or greater?
	For future expansion or relocation what would be your indicative timeframes (e.g. Present, 1-2 years, 2-5 years, 5-10 years, 10-20 years or 20 years+)?

Theme	Interview Question
	What types of jobs would you envision as part of a future expansion? e.g. full time, part time, casual, contractors.
Land & infrastructure	What is the approximate: - Footprint (hectares) of your current operations? - Number of FTEs? - An indication of the average salary of your employees? In addition: - Is this footprint sufficient for your current and ongoing operations (ha)? - What is your estimate footprint (hectares) for future growth?
	If you were planning on expanding, what would enable this to be commercially viable, in the context of airside access?
	Are there any specific infrastructure considerations your business would require, such as: air side access, cold chain, secure energy, security, other?
	What proximity to air space do you require? What level of connection would you need to the airside?
	Does your business require any specific enabling infrastructure?
	Is sufficient and appropriate, land available in the region to service your current and near future expansion or establishment plans?
	What would be a realistic timeframe for business to establish, and, is there any dependencies to re-establish i.e. finance, infrastructure, planning approvals?
	What are the current blockages/preventers to you establishing/investing/relocating business to the Williamtown SAP area? In addition: - How can they be overcome? - What timeframe would be required? - What other assistance?
	In your opinion, of the enquiries for developable land in The Hunter Region do you know where the investors have preferred to develop, instead of Williamtown SAP area?
Comparative advantage	Can you share with us, from a business perspective, the dependencies, opportunities and challenges of this location?
	Do you envision your business evolving over time, and could the Williamtown SAP play a role in this?
Freight & Logistics	In your opinion, what, if any, infrastructure would need to be provided for the Port on Newcastle to consider development in Williamtown, and would there be an appetite from Port on Newcastle? If yes, what are the: - Incentives required? - Potential timeframe? - Potential employment opportunities?
	What type of infrastructure would an investor need to be attracted to the site for domestic storage? i.e. caravans, boats, jet skis.
Industry 4.0	To build the credentials and global reputation of The Hunter Region as a Smart Region, what types of integrated new technology and smart thinking is key to the delivery of the Williamtown SAP?
	If the term 'Industry 4.0' may be used to describe the digital transformation of industry; in your industry, what digital transformation activities are on the horizon?
	What kind of workforce development have you undertaken to equip employees with skills for the future?
	Are you aware of the government's current Sovereign Industrial Capability Priorities and unprecedented level of funding available to develop capabilities in critical areas such as integrated intelligence, surveillance and reconnaissance, multidisciplinary material sciences, quantum technologies, advanced sensors, trusted autonomous systems, cyber security and hypersonics?

Theme	Interview Question
	Are you looking to harness the full potential of the latest digital technologies through big data, digital twins in supply networks and artificial intelligence?

Appendix B: Summary of interview findings and conversation captures

Table A-1 Summary of key findings

Focus		Findings and commentary
		Stakeholders indicated that…
1.	RAAF Base Williamtown	• Additional land may be required to support projected growth of the base, and this will be identified through continued planning by Defence Estate and Infrastructure Group.
2.	Defence and Aerospace	**Competitive advantage** • Williamtown has been identified as a possible place for space operations given it has several competitive advantages including a low risk profile and low cost • Industrial, aerospace, airfield users, complimentary businesses are all supported at Williamtown. **Future expansion of existing capabilities** • JSF has been identified as one of the key drivers of future growth, particularly growth in demand for Williamtown as part of the global supply chain policy. This is supported by research which indicates that BAE Systems Australia has been assigned the role of Southern Pacific Regional Depot for Airframe Maintenance, Repair, Overhaul and Upgrade (MROU) provider to support the JSF, which could be up to 130 aircraft. This includes F-35 from foreign air force assets operating in the region, such as those from South Korea, Japan, Singapore and the US. Further opportunities exist for regional component maintenance (repair and testing) and warehousing for the regional JSF fleet[76] • Preservation of current testing facility (near the sea) – given the noise associated with testing engines/parts an open space is required. **Deference and Aerospace programs driving demand** • Major programs for Williamtown include the F-35A Joint Strike Fighter, E-7A Wedgetail, AIR 6500 and other aircraft platforms (Hawk, Hornet, Loyal Wingman) • For Williamtown, the Wedgetail is the main program which is entering into the next phase – upgrades of all aircraft • Major aerospace and aviation companies/supplies have indicated that there is a long-term future at Williamtown, given the current availability of secure buildings and proximity to the RAAF Base, with demand driven largely by programs • Stakeholders indicated that there is interest in shared training capabilities (given the availability of complimentary industries) in Williamtown.

[76] New South Wales: Strong, smart and connected – The NSW Defence and Industry Strategy 2017

Focus		Findings and commentary
3.	Alternate industries (current and potential)	**Agribusiness and forestry** • The produce needs to be grown and distributed at the same place to be successful. Williamtown could potentially look at less conventional growing methodologies (hydroponics, vertical farming etc.) which could mesh with CSIRO / the university. **Resources and mining** • While coal is consistent, it likely has a limited future growth as the focus pivots towards renewables – which may have a role to play within Williamtown. **Tourism and hospitality** • Newcastle and surrounds are shifting more towards a leisure destination rather than the historical industrial manufacturing and mining focus. There is the possibility of transitioning the Port to a more tourism / cruise focus – looking at the Brisbane model for reference. **Health and residential care** • Unlikely to work in Williamtown due to noise and restrictions, along with other medical facilities close by • Freight and logistics • Freight, logistics and manufacturing will all prefer being closer to the seaport and major arterial roads. There is sufficient space in Newcastle which would on average be preferable to these types of businesses over Williamtown. The Port has consistent exports due to the majority being coal – which has reliable and predictable demand. Storage was identified as a suitable industry, particularly around the Port and Airport. **Advanced manufacturing** • Alike to freight and logistics, Newcastle is likely to be preferable unless the manufacturer will see advantage by situating next to the Defence base. **Renewable energy** • Opportunity for clean energy, given the large land parcels available in the SAP.
4.	Infrastructure and energy	**Transport infrastructure and accessibility** • Several stakeholders indicated that: a quick transport link between Williamtown and Newcastle is required, such as (high speed) rail. The traffic congestion can be prohibitive for the area; but Williamtown can work if it has good access • Conflicting views among stakeholders around the quality of the roads into Williamtown and the ability to get heavy vehicles in and out effectively • Current transport linkages from a visitor economy perspective have very limited options: a couple of hire cars but not much beyond. That is a significant missing piece from a precinct planning perspective. In an ideal world there would be transport options from the airport to other areas, such as Newcastle. Transport by car is the only option for Williamtown. Less transport options limits the distribution of visitors around the wider region • There was interest in an integrated transport hub and transport corridor from Williamtown to the Port. **Commercial and retail spaces** • There is a need for a larger space for conferences • Office and facilities need to be pivotable / flexible to multiple types of businesses • A container terminal would make the Port more competitive. **Energy** • Energy security is part of Defence – energy reliability is important. The Williamtown SAP might be a sensible place for energy security infrastructure, and the industrial ecosystem will surround it • Possible energy opportunities for Williamtown: battery manufacturing, long duration hydrogen storage, fuel cells, electrolysers etcetera • Several stakeholders spoke to whether the Williamtown SAP wanted to take a 'green' or net zero emissions ecosystem. This may tie in well with renewables potentially earmarked for the region, or decarbonising production of JSF is valuable if looking to export to Japan / Korea / EU given those places put a high value on that.

Focus		Findings and commentary
5.	Workforce and education	**Current workforce** • Most of the workers in the Hunter are either current or ex-military, or based upon skillsets associated with manufacturing, mining and agriculture, which has been a large focus of the region historically • Workers in the region tend to move less – more static • Retraining may be required if skills of future industries don't align with existing capabilities • The Port does not have difficulty in finding skilled workers. **Skills shortage** • Shortfall in skilled truck operators, particularly for the larger vehicles which are more costly and difficult to obtain a license and operate. A driver training facility in Williamtown could mesh well with the need to neutralise PFAS areas with large scale concrete pads • There was a comment on shortage of trade workers. **Education and skills** • There is scope for focussed university and TAFE courses, but not generalist • Skills [particularly with the Defence focus] are often learned on the job rather than in classrooms • Scale of industries and programs are needed for personnel to see career progression, rather than the more fragmented nature of the current capabilities in Williamtown • There is a need for a new training model to support long term careers in technical fields – supporting apprenticeship into careers through ensuring the theory is complete first and followed by practical experience, all in one location. Preferably a training facility near the practice facilities • The area needs to be appealing for the workforce and cater for long careers. Perhaps through a university in the precinct.
6.	Critical enablers of growth and investment attraction	**Financial relief** • Tax relief for large regional conferences • The levers the state government can pull beyond payroll and land concessions may include infrastructure and access improvements. **Planning approval** • Approval processes must be quicker • Precinct-wide and collaborative planning • The region was viewed as being 'stuck in the middle' between not being a major metro city [Newcastle] and not being overly rural, which can limit the amount of support [both financial and otherwise] which is afforded to it. This sentiment was echoed among multiple stakeholders • If Williamtown was earmarked as the NSW space precinct, it will facilitate the right kind of inputs and buy in from the community and government. This can assist with the expensive and laborious approval processes • A collaborative hub space in the centre could add value.
7.	Amenities	• Greater amenities are needed in and around of the airport and business park, else personnel flying in / working will stay in Newcastle • More recreational services will allow personnel to stay longer • It is important to make Williamtown an attractive place to work and stay • There was a difference in views between stakeholders: some suggested the core growth must exist first and then the ancillary amenities will naturally develop, while others suggested that if you 'build the supply they will come' • There is value in greater amenities at Williamtown, Gym, cafes, walking areas, as the area needs to be able to attract talent. There needs to be enough there to make it an attractive place to work.
8.	Technology	• Technology is usually the last thing added after all the physical infrastructure, the Williamtown SAP might be an opportunity to get it right and in place early. The chance to influence some of the thinking about the setup. The value of commercial buildings might be very dependent on the technology setup in the future • The Department of Defence is a large customer for technology services, particularly sovereign services • Data sovereignty could be a big selling point [particularly considering the latest geopolitical issues].

Focus		Findings and commentary
9.	Challenges and risks	• A variety of industries will lower the risk exposure if a particular sector finds itself in troubled waters • Challenges for space offerings include Air Force not wanting to house those operations, and the availability of other suitable sites particularly in Northern Territory (closer to the equator and less populated) and South Australia (less populated) • Access to the airport for civil aviation and air freight may be limited given the priority afforded to Defence • Development is constrained by existence of PFAS contamination, with contamination an ongoing issue (e.g., soil, asbestos). It isn't prohibitive but does impact costs for businesses. • Stormwater, the site floods locally, deficiency in the network, needs upgrades, flooding at the site causes angst • Sewerage, companies have their own treatment plant which they are looking to put in place, but sewage is identified as the one of the two (stormwater) main issues to look at in medium to long term, given current infrastructure is inadequate • Precinct-wide mitigation of flooding, drainage and sewage is required for businesses to establish operations in the area • Requires greater awareness of a destination, e.g., branding of the region.
10.	Comparative advantage/s and opportunities of Williamtown	**Relative cost advantage** • Availability and cost of land generally, and specifically, relative to other Ports • Appealing place for space operations: low cost, low risk, low population density • Cheaper workforce than Sydney – lower living costs generally translate to lower wage expectations. **Major transport links** • The only Port connected to inland rail • The airport is a valuable asset, which most regional locations don't have, with interconnectedness with other major cities via the Airport resulting in an accessible small city/rural area • Organic growth related to existing industries and government planning • The nature of the Williamtown SAP will speed up approval processes relative to other areas • Proximity to existing Defence industries.

Source: Deloitte Analysis (2021); Stakeholder Comments (2020/21)

Appendix C: Forecast methodology

Baseline estimates have been sourced from DPIE 2019 projections, TfNSW 2019 and comparisons have been made with Deloitte forecasting. Scenario development has been undertaken through Deloitte land use modelling.

DPIE methodology

The projections are based on LGAs as at 30 June 2019, with data based on the Australian Bureau of Statistics (ABS) Australian Statistical Geography Standard (ASGS) 2019 approximation to these definitions.

The projections assumptions are informed by extensive analysis of a range of datasets:

- Fertility rates are based on historical birth data from the Australian Bureau of Statistics and supplemented with data from NSW, Queensland, Victoria, and ACT Health agencies' Perinatal Data Collections
- Mortality rates are based on the Australian Bureau of Statistics mortality data
- Interstate and Intrastate Migration are derived from the Census question "where did you live 5 years ago?" These data are combined with trend information from historical estimates of interstate migration available from the Australian Bureau of Statistics. The likelihood for people to move in to, or out of, an area is then applied to future populations
- Overseas migration assumptions have been informed by short term forecasts from the Commonwealth Treasury as presented in the Annual Budget process. These forecasts are based on the latest data from the Department of Home Affairs on visa grants, past overseas migration flows by visa group, existing migration policy decisions and official economic outlooks. Age profiles for both arrivals and departures are determined from ABS data on migration, including the 2016 Census.

At the NSW level, the margin of error at 20 years has been ±2%, ±3% for regional NSW and ±4% for Greater Sydney. This represents a high degree of confidence.

TfNSW forecasts align with DPIE forecasting and utilise a disaggregation methodology to distribute population to travel zone geographies.

Deloitte methodology

Deloitte's integrated modelling combines macro-economic projections of the future with granular land use modelling to reflect distribution of population and employment across New South Wales at detailed geographies. Our macro-economic forecasting is underpinned by a large-scale general equilibrium model built on interactions between agents (business, government, households) and markets (labour, product, and finance) to simulate the national and State economies.

The macro-economic outputs flow through to our land use modules to produce a suite of granular outputs including population, labour force, employment, and education, providing an unprecedented level of detail about the changing landscape of local communities. This work includes a baseline and scenario analysis of the current economic and demographic baseline, and potential for growth under alternate assumptions.

Deloitte forecasts consider the impacts of COVID on future growth. Deloitte land use modelling is a top-down, bottom-up hybrid approach which includes bottom-up land use at a granular level. This small area modelling process is iterative and combines a consistent and coherent set of top-down population forecasts, while also considering localised land use and expected future changes. All historical population and demographic component data are obtained from the Australian Bureau of Statistics. Employment estimates are also developed using this approach.

Forecasts are allocated as per the following considerations:

- Known approved residential developments
- Proposed residential developments where there is strong evidence to support realisation
- State planning policy identifying key activity centres or priority growth areas
- Local planning instruments identifying priority areas for local governments
- Neighbourhood planning identifying rejuvenation and local growth precincts
- Availability of land for residential use
- Effect of induced development caused by betterment of accessibility, services, and transport.

The projections for this work use estimates of residential population (ERP) at June 2019 as a basis, and future estimates are provided for the period ending June 2056. COVID-19 has disrupted the Australian economy, including the population outlook. The major disruption is likely to occur from migration, as border closures limit the movement of people into Australia. The closing of international borders – most starkly illustrated by a 99.8% decline in arrivals at Australian airports – along with internal disruption to population flows means that the source of more than 60% of overall population growth, and even larger shares in some areas – are no longer able to be realised.

Australia's population outlook has already changed due to COVID-19, but there are several factors that need to be considered in creating a detailed outlook:

- Government policy – changes to border closure rules, including both timing and eligibility, will impact the flow of migrants into Australia
- Regional differences – the impact of reduced migration won't be felt evenly across Australia's regions. Not only are some State and Territories more reliant on migration for population growth, but this also differs across the regions within States and Territories. And, while migration levels may not always be high, migration's contribution to growth may be significant
- Lagged impacts – migrants often move to regional or city fringe areas after a few years of living in Australia. This means that the population impacts may not be felt straight away for some regions, and the migration patterns over time need to be considered.

Demand across NSW is expected to be heavily impacted by the population decrease from disruption to population flows. The distribution of population in this COVID-impacted outlook has been affected by:

- The anticipated change in age structure of the population due to a decrease in migration
- Anticipated change in planning priorities and investment sequencing
- Macro-economic changes to industry sector forecasts.

For New South Wales, the impact of COVID-19 was largely felt towards the beginning of 2020, as Sydney being Australia largest and most densely populated city, was also the country's main entry point for tourists and migrants.

Prior to Melbourne's second wave, New South Wales had the most COVID cases by a significant margin. Fortunately, as the year progressed the virus clusters have been well managed, traced and controlled, resulting in the state being able to largely operate under semi-strict social distancing and avoid a second lockdown. The persistence of low levels of cases have led to continued suffering for business confidence in the state. Social distancing restrictions have resulted in lower travel and spending in urban areas despite most businesses being reopened. The sectors experiencing the biggest downturn are tourism, transport, IT, and construction, with additional pain being felt in the hospitality sector.

Scenario modelling approach has considered attraction of skilled workers and potential growth under each outlined set of conditions and considers the induced effect of benefit from agglomeration and co-location of diverse industry sectors which have the potential to complement core Defence and aerospace capability.

Limitation of our work

This report is prepared for the Department of Regional NSW. The report has been prepared for the purpose of providing economic advice on the industries and land uses that should be considered as part of the development of the Williamtown Special Activation Precinct Structure Plan, development of the Master Plan and subsequent Final Business Case. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report should not be referred to or our name referenced by other parties for any other purpose.

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