

Western City Aerotropolis Integrated Logistics Hub Scoping Study

July 2020



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At a glance - Australia's new Global Gateway for freight

An opportunity exists for the planning and development of a world-class Integrated Logistics Hub (ILH) enabling the safe, secure and seamless speed-to-market delivery of products transitioning through the air-side operations of WSIA, and safe guarding future landside growth requirements to meet projected volumes growth and changing consumer trends over future decades.

The case for an Integrated Logistics Hub in the Western Parkland City has received strong support from across industry including the Western City & Aerotropolis Authority (WCAA) Foundation Partners.

Industry is committed to investing in the region and see the ILH as a key enabler for the global competitiveness of the Agribusiness Precinct, the new Western Sydney International Airport (WSIA) and the Aerotropolis more broadly. They are looking for clarity on the location, scale and opportunities for them within an ILH as they develop their strategies and investment plans.

The ILH has the potential to provide the Western Sydney community, and already established businesses, with further jobs growth in support of the target for 200,000 jobs identified in the Western Sydney City Deal.

Through the stakeholder engagement process industry and supply chains told us, that to improve the global competitiveness of Australian businesses, they need:

- Improved connectivity between local producers and manufacturers and overseas markets – particularly in South East Asia
- Proximity to the airside operations enabling seamless integration
- Technology to help support supply chains deliver efficiency, resilience and enhanced visibility
- An ability to ensure safety, security and provenance of products to their customers
- Investment in the skills and training to support these advanced supply chains
- Connectivity to the rest of the network, including importantly to Sydney existing Kingsford Smith Airport.

1. ATAGLANCE

Key criteria have been identified for selection of a suitable site addressing the following aspects:

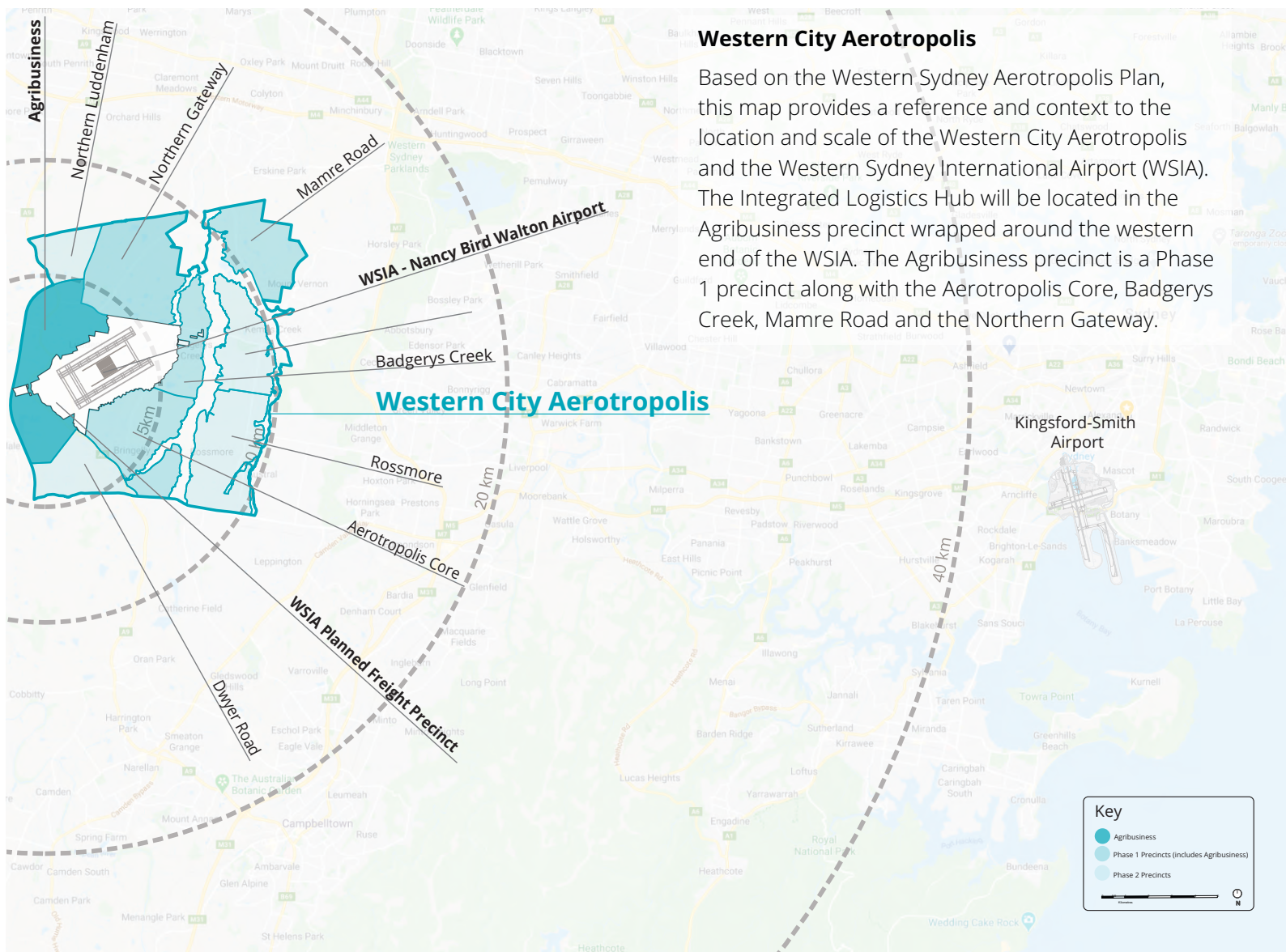
- Supply chain connectivity
- Future capacity
- Operational suitability
- Environmental and community impact
- Ease of implementation including cost.

This scoping study has concluded there is a need to:

- Continue to engage formally and informally with WSIA with regard to development and integration of the ILH
- Identify and reserve a site of up to 300ha for the long term needs of an ILH
- Continue to engage formally and informally with Foundation Partners, industry and other key stakeholders

- Explore opportunities to enable early activation of the ILH
- Identify a preferred delivery strategy and role for Government with respect to land acquisition, infrastructure connectivity and site development
- Work with DPIE, TfNSW and local Councils, to ensure that the 24hr access and operations of the ILH are not subject to encroachment now or in the future.

With the new Western Sydney International Airport due to open in 2026 the critical path for the planning and development of the Integrated Logistics Hub to be delivered by the time the first flights take off has commenced.



Western City Aerotropolis

Based on the Western Sydney Aerotropolis Plan, this map provides a reference and context to the location and scale of the Western City Aerotropolis and the Western Sydney International Airport (WSIA). The Integrated Logistics Hub will be located in the Agribusiness precinct wrapped around the western end of the WSIA. The Agribusiness precinct is a Phase 1 precinct along with the Aerotropolis Core, Badgerys Creek, Mamre Road and the Northern Gateway.

Key Stakeholder Insights and Recommendations



As a result of the research and engagement with experts and key stakeholders from across the supply chain, freight and logistics industries, a number of key findings have been identified through this study:

1 - The ILH must be a part of a broader freight and logistics ecosystem

Western Sydney International Airport (WSIA) will complement Kingsford Smith Airport (KSA) and expand the role of Sydney as the nation's leading hub for regional, national and international air-freight and logistics.

An Integrated Logistics Hub (ILH) developed in conjunction with the Agribusiness precinct and Aerotropolis will ensure that sources of production and end consumers are connected in a rapid, 'just-in-time' chain of process, systems and infrastructure.

2 - Industry supports an ILH associated with the WSIA

A consistent theme from industry and stakeholder consultation, including foundation partners, is the strong and broad support for a new ILH in or near the WSIA, providing seamless airfreight links between Western Sydney (and broader NSW), and the growing export markets and import origins for international trade with Australia, particularly those in South East Asia.

In addition, a number of those organisations expressed their commitment in investing in the ILH through the engagement process.

3 - Capability to process different product types should be broad, but with a focus on the unique strengths of NSW & Australia

The ILH should have broad capability to process all current airfreight product types to relieve known constraints at KSA, but it should also offer a strong and specific focus on the growing export market potential for quality Australian food, and the aligned import/export of other cold-chain and time sensitive categories like pharmaceutical and medical products.

Through the curfew free WSIA, the ILH can support an expansion into existing and new global markets for Australian fresh produce and manufactured goods.

4 - The ILH must offer a step-change in process and technology

The new ILH must be technologically advanced and highly flexible, minimising process costs and maximising speed-to-market for industry participants across all current supply chain capabilities.

There is no single view of the complete supply chain; individual process owners operate in silos and the ecosystem does not work in an integrated manner to satisfy a collective objective.

Collective workshop theme



5 - Skills and jobs

The vision for the Western Parkland City includes the establishment of a City for an additional 500,000 residents in Western Sydney and the creation of 200,000 new jobs.

The Agribusiness precinct and ILH together provide existing sectors with significant opportunity for jobs growth and the development of the necessary skills to support the economic development, growth and inbound investment.

In particular, engagement with key stakeholders and industry through the workshops identified the need to:

- Reduce the average age of the workforce
- Increase female participation of the workforce
- Increase the skills capacity in areas including:
 - Technology skills especially in the areas of data analytics, IoT, Coding, Artificial Intelligence
 - Supply chain knowledge for 3PL management, logistics, eCommerce and trading
 - Vocational skills for maintenance and repair
 - Engineering skills to manage sustainable energies and material.

6 - Provide the right building blocks for a resilient and world leading ILH

Enabling infrastructure needs to be embedded in the master planning for the Aerotropolis such as integration to utilities and the circular economy, digital integration to the WSIA, KSA, the Port of Sydney and customer supply chains, physical connectivity through efficient access networks that allow the safe movement of B-doubles, over dimensional vehicles and dangerous goods.

The ILH presents a rare opportunity to establish a new benchmark in sustainable Australian infrastructure, by making it a fundamentally sustainable asset. However, this requires embedding sustainability as a guiding principle, from the design all the way through to its operation.

Collective stakeholder theme

7 - Engagement and collaboration

Success in world leading examples of freight and logistics precincts and integrated logistics hubs has been built on collaboration between government, industry and research bodies. A core message from industry was that collaboration between WSIA and WCAA is critical in delivering a seamless integrated solution for the industry.

The emergence of Covid-19 has seen a significant and unprecedented level of collaboration across the freight and logistics sectors and the supply chains. This may be the new normal once this pandemic over.

8 - Embed sustainability as a guiding principle for planning and execution

The Aerotropolis presents a rare opportunity to establish a new benchmark in a sustainable Australian city building through integrating circular economy principles from the outset.

The ILH will be a significant consumer of energy and resources as well as a potential generator or waste. For the ILH, good integration means integrated to the circular economy of the Aerotropolis including to proposed systems such as the bio-digester, recycled water networks, microgeneration and grid energy storage.



Key Findings from the ILH Study

The ILH is a critical enabler to the success of the Agri-Precinct and the broader Aerotropolis. Industry have indicated that development of the facility and the opening of the airport need to be considered within their current investment horizons and they are therefore seeking further confidence in the proposed timing, scope and delivery of the project.

All participants have a desire to further understand the likely profile of services and connections that will operate out of WSIA to inform their planning. The final key message from industry was the need for an integrated approach with WSIA.

There is a role for the ILH to play in the addressing supply chain issues that industry face today and in doing so this would enhance Australia's global competitiveness and resilience.

Connectivity and integration with both the WSIA operations and extended local and international network of facilities will be critical for success.

Technology as an enabler will be a key differentiator in delivering improved efficiency and product integrity – there is an opportunity to embed technology within the ILH infrastructure and operations which will make it a world class facility.

To be operationally efficient and attractive to industry the ILH needs to have sufficient space to grow, access to utilities and in particular energy sources and is future proofed against encroachment.

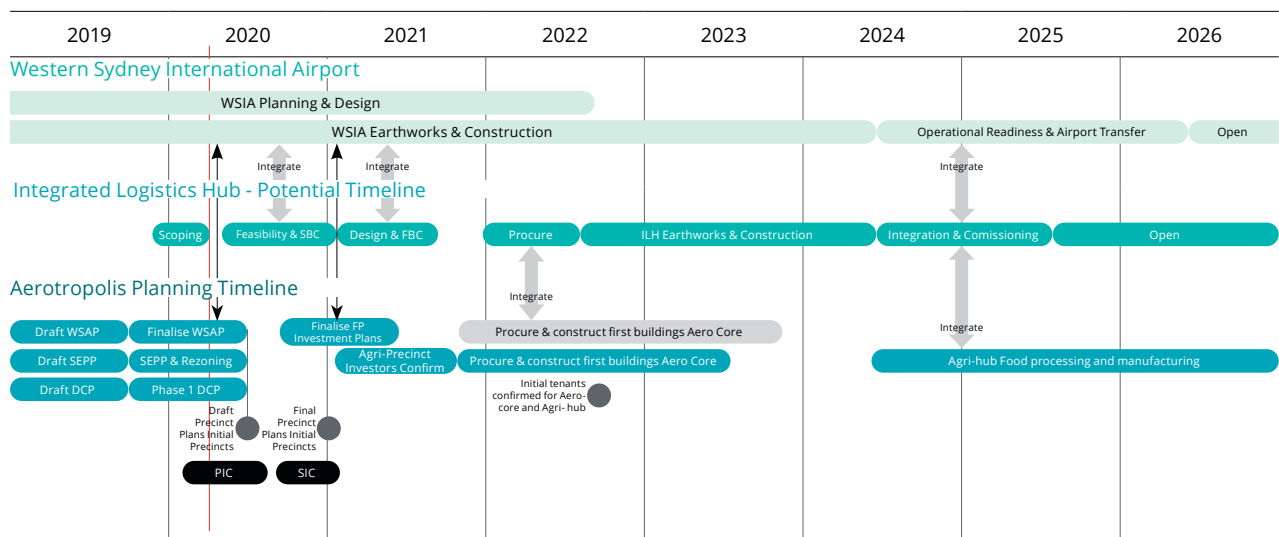
Proposed Actions



On the basis of these findings WCAA should proceed with developing an ILH. Figure 1 outlines the timeline to deliver the project targeting 2024. The next step in the process is to proceed to a Strategic Business Case (either as a project or as part of an Agri-Precinct program business case) which includes;

- Develop a concept plan in collaboration with WSIA, that integrates the potential functions and uses to inform both site selection and master planning for the precincts
- Engage formally and informally with WSIA with regard to development and integration of the logistics facilities
- Continue to engage formally and informally with Foundation Partners, industry and other key stakeholders
- WSIA and WCAA engage industry in a single, united process between to deliver an integrated outcome for Industry and Western Sydney
- Confirm and agree criteria and appropriate weightings and undertake an MCA on site options to select a preferred site or sites
- Identify potential site options that are likely to address the infrastructure and core requirements
- Explore opportunities or concepts to enable early activation of the ILH embedding integration and principles in the early stages of development and to accelerate the development of the Aerotropolis
- Identify a preferred delivery strategy and role for Government with respect to land acquisition, infrastructure connectivity and site development.

Figure 1 - An indicative timeline



Context

From tomatoes, lettuces or lobsters, a farmer's produce will be packed at 6pm, flown out at 9pm, be sold in international cities at 5am the next day and then served at a restaurant by midday.

Gladys Berejikian



The Australian and NSW Governments have a vision for the Western Parkland City to develop an Aerotropolis centred on the Western Sydney International (Nancy-Bird Walton) Airport.

The Aerotropolis will be a new centre of employment focusing on, and attracting, industry investment in Defence and Aerospace; Advanced Manufacturing; Technology, Education and Research; Health and Med-Tech; Agribusiness; and Supply Chain, Logistics and trade enabling modernisation technologies and practices.

The Integrated Logistics Hub (ILH) is a key plank in the vision for the Aerotropolis - facilitating fast, efficient, resilient and cost effective access to existing markets as well as opening up new markets with the opportunity to improve the global competitiveness and resilience of Australia's supply chains with a particular focus on leveraging the wider agribusiness, high-tech and bio-secure agribusiness precincts within the Aerotropolis.

The Agribusiness Precinct on the western edge of the Aerotropolis will act as a catalyst for sustainable,

climate resilient, intensive and international competitive urban agricultural production and export from the region. The vision is to deliver high quality fresh produce and value-added food from across NSW, from local paddocks and producers to international plates in under 36 hours, servicing the increasing national and international demand for high-quality fresh food production and resilient food supply chains.

Agriculture is a major export industry for Australian farmers who export two thirds of their produce. With the strong reputation for high quality fresh food, demand for Australian produce is growing. Fast, reliable and efficient access to global markets is required to maintain competitive advantage and to reach its full potential, Australian Agriculture needs to be supported with efficient and future focussed resilient end-to-end supply chains.

Together the Western Sydney International Airport (WSIA) and Aerotropolis will be a game-changer for the region unlocking opportunities to deliver new jobs and homes in the heart of Western Sydney making a significant contribution to 200,000 new jobs.

To ensure the success of ILH, develop an ambitious vision for what it will be capable of. Following this, determine what building blocks are required to support this vision, such as investment in R&D, providing support to burgeoning industries and mobilising a labour force with the required capabilities.

Collective workshop theme

Setting up for Success

The ILH Scoping Study has laid the foundations for this key piece of infrastructure that will unlock and streamline access to international markets for NSW businesses and it will help inform

- Master planning for the Agribusiness precinct
- Landside utilities and infrastructure coordination
- Investment attraction
- Precinct activation
- The road map towards development.

This will ensure the ILH is integrated and connected to the surrounding region, including both the existing and new airport and intermodal facilities, and will help to inform and attract engagement from industry and government.

Engaging with Industry

The approach focussed specifically on the products and supply chains that would most benefit from an ILH and the current issues and constraints producers and industry are experiencing with those supply chains.

The study has been underpinned by industry engagement canvassing stakeholders who together represent the end-to-end supply chain, from producer through to the airside handlers along with potential investors in the facility, including foundation partners who have already signed MOU's with the NSW government. Key insights from these engagements were incorporated throughout the report as well as global best practices identified through case studies of other international logistics hubs facilities. Together they are reflected in the findings and recommendations.

A range of scenarios tested a low, medium and high growth in air traffic and airfreight demand. While flight operations during Covid-19 are not business as usual and are well below the low range scenario; the low range reflects a scenario of a longer than expected rebound Covid-19 or a similar global disruption in the medium term.

These challenges reinforce the importance of the key findings and recommendations.

There is more focus required to consider burgeoning markets; think developing countries and cultural challenges. We are not designed for future proof demand. If we could import and export goods at all hours, that would be a real game changer; we'd address a lot of our current limitations if we could do that.

Collective workshop theme

Policy and Strategic alignment

The Western City & Aerotropolis Authority (WCAA) is tasked with delivering the Western Parkland City Aerotropolis at the heart of the Western Sydney City Deal. The Australian and NSW Governments, in partnership with the 8 local authorities in Western Sydney, are committed to delivering economic growth in the region accommodating an additional 500,000 people and creating 200,000 new jobs by 2036, with the Aerotropolis and the Western Parkland City, the third city in a polycentric vision for Greater Sydney.

Commonwealth Policies



NSW State Policies



Local Government Policies



The Challenge

Australia's freight task is growing and changing. The volume of freight carried is expected to grow by over 35 per cent between 2018 and 2040, an increase of 270 billion tonnes (bringing the total volume moved to just over 1000 billion tonnes).

With the NSW freight task set to grow by 28 per cent by 2036, a continued focus is required on the freight sector. The NSW Freight and Ports Plan 2018-2023 is a call to action for government and industry to work together to make the freight system more efficient, more accessible, safer and more sustainable for the benefit of producers, operators, customers and communities across NSW.

The growing demand for freight is straining existing infrastructure and affecting service levels along the supply chain.

Distribution activities continue to move west in response to rising land costs together with a growing population and improved transport infrastructure in Western Sydney.

To accommodate the expected growth of the freight task, Australia will need to build capacity through both infrastructure investment, as well as the efficient use of existing infrastructure assets across all modes. The investment across infrastructure in Western Sydney presents an opportunity to leverage development of an ILH to attract and service general freight with many major logistics providers servicing both local and international markets from single sites.

Appropriate and improved access to trade gateways, improved access to the first and last mile of the freight task, enhanced digital infrastructure availability, and improved freight infrastructure provision is needed to ensure the infrastructure investments drive the efficiency and productivity gains we need to meet our growing freight task now and into the future.

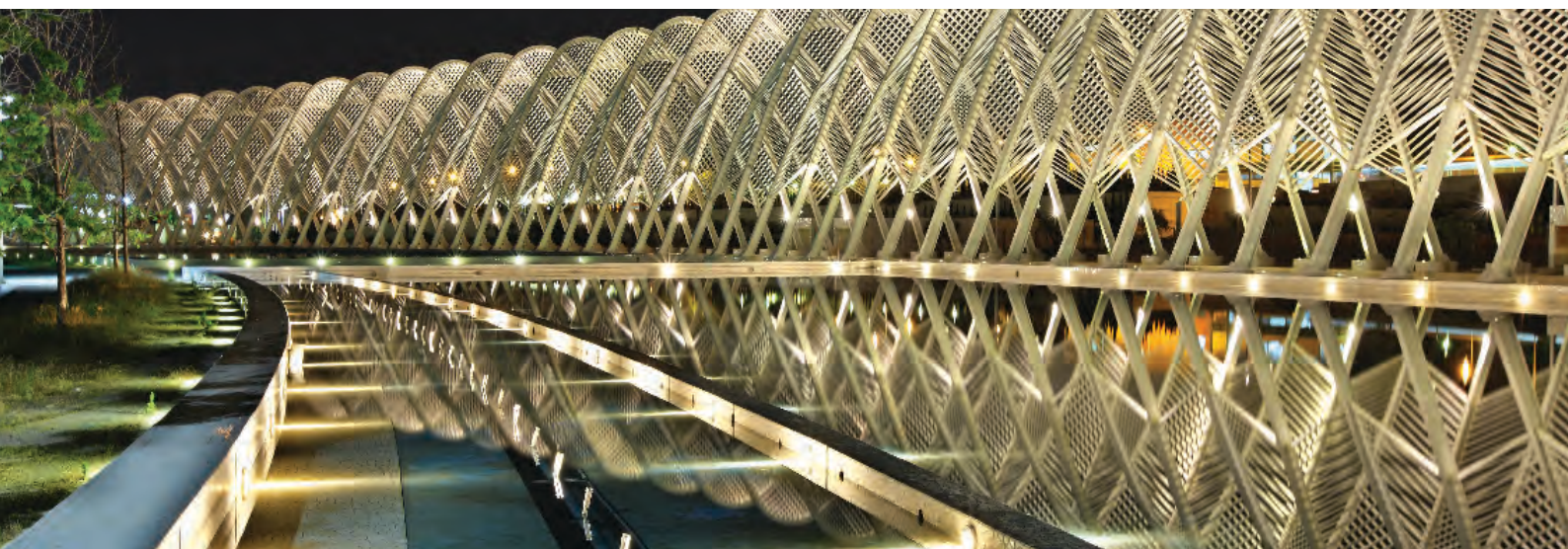
The development of an ILH provides a significant opportunity to support this growth, meet these challenges, and address policy outcomes sought by both the Commonwealth and NSW Governments.

Specifically, the Commonwealth wants to:

- Develop new, well planned and located major freight gateways and hubs
- Improve landside access to major freight gateways
- Improve regional freight links
- Enable freight's digital future.

Whilst, over the next five years, the NSW Government has committed to:

- Drive economic growth and deliver capacity enhancements
- Increase efficiency, connectivity and access
- Improve safety and sustainability.





Early findings from the Covid-19 crisis impacting supply chains

During the time period for the study, Australia, like the rest of the World, has been responding to a once in a generation global pandemic, Covid-19.

This crisis has identified a number of challenges through our local and global supply chains, and importantly, elevated the importance of designing and building resilience into our infrastructure, systems and operations, particularly for critical and essential services.

The importance of freight and logistics and passenger airlines for moving goods from, to and across Australia has never been more prominent. In particular, with 80% of airfreight being carried in the belly hold of passenger aircraft, the ongoing supply of some essential products and services has been severely tested.

Industry Disruption;

The Covid-19 pandemic has significantly impacted the National and Global economy. The long-term impacts to export demand, the aviation industry (time to recover carriers, routes and capacity) are yet to be understood.

While there was no data available as to the impacts of Covid-19 for long term forecasting, it is already possible to see some of the early operational impacts to supply chains.



The assumptions

The study was undertaken reflecting the following assumptions:

Planning: the scoping study will help inform the master planning process for the Western Parkland City currently being undertaken by the WCAA. A preferred location will be determined through that process and will be informed by the outcomes of this report. The ILH is likely to be located in, or adjacent to, the Agribusiness precinct near the western end of the WSIA land and the planned airport freight facilities.

Infrastructure: as a part of the NSW Government Commitment to the Western Sydney City Deal, critical enabling transport and utility infrastructure will be in place to support the growth of the Aerotropolis. We adopted the published timing for investment in infrastructure as per key strategic documents such as Future Transport and the District Plan.

Data: The data utilised for this report includes ABS data curated by Maritrade with a focus on the top 10 destination markets for airfreight only. This data has been supplemented by Deloitte Access Economics, and Deloitte's proprietary data sets, including CHEP data.

Air operations: we adopted only air operations that are enshrined in legislation or publicly announced noting:

- Domestic freight only flights are mandated to move to WSIA from KSA at opening of WSIA
- That a significant proportion of the export market will continue to be serviced through belly hold capacity of scheduled passenger flights
- KSA will continue to have an aircraft curfew between 11pm and 6am as per Sydney Airport Curfew Act 1995.

To deliver an ILH, engagement with WSIA is required to understand in greater detail the assumptions around airlines, routes and destinations, and their impact on airside freight and logistics facilities as well as the ILH.

Covid-19: All data and modelling in this report was collected and modelled prior to the Covid-19 pandemic and as such does not take account of the changes in demand and long-term impacts to air capacity to move product.

While there was no data available as to the impacts of Covid-19 for long term forecasting, we have captured early observations as to the operational impacts to supply chains, where the weak points are, what legislation and regulations have been relaxed to provide flexibility to respond to the changing situation.



The Market

Rising populations and incomes in Asia drive increased demand for premium agricultural products, which in turn provides increased opportunities for NSW producers to export their products. Freight network efficiency and connectivity is critical to realising these opportunities. The NSW Government has set a target to contribute to achieving a 30 per cent growth in the value of NSW primary industries in NSW by 2020, with much of that growth being export focused.

NSW Freight and Ports Plan

While there are opportunities for the ILH to provide a broader multi-modal function for freight in Western Sydney, the core focus and main opportunity to support the Western Sydney economy is efficient, reliable and direct access to global markets. The scoping study focused on the international airfreight task and growth. Most products have some common handling requirements and for the study we grouped the ABS product categories into 10 groupings summarised in the figure on the next page.

One in every five dollars of Australia's goods trade travels via air although airfreight constitutes less

than 1% of total trade volume. FY2017-18 saw a record high for airfreight trade across Australia with the movement of 1.15 million tonnes of airfreight worth \$109 billion with over 96% of that cargo passing through the four main capital city airports.

Sydney's Kingsford Smith Airport (KSA) is the most significant airfreight hub in Australia, representing approximately 45% of all Australian airfreight imports and exports, in both value and volume and over 60% of all airfreight into and out of East Coast airports to the top 10 trading partners. Airfreight is typically dominated by time-sensitive products.

Figure 2 - Product Groupings

 Animals	 Chemicals & pharma	 Commodities	 Food & drink	 General merch & apparel	 Parts & equipment	 Precious metal & stones	 Technology & instruments	 Vehicles	 Other or unknown
Live Animals • Cattle, Sheep etc for export • Domestic Pets • Horses including stud & racing • Zoo Animals	Animal Pharma Prod Chem Preparations Chem Elements & Compounds Chemicals Inorganic Chemicals Organic Cleaning Preps Epoxy, Acetone and Acids Est/nAcid+NitCom Medical Products Pharmaceutical Goods	Metals and metal products: • Aluminum • Copper • Iron & Steel • Lead • Nickel • Tin Minerals • Clay • Stone • Uranium Oil Products • Coal tar and Pitch • Crude • Plastics and Polymers Bulk • Animal Feed • Grains • Ores • Rubber • Solvents and Thinners • Paper • Wood and pulp Building materials • Bricks • Cements	Animal Oils & Fats Vegetable Oils & Fats Beans Processed Beverage Non AIC Beverages Cocoa Bean & Choc Coffee, Tea & Mate Dairy, Eggs & Honey Edible Products Fish & Crustaceans Flour, Meals, Malt & Gluten Food prep other Fruit & Veg prep Fruit & Nuts Fruit and Veg Preserve Grains Pasta, Tapioca, Bread Meat Meat Fresh Meat Preserved Spices Starches Sugar & Confectionery Tobacco products Vegetables	Bamboo & Ratan Carpets Clothes Cosmetics Oi & resin Cotton Products Elec Dom appliances Elec Oils & Perfume Fabric Coated Fabric knitted Feathers down & hair Floor Covering Footwear Furnishing Textiles Furniture Games & Sports Equip Glass & Glass products Hats & headwear Hides, Skins & Leather Locks, Safes Fastening Manchester & bedding Old Clothes & Rags Paintings & Antiques Personal Affects Plaits & Baskets Pottery Rubber Products Tools & Cutlery Umbrellas Wood arts, articles	Aluminum parts & containers Cereal Preparations Nails & Screws Electrical Parts Machinery Engineering & Plant • Manufacturing • Metal Tools • Mine and Agriculture • Office • Parts • Power plant • Aircraft Parts • Engines & machinery	Precious Metals & Coin Precious Stones Jewels	Clocks & Watches Clock & Watch Parts Film. Photo & Cinema Instruments Other Motors, Appliances Radio, TV Musical Instruments Optical Instruments Tools Tripods X-ray and Measuring Instruments	Aircraft Motor Vehicles Motor Cycles Trailers Rail Locos, Trams Containers Railway Vehicles Ships, Yachts & Ferries Vehicle Military	Anima Products Arms of War Books. Paper Arts Casein Albumin Gelatin Confidential Cork Arts Explosives, Fuses Matches Heterocyclic Com Ined Animal Products Jute & Fibers Manmade filament Maru Arctic Munitions & Weapons Plants & Flowers Printed Material Puresugs & Antibio Pyrotechnics Seeds & Plants Spex Transaction Wool Skin & Hair Works Of Art

Temperature Requirements

Climate Control	Cool Chain	Ambient	Cool Chain	Ambient	Ambient	Ambient	Ambient	Ambient	Ambient
Animals are sensitive to temperature from welfare perspective, and require protection from extremes in temperatures (e.g. high temperatures experienced on airport aprons. Some species require climate control (e.g. reptiles)	Many drugs in pharma need to be kept with in a temperature range with deviations risking drug safety and effectiveness. Some chemicals ma have volatilities at certain temperatures. The balance can he transported at ambient temperatures	Most products listed in commodities are generally transported in bulk and by sea. There is little demand for these products to be transported by air. In all cases these are transported at ambient temperatures.	Most food end beverage items are sensitive to temperature. Deviation from specific temperature ranges can impact quality, longevity and safety of food.	Most products listed in General Merchandise and Apparel not temperature sensitive. In all cases these are transported at ambient temperatures.	Most products listed in Parts end Equipment are not temperature sensitive. In all cases these are transported at ambient temperatures.	Precious metals and stones are not temperature sensitive. In all cases there are transported at ambient temperatures.	The majority of Technology and Instruments are not temperature sensitive and are transported at ambient temperatures. Specific items such as film end batteries may be sensitive to extreme temperatures but generally transport at ambient temperatures.	Vehicles are not temperature sensitive. In all cases these are transported at ambient temperatures.	Most of these products are not temperature sensitive and are transported at ambient temperatures. Cool Chain Plants specifically Flowers are transported in cool chain to maintain the longevity and quality.

Other Specific Requirements

<ul style="list-style-type: none"> • Animal Welfare • Specialist Crates • Specialist facilities • Food, Water and Waste 	<ul style="list-style-type: none"> • Security • Specialist containers for hazardous chemicals 	<ul style="list-style-type: none"> • Nil - mostly by ship • Standard ULDs for specialist orders 	<ul style="list-style-type: none"> • Security for Tobacco and alcohol 	<ul style="list-style-type: none"> • Nil - Standard ULDs 	<ul style="list-style-type: none"> • Some machinery and parts may require specialist skids and handling equipment 	<ul style="list-style-type: none"> • Security 	<ul style="list-style-type: none"> • Security • Sensitive instruments may require specialist handling 	<ul style="list-style-type: none"> • Skids and specialist handling equipment • Some Roll On - Roll Off 	<ul style="list-style-type: none"> • Security – weapons • Specialist handling for explosives
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6. THE MARKET

The detailed analysis of import and export cargos currently moving by air identified 5 core groupings of commodities that reflect a large percentage of the total volume or value in the Australian context and have similarities in the handling characteristics of their supply chains. These 5 product groupings are:

- Live Animals
- Chemicals and Pharmaceuticals
- Food and Drink
- General Merchandise and Apparel (GM&A)
- Machinery, Parts and Vehicles.

The top ten airfreight origins and destinations for Sydney and the annual value and volume are illustrated in Table 1 and Table 2. The three largest key trading markets for airfreight into and out of Sydney are China, USA and New Zealand.

Table 1 - Top 5 export destinations from KSA (2019) by value and volume

Top 5 export destinations	Volume t (000)	Value FoB \$bn
China	59.6	1.6
New Zealand	22.6	2.4
Hong Kong	16.3	1.7
Singapore	13.6	.8
USA	9.8	2.5

Source: Maritrade, ABS; Q4 2018 to Q3 2019

The largest export category by weight for airfreight in 2019 out of KSA was food and drink, primarily made up of cereals, fresh fruit and nuts - representing 64% of the total volume (see Figure 3). Other key export categories out of Sydney include GM&A, technology and instruments.

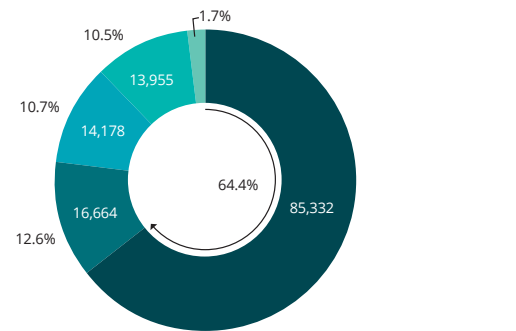
Other key product categories (that are both imported and exported) include pharmaceutical goods and precious metals and stones – both of these categories are high in value but relatively low in volumes.

Table 2 - Top 5 import origins into KSA (2019) by value and volume

Top 5 import origins	Volume t (000)	Value FoB
China	35.9	8.3
USA	35.0	6.1
New Zealand	12.6	.5
Germany	8.9	1.3
UK	6.4	1

Source: Maritrade, ABS; Q4 2018 to Q3 2019

Figure 3 - KSA airfreight export (tonnes, 2019)



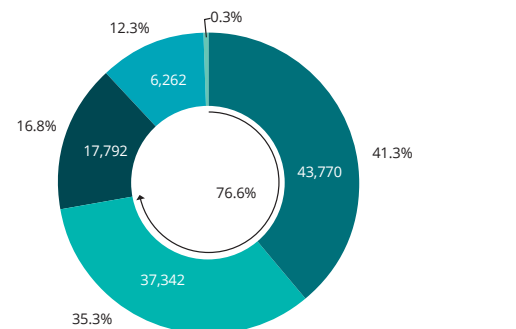
Legend: Food+drink, plant+flower; GM&A tech+instruments; Chem+pharma; Parts+Equip, vehicles, commodities; Animals; Precious metals, stones

Source: Maritrade, ABS; Q4 2018 to Q3 2019

Notes: Data covers the top 10 trading countries only.

The most significant products currently coming by air into Sydney (by volume and value) are machinery, appliances and camera equipment (see Figure 4) – these products account for nearly 90% of the total imports and primarily come in from China and the USA.

Figure 4 - KSA airfreight import (tonnes, 2019)



Legend: Food+drink, plant+flower; GM&A tech+instruments; Chem+pharma; Parts+Equip, vehicles, commodities; Animals; Precious metals, stones

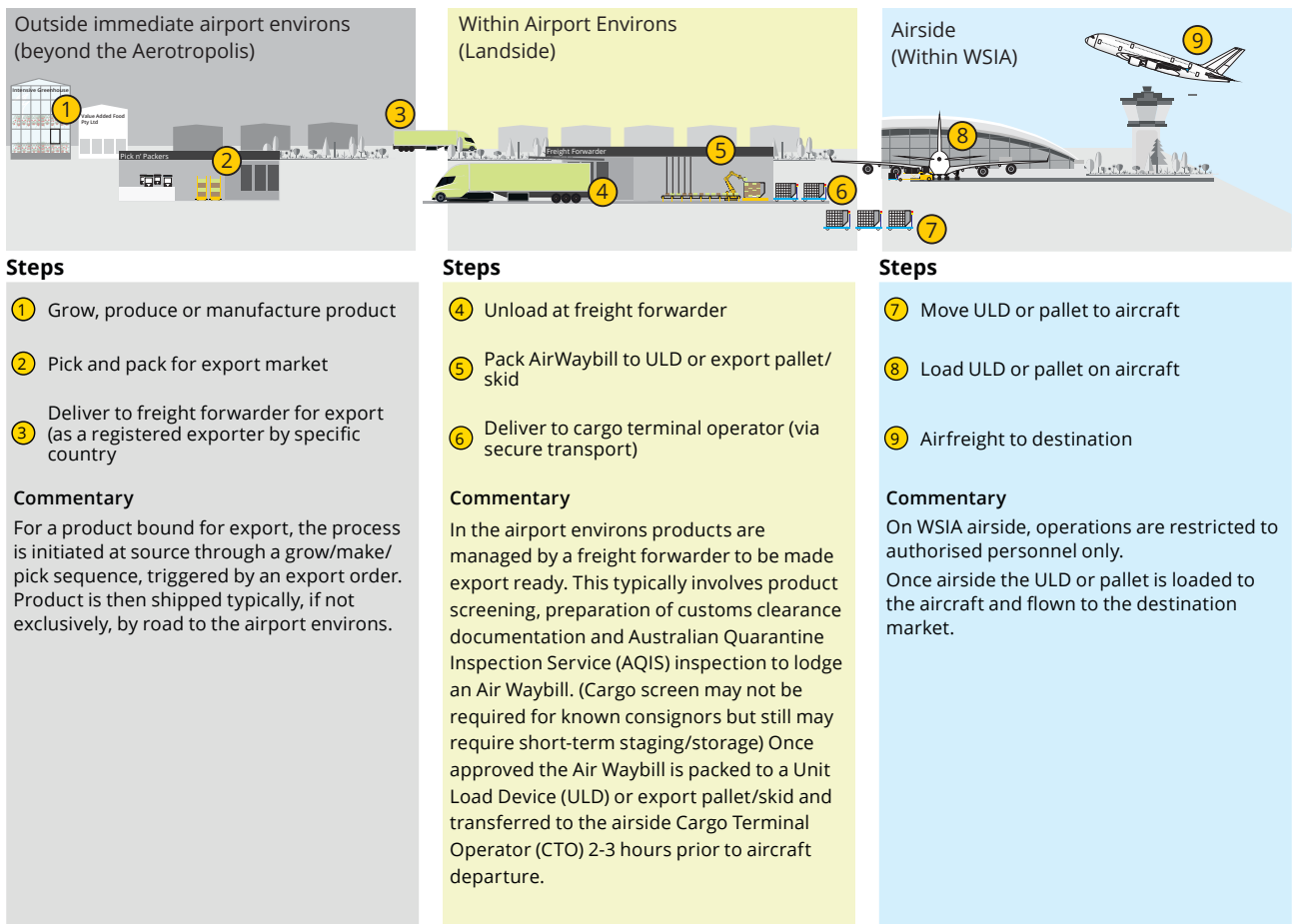
Source: Maritrade, ABS; Q4 2018 to Q3 2019

Notes: Data covers the top 10 trading countries only.

Managing products through the supply chain

Products pass through many hands and processes from producer to consumer. Airfreight supply chains are typically characterised by just in time delivery of time sensitive, high value, perishable and first-to-market merchandise, with minimal to no stocking of product in the airport precinct. An example of the typical process steps for an export flow is outlined in figures below.

Figure 5 - Export flow through supply chain



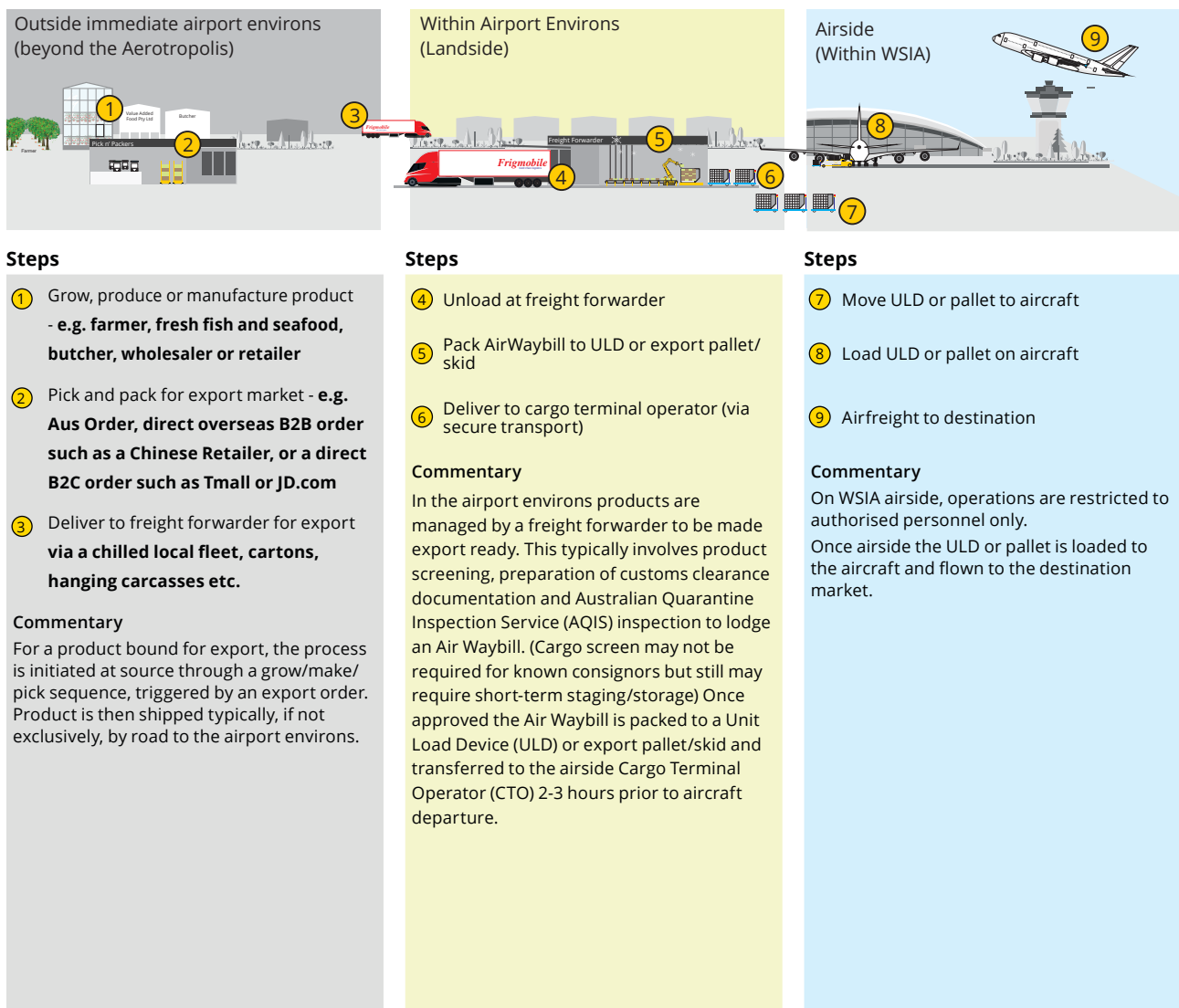
6. THE MARKET

These broad steps are common across the key product categories. Different products have different physical requirements including:

- Temperature – ambient, cool chain or climate controlled
- Security – High value goods (pharma, precious metals, gems, tobacco, alcohol and explosives require specialist tracking and security)
- Specialist handling equipment – larger items (vehicles, machinery, equipment)
- Specialist facilities – live animals.

An example of a fresh food export flow is illustrated below. We have assumed that the ILH will be located within the WSIA airport environs.

Figure 6 - Export flow through supply chain

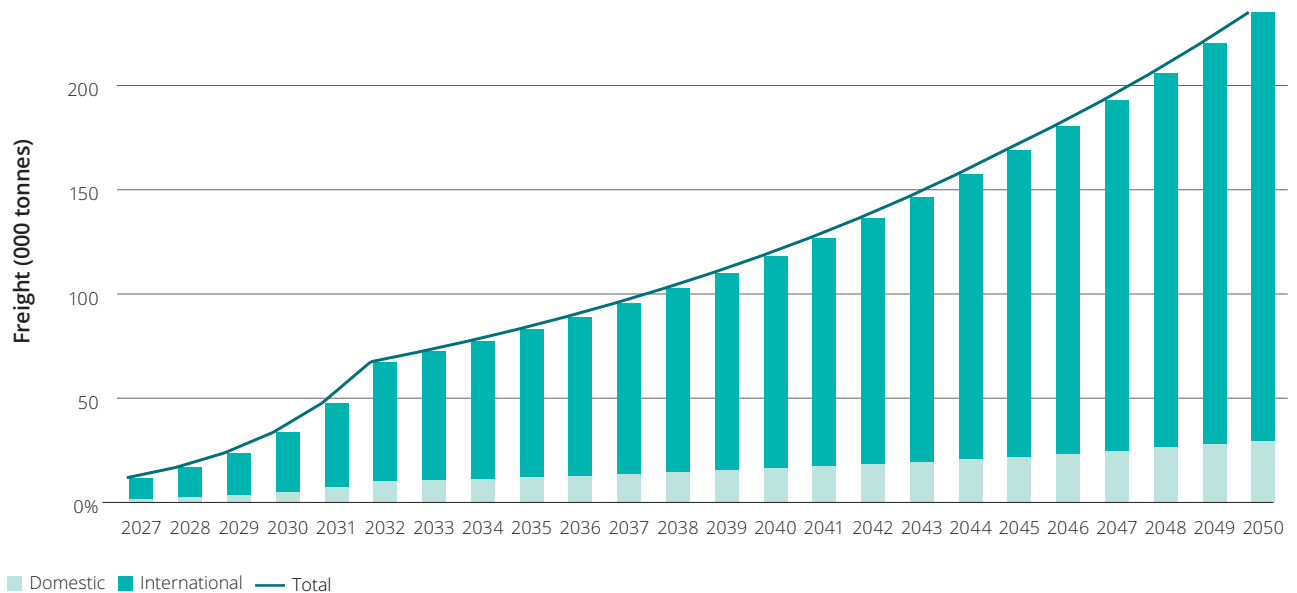


Forecast Growth

When we look at forecast growth in airfreight through Sydney, consideration has been given to both the likely capacity (utilising forecasts for the number of passenger aircraft for WSIA) and the likely demand from key markets for Australian exported products.

Looking to the future, Deloitte Access Economics forecasts growth in outbound freight (based on international passenger aircraft numbers and belly capacity) through WSIA to reach nearly 100,000 tonnes at 2037 – a decade after initial operations and 232,000 tonnes by 2050 (Figure 7). Using dedicated cargo aircraft, in addition to belly freight, capacity could significantly increase these volumes of outbound airfreight beyond forecast levels.

Figure 7 - WSIA outbound freight ('000 tonnes) based on passenger aircraft forecast: FY27 to FY50



Source: Deloitte Access Economics, 2020

Sydney's ability to maintain a comparative advantage in importing and exporting goods in demand, both intermediate inputs to production and final consumption, is important for the future success of the ILH and to the Aerotropolis. The forecast does not account for any free trade agreements in negotiation now or in the future which could potentially accelerate demand for Australia fresh food and goods.

(including airfreight) are expected to increase on the back of increasing demand from the growth in the middle class in South East Asia, with volumes of Australian meat, dairy products, manufactured food, and fresh fruits and vegetables exported, all forecast to increase significantly. If these growth rates are realised then the demand for additional cargo through WSIA and the opportunities that can be generated through an ILH will be substantially higher.

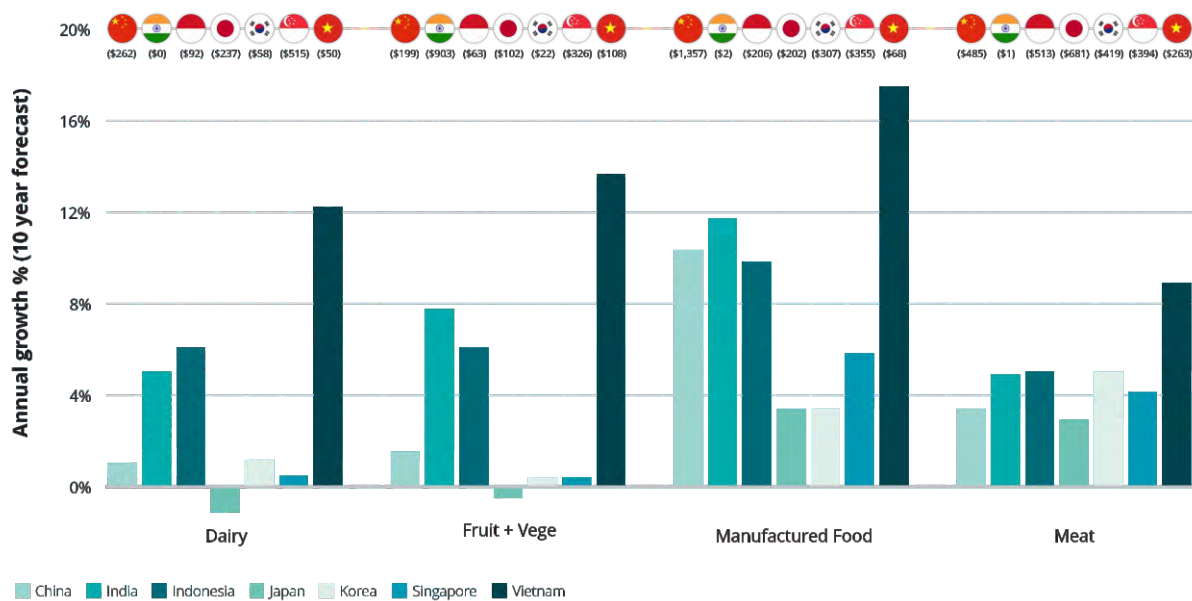
A growth in opportunities for perishable airfreight aligns with high forecast national growth in export volumes of perishable products over the next 10 years. Exports of food products, across all modes

Deloitte Access Economics' analysis of national export growth rates for key commodity groups and high growth markets shows that:

- **Meat** exports are expected to grow between 3-5% p.a. to China, Korea and Japan with volumes to Vietnam forecast to grow by nearly 9% p.a.
- **Dairy** volumes exported to Asia expect strong growth on the back of demand growth from Indonesia and Vietnam growing at over 6% and 12% p.a. respectively
- India, Vietnam and other emerging markets in Asia are driving growth in demand for fresh **fruit and vegetables** with annual growth rates of between 7% and 14%
- The exports of **manufactured food** are also increasing with exports to China growing over 10% p.a. and growing demand from emerging markets such as Indonesia and Vietnam.

Details of the products and growth rates to key markets are illustrated in Figure 8.

Figure 8 - National export growth rates (all modes), 10-year annual forecast



Source: Deloitte Access Economics, 2019

Notes: forecast annual growth rates are for all modes (air and sea), and in real terms. These product types are based on ABS trade classifications. Estimated export values in 2019 are in \$M and in parantheses.



Emerging trends

Global supply chains are continuing to evolve and, with the increasing use of technology, the structure of many supply chains is changing. These changes will have an effect on what is needed at the ILH to support NSW industries and the part that technology will play in its development and operation. Some examples of the emerging trends that we are seeing include:

- Movement beyond the traditional flow-through models associated with airfreight, to models where pre-positioned stock is held for overseas export orders and mixed import products are consolidated for specific online platforms and consumers
- E-commerce driving growth in the role of fulfilment centres which enable eCommerce merchants to outsource warehousing and shipping reducing the physical storage space required as sellers provide merchandise to the fulfilment centre, where outsourced providers ship the products to end customers. An example includes Amazon's airside eCommerce fulfilment hubs
- Increased enablement of micro B2C relationships - small product owners and producers can cost effectively enter new export markets, and consumers can directly access international products through point-to-point and consolidated movement to minimise shipping costs
- Master planned facilities that are tailored to the supply chains that they serve and integrated with the key gateways - a number connect to both port and airport and sit adjacent to light industrial precincts in a symbiotic relationship - this was evident in a number of other integrated logistics hubs including Frankfurt, Dube, Louisville and Dubai
- As part of master planning, sustainability and resilience are playing an increasing role however the commercial value proposition must be present for businesses to fully embrace a change in operations
- Streamlined digitised customs processes that allow seamless integration between logistics facilities and the airside operation

With the emergence of blockchain Australia is leading a UN Project to develop the UN/CEFACT inter-government ledger (IGL) protocol, an open intergovernmental ledger. "TrustBridge" is a trial project between the Australian and Singaporean Governments.

Off the back of this work there is an opportunity to digitally transform and integrate Australian documentation processes as well.



Source: Australian Department of Defence

- The emerging use of blockchain for not only clear transparency in the chain of cargo custody and ownership and order tracking but also for the authentication of transactions and provenance of goods. This is enhanced further with the use of IoT sensors
- Technology continuing to drive reduction in operational costs, with connectivity services, automation, telecommunications information and operations solutions key enablers in logistics operations and facilities
- Developments towards fully digital supply chains of the future which seamlessly integrate cloud and edge-computing technologies through core infrastructure and supply chain solutions
- The application of Machine Learning and Artificial Intelligence to logistics operations is becoming mainstream and is being used to power including:
 - Powering eCommerce
 - Processing supply chain data pools and supporting planning and management of the system
 - Powering automatic logistics centres, pick and pack robotics and autonomous vehicles
- Semi-autonomous vehicles increasing their presence on our roads. Fully autonomous commercial vehicles are operating on closed sites and promise to deliver significant efficiencies, better productivity and increased operational safety.

Opportunity - Special Economic Zone

A key opportunity to engage and attract industry to the ILH and wider Aerotropolis, highlighted by the stakeholder engagement workshops, is the potential implementation of a Special Economic Zone (SEZ). Workshop participants from multiple industries identified a well-implemented SEZ as a potential game changer in attracting businesses to invest.

An SEZ can stimulate investment and incentivises economic activity in a specific region, principally implemented through reductions in tax (tax subsidies or tax holidays) and regulation. There are multiple types of SEZs such as Free Trade Zones, Export Processing Zones, Enterprise and Specialized Zones, and Freeports. Whilst SEZs are prevalent worldwide throughout;

- Asia Pacific (Shenzhen SEZ in China and Iskandar Development Region in Malaysia),
- Europe (multiple Enterprise Zones across the UK, France and Italy),
- Africa (Dube Tradeport) and
- the US

Australia currently has no SEZs. According to a UN report, key factors increasing the likelihood of success for a SEZ include "...quality infrastructure, a supportive government, lighter regulation, a strong export focus, tax and customs exemptions and large storage and logistics capacities". Should the ILH be developed, the corresponding storage and logistics capabilities would also support the success of a SEZ.



Pain Points and Challenges

The study focused across the end to end supply chains for international export by air, and as part of the engagement process, we consulted with the industry to understand the key pain points, challenges and requirements across those product groups and supply chains.

The key common themes that emerged from across the industry were:

Growth constrained - Future growth is exposed to single airport capacity constraints and high levels of congestion in the KSA environs driving inefficiency and delays.

Process inefficiencies and partitions - Current airfreight supply chains lack process integration and are operationally partitioned into silos. Collaboration in the interest of the product category is often lacking. Most regulatory process steps are paper based and manual processes driving inefficiency and additional costs.

Poor physical and technical connectivity of supply chain partners - Physical road and rail infrastructure investment is required to better connect source to destination movement of the

key product categories. Current supply chains lack technical integration between partners and a global connectivity service.

Blind flows and accountability - A lack of end-to-end visibility for product owners and customers limits trading relationships and responsiveness to customer, product or markets needs in an actionable time period. Without visibility and performance accountability there is limited improvement incentives in the current supply chain.

High domestic service costs - The global competitiveness of the Sydney airfreight supply chain is challenged by a high cost of labour, land and utilities and a generally low-tech supply chain process.

Product authenticity risks in export markets - Australian provenance of our key product categories is inherently valuable to product owners in key export markets.

The proliferation of counterfeit and substituted product presents a real and present challenge to the current export supply chain.

Core requirements for an ILH

The identification of these pain points and requirements through stakeholder engagement, together with an examination of leading examples of state-of-the-art facilities, has helped to inform a set of core functional requirements and attributes for an ILH within the Aerotropolis.

Based on the potential uses, projected growth in demand, and a vision to develop a world class facility supporting the growth of industry and jobs in Western Sydney, up to 300 ha may be required for the long term future of an ILH. Given the dependence on future growth rates at the WSIA, it is assumed that the ILH will be developed in stages. It is envisaged that the first stage will be defined through a market sounding and in collaboration with WSIA.

The functional requirements and attributes of the site and planned development need to include:

- **Integration with WSIA freight and cargo** facility operations
- Direct access to or **integration with manufacturing and production hubs** within the Aerotropolis
- **Efficient connections** to major road and rail freight networks connecting the ILH to other logistics precincts, production areas and KSA
- **A well-planned road network** within the site that caters to heavy and high productivity vehicles with a view to enabling autonomous or automated guided vehicles in the future
- Access to **utilities and services** that will underpin growth - the demand for power, water and telecommunications coverage to support perishable supply chains and the increased use of technology and automation will be high, planning for increased capacity is critical
- Enabling the **embedding of technology, automation and digitisation** into operations within the site
- **Connectivity with the other nodes** in the network both nationally and globally – industry is looking for seamless and frictionless movements
- **Specialist facilities** to cater a mix of potential tenants ranging from ambient, through chilled and cold chain operations to handling of livestock and animals
- **Product security and biosecurity controls** to protect high value products, brand reputation and product integrity
- Commercially **competitive leasing terms** that will enable transition to a greenfield operation
- Sufficient **scale and configuration** of development parcels within the sites to cater to growth within footprints
- Sites within the ILH that have dual access, a regular shape with a **mixture of footprints** to cater for warehouses ranging from 10,000 to 50,000 square meters.





Discussions with industry also suggested if the ILH could also have the following capabilities – it would be beneficial to a number of players and would make the facility more attractive Onsite X-ray or irradiation facilities:

- Opportunities to leverage shared facilities and resources
- Bonded areas for the receipt of cargo
- The potential consideration of a special economic zone or free trade zone to improve the attractiveness of Western Sydney as a manufacturing and distribution hub servicing Australia and Asia Pacific region.

In addition, stakeholder engagement suggested that three other factors are critical to planned participation at the ILH:

- **Clear guidance** on the process and timeframe for delivery to enable early investment decisions
- Further details and **confirmation on air services**, capacity and frequency to servicing WSIA. This will be particularly challenging given the lack of certainty on the future of aviation markets post Covid-19.

- Recognition that a number of industry participants, and particularly those in the forwarding industry, will need to continue to service movements from both KSA and WSIA and **efficient connections** between the two would be critical to underpin any decision to relocate their operations away from Mascot or the Central West to the ILH.

Selecting a site

A key task for WCAA in their current process is to identify a site for the potential staged development of an ILH. In order to support this, a set of criteria have been collated to form the foundation of a Multi Criteria Assessment (MCA) process. This process provides a framework for comparing and assess the potential site options in order to develop a shortlist for further technical assessment and evaluation. The criteria for the assessment have been grouped into the following five categories:

- Supply chain connectivity
- Future capacity
- Operational suitability
- Environmental and community impact
- Deliverability.

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