



nswPorts

Greater Sydney Commission Industrial Lands Policy Review

NSW Ports Submission

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Executive Summary

The Greater Sydney Commission review of the Industrial and Urban Services Land “Retain and Manage” policy follows recommendation 7.5 of a recent white paper ‘*Rebooting the Economy*’ by the NSW Productivity Commission. Recommendation 7.5 states:

Evaluate the retain and manage approach to managing industrial and urban services land in Greater Sydney against alternative approaches, to identify what would maximise net benefits to the State.

Adopt the approach that maximises the State’s welfare in the next update to the Greater Sydney Region Plan.

Building a productive, prosperous city

The productivity and growth of any city requires the cost-efficient flow of goods through and around the metropolis. Appropriately located landside assets connected by rail and road networks are key to enabling economic logistics systems servicing both households and businesses. The lands that serve the city’s freight and logistics sector is therefore critical to its productivity and growth. Planning for the right mix of lands to support the economy requires an understanding of the lands required not only for housing and employment, but the lands required for freight and logistics. To maximise the welfare outcomes for the state, freight and logistics lands need to be planned for a *whole of state system*.

Freight & logistics lands include lands for port-related activities, airfreight related uses, intermodal terminals, warehousing and distribution that serve local catchments as well as distribution and fulfilment centres and last mile distribution.

The freight task is growing more quickly than population growth in Sydney, with a forecast growth rate of 152% increase in freight demand vs 54% population growth between 2016 and 2056¹. This will generate pressure and competition for land, with four key drivers accelerating the need for protecting an adequate supply of high performing, well located, freight and logistics land:

1. Higher population and population density increasing overall freight and logistics service needs.
2. Consumer behavioural changes increasing demand for e-commerce and quick turnaround delivery services. This trend is being accelerated by COVID-19.
3. Increases in freight and logistics costs due to competition from residential and commercial development. Residential and commercial development has had a threefold impact on freight and logistics costs. It has:
 - a. increased competition for, and the subsequent cost of, freight and logistics lands in Sydney due to rezoning for residential development. The increased cost of land must be recovered from consumers and businesses as increased prices for goods and logistics services. Further, where

¹ Source: Transport for NSW, Travel Zone Projections 2019 (TZP19) - NSW Government population and dwelling projections

freight and logistics lands have had to move to the west of Sydney to source available industrial land, cargo destined for the metropolis (the largest population and business centre of Greater Sydney) is transported west for unpacking and storage and then transported back east to deliver to customers, adding to the cost of goods supply.

- b. increased traffic congestion and delivery times both from within the metropolis and from the west back into the city. This further increases delivery costs, also reducing the environmental efficiency of Sydney's supply chains with increased carbon emissions and other environmental costs. The direct costs of congestion – as well as the environmental costs – are ultimately passed back to the consumer and businesses through the price of goods and logistics services, impacting the competitiveness of Sydney businesses.
 - c. reduced productivity of freight and logistics lands by the imposition of curfews and other restrictions on their operations, where an insufficient buffer has been allowed between residential development and industrial land use. Again, the reduced productivity adds costs to goods and logistics services which are borne by consumers and businesses.
4. The increasing need for public infrastructure as populations grow. Freight, logistics and other industrial lands are often preferred for acquisition for infrastructure such as the M8 Motorway, the Sydney Gateway, and the proposed Western Sydney Freight Line. This further erodes availability of industrial lands. In addition, shifting freight and logistics uses further west requires goods to be transported out west for unpacking and storage and then transported east to the population and business centres. This increases truck usage of public roads adding to road congestion and vehicle emissions, increasing the need for investment in public infrastructure capacity.

Lands around Port Botany

All freight lands are important, but with 99.6% of NSW container volume and 42%² of household goods, in Sydney imported via Port Botany, the residents of NSW are particularly reliant on the cost-efficient distribution of goods from the Port. More than 80% of import containers are delivered within a 40km radius of the port. The Port also includes critical infrastructure, including Australia's largest common user bulk liquids facility, handling one-third of the state's fuel supply, 98% of the state's liquified petroleum gas, 100% of the state's bitumen requirements and 91% of bulk chemicals used for manufacturing. Without protection, the impact of continued encroachment to industrial lands around Port Botany will be felt across the metropolis and NSW. NSW Ports considers the protection and preservation of all freight and logistics lands in Sydney – but especially those around the Port - to be fundamental to the future operating capabilities of the Port and the

² BIS Oxford Economics Study *The Economic Contribution of NSW Ports: Phase Two Report 2018*, p22

city's supply chains. Historically Sydney has witnessed a significant reduction of industrial lands in the east of the city. Even since the introduction of the 'retain and manage' policy, site by site erosion of industrial lands has seen Eastern Sydney lose 8.7 hectares of industrial land, rezoned for other uses since 2018. We must have the right policy framework in place today to guide the right productivity outcomes for the future of Greater Sydney as a competitive city in which to conduct business and generate employment.

The impact on Sydney as a competitive east coast city

Within the next decade – possibly as early as 2026, the population of Melbourne is expected to exceed that of Sydney³. In 2021, market indicators are that Sydney has 12% less gross supply of industrial and logistics real estate than Melbourne⁴. Industrial land values are reportedly 84% higher on a dollar per square metre basis in Sydney than Melbourne⁵. Poor management of industrial lands will continue to increase costs to business in Sydney, while Melbourne continues to develop as a population-dense but still cost-efficient metropolis. This disadvantages Sydney as it competes for business with the potential loss of new business establishment and employment opportunities to its southern neighbour.

Protecting Sydney's future

Without a well located and sufficient industrial land supply, able to operate productively (i.e., without restrictions and cost impositions arising from urban encroachment), Sydney faces three key challenges associated with:

- **Availability** – Supply of industrial land, close to population centres is essential to manage the cost of moving freight and to increase efficiency and productivity while minimising traffic and amenity impacts.
- **Costs** – Costs are borne by every consumer in NSW through both increased industrial land values as well as added transport costs when goods need to be transported longer distances to and from warehouses that have relocated to western Sydney. Increased freight and logistics costs also adversely impact on the competitiveness of NSW exports in a global marketplace.

Industry Insight

Sydney as a cost competitive city

ACFS Port Logistics is the largest privately owned container logistics operator in Australia, with sites in 5 major capital cities. ACFS maintain that '*any national manufacturing strategy would choose Melbourne or Brisbane on a cost basis*'.

Property costs, road congestion, access to labour and tolls are all less expensive in Melbourne and Brisbane which influences business investment and establishment decisions.

Container movement costs are high in Sydney compared to Brisbane and Melbourne, where there is more capacity for container storage near the port. Container movement costs in interstate locations are lower due to cheaper land, closer to markets and lower delivery costs.

The cost of freight land is high in Sydney and the 'squeeze on industrial land' west of Eastern Creek is an outcome of supply and demand factors. Rents west of Eastern Creek were \$125/sqm 12 months ago. Today the developers/landowners are not accepting anything less than \$145/sqm. Rents for industrial land in Melbourne can be as low as \$75/sqm.

Road vehicles face higher congestion and delays in Sydney due to congestion restricting truck speeds to an average of around 40-45 km/h in Sydney compared to 50-55 km/h in Melbourne and 60-65 km/h in Brisbane. Congestion adds costs to trips. A truck needs to generate \$100 an hour to be viable in Sydney.

Source: ACFS Port Logistics July 2021

³ Australian Government Centre for Population 'Population Statement' December 2020 P4 https://population.gov.au/docs/population_statement_2020_overview.pdf

⁴ Colliers Research (2021a), Industrial H1 2021 Research & Forecast Report p4 <https://www.colliers.com.au/en-au/research/industrial-h1-2021-rfr> Gross Supply sqm

⁵ Ibid

- **Location and Urban Encroachment** – Encroachment of residential and other sensitive uses on and near industrial lands has given rise to restrictions on supply chains, including: curfews, truck limits, restricted roads, and other additional costly mitigation and management measures. Any constraints that impact the operation and productivity of sites affect the efficiency of freight flows and hence cost of freight across the broader system

NSW Ports considers that the ‘Retain and Manage’ policy remains appropriate for industrial lands in Greater Sydney and particularly for the Port Botany / Sydney Airport precinct, for the reasons identified in the NSW Productivity Commission’s 2021 white paper.

Any change to this policy needs to be done cautiously and by adopting a **freight-and-logistics systems approach**, to avoid unintended consequences that adversely affect these systems. The assessment needs to be based on a considered understanding of the freight and logistics systems servicing greater Sydney and wider NSW. Key considerations include:

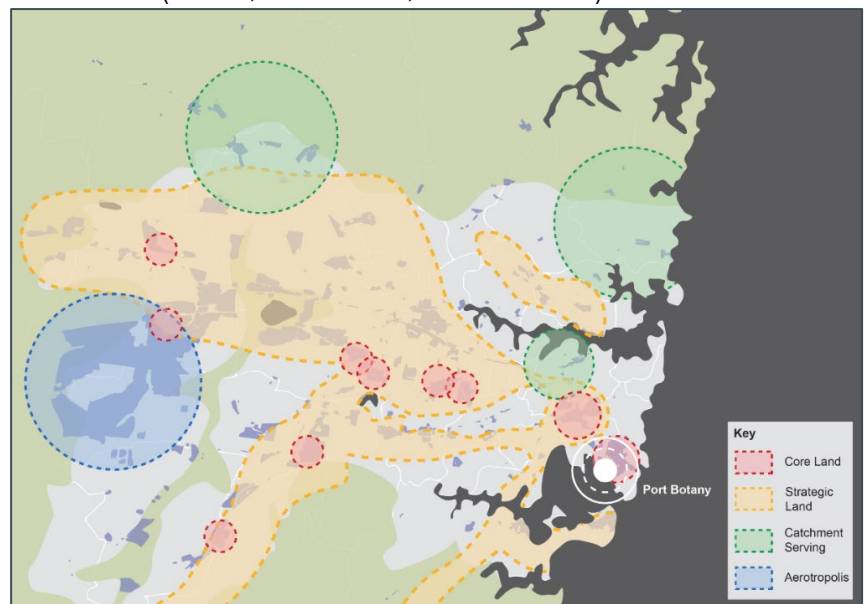
- proximity to end users
- infrastructure access
- land supply
- the availability of viable alternative sites
- cost implications to freight and supply chains

NSW Ports has identified four key typologies of industrial lands that are vital to the freight and logistics supply chain in Sydney. Industrial lands in these areas form part of the critical city freight and logistics system and **must be retained**.

These typologies capture the industrial lands surrounding Port Botany as well as industrial lands surrounding strategic sites or corridors such as intermodal terminals (Enfield, Cooks River, Moorebank etc) and the motorway network.

These typologies are:

- **Core lands** – adjacent to key trade gateways (ports and intermodal terminals)
- **Strategic lands** – located on key road and rail freight network corridors
- **Catchment-serving lands** – industrial land associated with last mile distribution
- **Western Sydney International Airport and Aerotropolis** – land within enterprise and agribusiness zones around the Western Sydney International Airport



Some lands are captured by multiple typologies and have been identified by the typology that is most applicable.

In conclusion

An efficient freight and logistics system is critical to the functioning of Sydney and the State of NSW. Like health, education, or public transport systems, the availability, efficiency, and productivity of the freight and logistics system directly impacts on every resident of the State. Every citizen is connected to the system in some way. It provides the food we eat, the goods we rely on to work, clothing and household goods. Its efficiency contributes to the costs and competitiveness of local businesses, the cost of the food and other goods purchased by residents, as well as how quickly we can receive what we want and need. It also affects the competitiveness of our exports in the global market.

The rezoning and erosion of industrial lands to residential and commercial uses may result in windfall gains to the owner of the land and the developers that develop it. It may also provide short-term jobs for the building contractors that work on the construction and new dwellings for a growing population. But this short term gain increases costs across the city – to all businesses and residents, gradually eroding the short-, medium- and long-term productivity of the State and increasing the cost of living and doing business. These costs have long term consequences and outweigh the benefits of the short-term gains. This is already being experienced from past erosion of industrial lands, with increased road movements and congestion and higher freight and logistics costs. This adversely impacts Sydney’s attractiveness as a place to do business and live and its competitiveness within Australia and globally.

To protect industrial, freight and logistics lands also means separating them from residential use to avoid land use conflicts which ultimately lead to operating restrictions and curfews which result in higher costs.

The need for industrial lands to service the city will only increase in the future as population and freight volumes grow and the nature of freight movements evolve with increased technology. In short, **industrial lands that serve the freight and logistics system of Greater Sydney must be retained and protected – and the need is urgent.**

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1. Background

1.1. NSW Ports

NSW Ports holds long term leases for Port Botany and Port Kembla, which together handle millions of tonnes of diversified trade each year. Port Botany and Port Kembla are the trade gateways between Sydney and NSW and the rest of the world.



Figure 1 - NSW Ports' Assets

NSW Ports is also manages the Enfield Intermodal Logistics Centre and Cooks River Intermodal Terminal. With direct rail links to Port Botany, these intermodal hubs play a key role in supporting NSW's freight task and help reduce truck movements on Sydney's roads.

All of NSW Ports' facilities are essential services, and play a critical social and economic role within NSW:

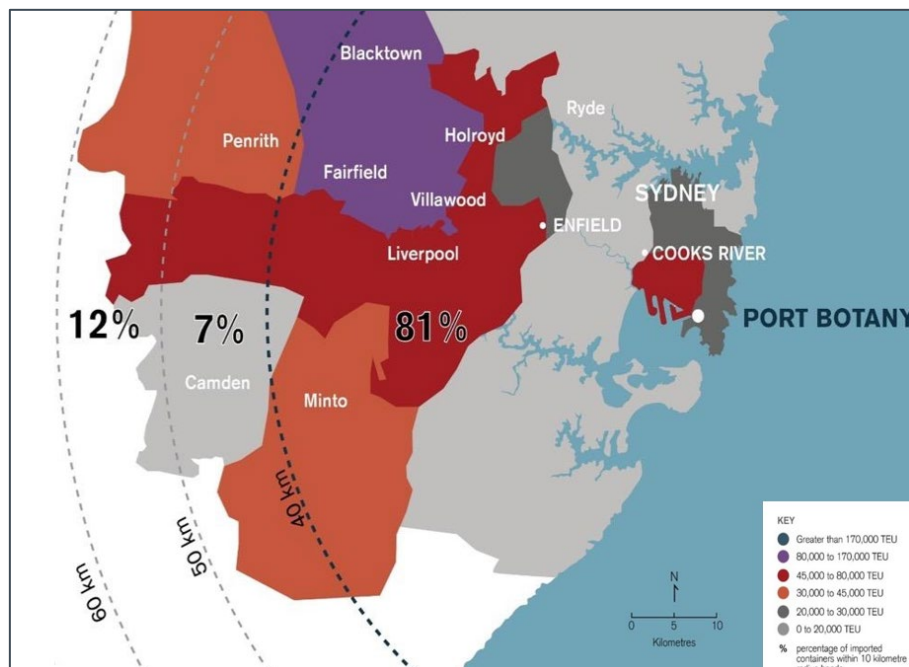


1.2. Freight and Logistics in Sydney

1.2.1. Port Botany

As the largest container port in New South Wales and Australia's largest common user bulk liquids facility, Port Botany operates 24/7 to import goods to support the people and businesses of New South Wales and to export goods to international customers.

Port Botany currently handles 2.7 million TEU (twenty-foot equivalent units) every year and more than 80% of import containers are delivered within a 40-kilometre radius of Port Botany. Nearly half of all goods in a Sydney household are imported in containers via Port Botany. Port Botany is an import dominant port servicing the population centre of New South Wales. It is surrounded by 386 hectares of industrially zoned land.



Port Botany has capacity for over 7 million TEU and will continue to service the needs of Sydney and NSW into the future.

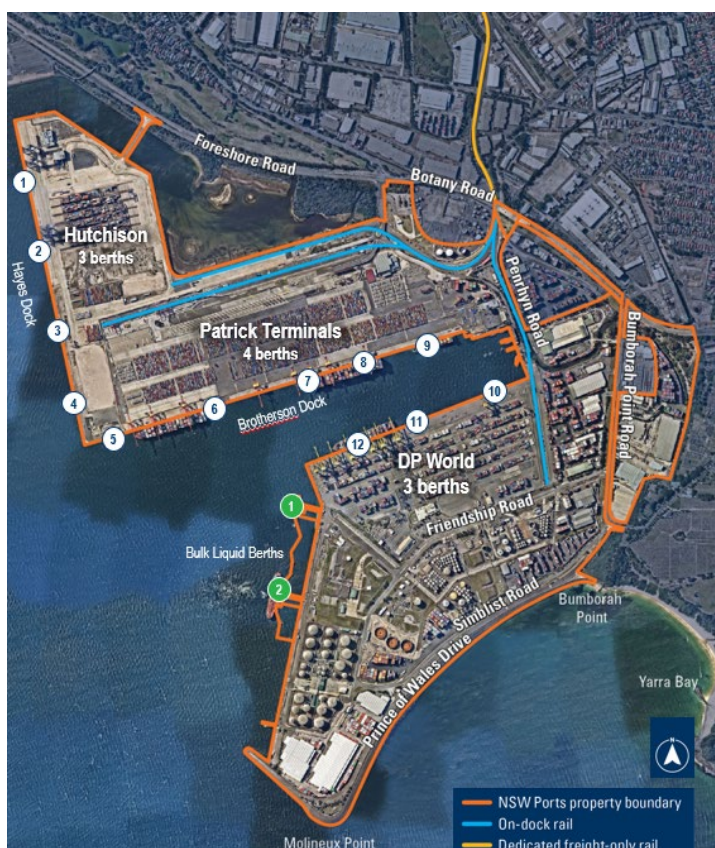


Figure 2 - Port Botany is a competitive environment, with three stevedoring terminals. Each of these terminals have rail on the dock and can receive and dispatch containers efficiently via road or rail.

Beyond the Port, these imported containers are transported to businesses, warehouses and distribution centres for unpacking and then returned as empty containers. These empty containers may be packed with goods for export prior to returning to Port Botany for loading on a ship. As such, industrial lands around the Port and the City play a vital role in ensuring goods from containers are efficiently received and dispatched to commercial and residential areas of Sydney.

Port Botany is also the primary bulk liquid and gas port in New South Wales and Australia's largest dedicated common-user bulk facility. The port's bulk liquid precinct handles over 5.5 billion litres of bulk liquids and gas each year and services one-third of the State's fuel supply.

1.2.2. Intermodals

Port Botany is connected by dedicated freight rail to a network of metropolitan intermodal terminals (Figure 3) and beyond to regional NSW. Moving containers by rail is a key part of the NSW strategy to sustainably support New South Wales' growing container trade.

The intermodal terminals and their surrounding industrial precincts play a key role in ensuring that Port Botany is efficiently connected to consumers.

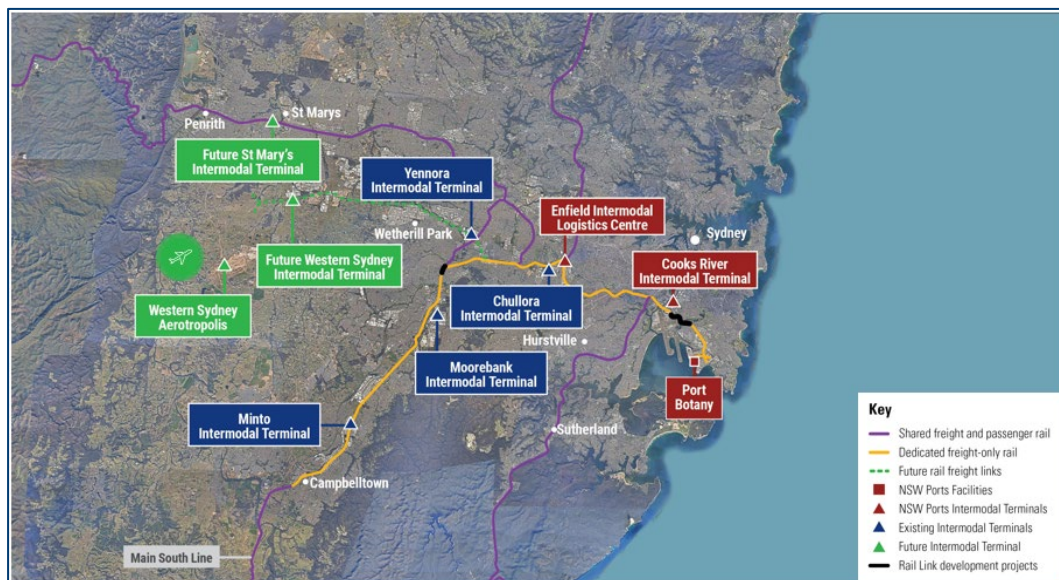


Figure 3 – The network of metropolitan intermodal terminals

Figure 4 demonstrates the importance of these precincts in providing for a 30-minute City. The precincts can only serve that purpose effectively if they are protected from urban encroachment and are able to optimise site

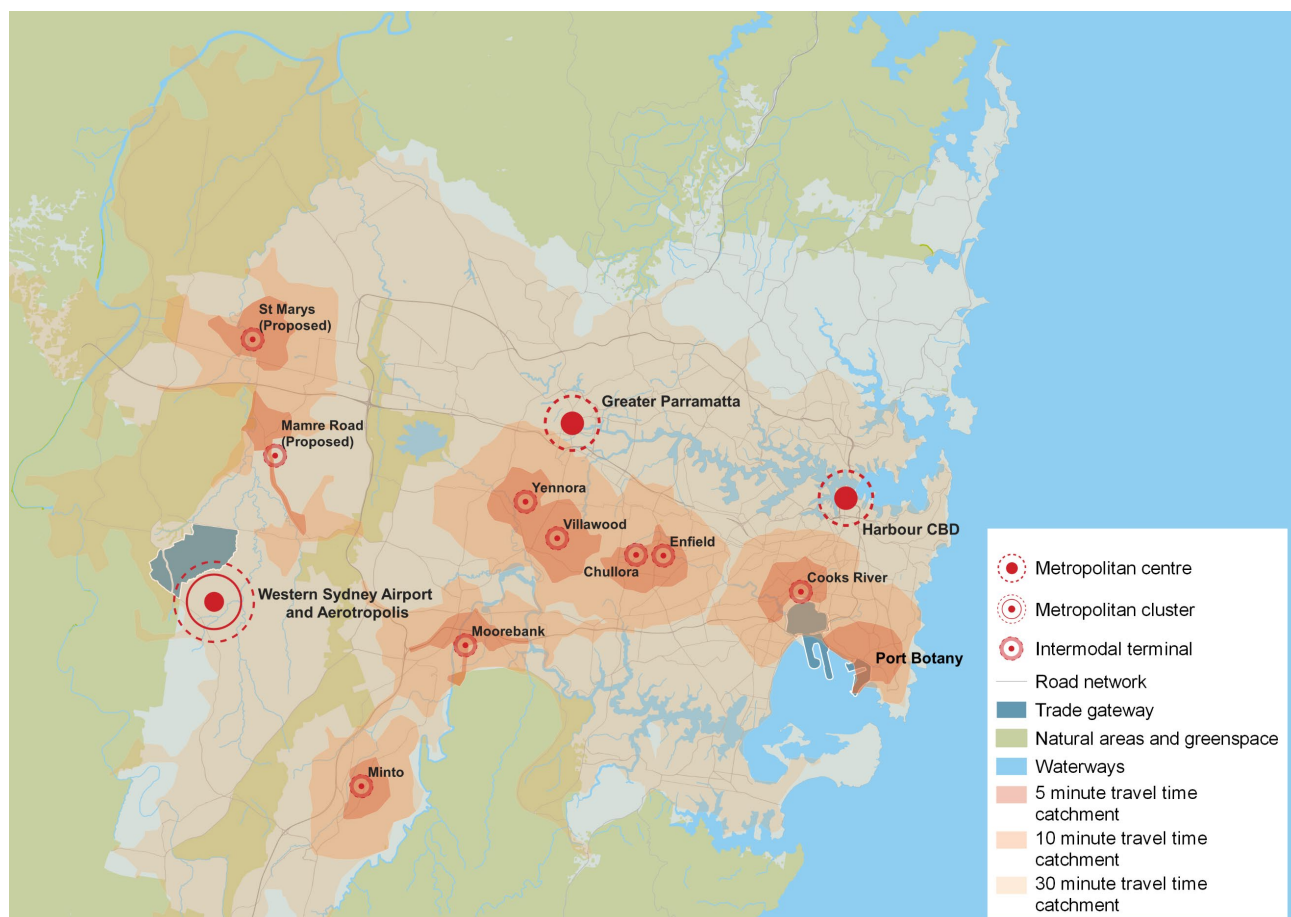


Figure 4 - 30 Minute Travel Time Catchments from Sydney's Intermodal Network

utilisation and performance without operational restrictions.

With the forecast growth in containers, these intermodal precincts will play an ever increasingly important role in meeting the freight demands of the State.

Sydney's intermodal network also includes several bulk materials receival and distribution sites. These are predominantly for the receival and dispatch of cement. However, there is opportunity for increasing the volumes of cement and other construction materials transported by rail, subject to available industrial land on rail, reducing truck movements. These sites will grow in importance as demand for construction materials in greater Sydney continues to grow with population growth and infrastructure delivery.

1.3. Sydney's Industrial Land Policy

Industrial lands are often large parcels of lands, making them relatively easy and cheap to redevelop for residential and other purposes and highly profitable for developers that redevelop these sites. Industrial lands have therefore been subject to considerable pressure for rezoning to non-industrial purposes.

Around Port Botany there have been significant losses of industrial lands over the past 20 years, including sites at Botany, Eastgardens, Hillsdale, Mascot, Alexandria and Rosebery.

The rezoning of these areas significantly displaced many freight and logistics companies further west and further away from the population centres they service. As road congestion in metropolitan Sydney has substantially increased over the past decade, the effects of this shift on the cost and time for distribution of goods has been more acutely felt.

1.3.1. Greater Sydney Region Plan

The Greater Sydney Region Plan was released in March 2018. It identified that Greater Sydney's freight task is forecast to more than double in the next 40 years and that policies and investment to reduce the cost of moving freight and increase efficiency and productivity while minimising traffic and amenity impacts on adjacent urban uses are essential.

One such policy introduced in the Greater Sydney Region Plan was for the management of industrial land under one of three mechanisms: retain and manage, review and manage, and plan and manage. This was the first time a whole-of-City industrial lands strategy had been put forward after decades of erosion of industrial lands to the detriment of our current and future supply chains.

NSW Ports supported the introduction of the policy and remains strongly supportive of the policy directions related to industrial uses and land within the Greater Sydney Region Plan, in particular:

- The protection of all industrial zoned land in the Eastern Harbour City, with particular focus on the lands around Port Botany;
- The review to confirm the protection of industrial land in the Central River City; and
- The protection of existing, and review of potential future, industrial land in the Western Parkland City.

Importantly, local Councils within Sydney have generally adopted the approaches put forward in the Greater Sydney Region Plan. However, even since the introduction of the 'retain and manage' policy, Eastern Sydney has seen a loss of 8.7 hectares of industrial uses rezoned for other uses since 2018.

1.3.2. Productivity Commission

The NSW Productivity Commission's White Paper (May 2021) includes the following Recommendation:

Recommendation 7.5: Optimise Industrial Land Use

Evaluate the retain-and-manage approach to managing industrial and urban services land in Greater Sydney against alternative approaches, to identify what would maximise net benefits to the State.

Adopt the approach that maximises the State's welfare in the next update to the Greater Sydney Region Plan.

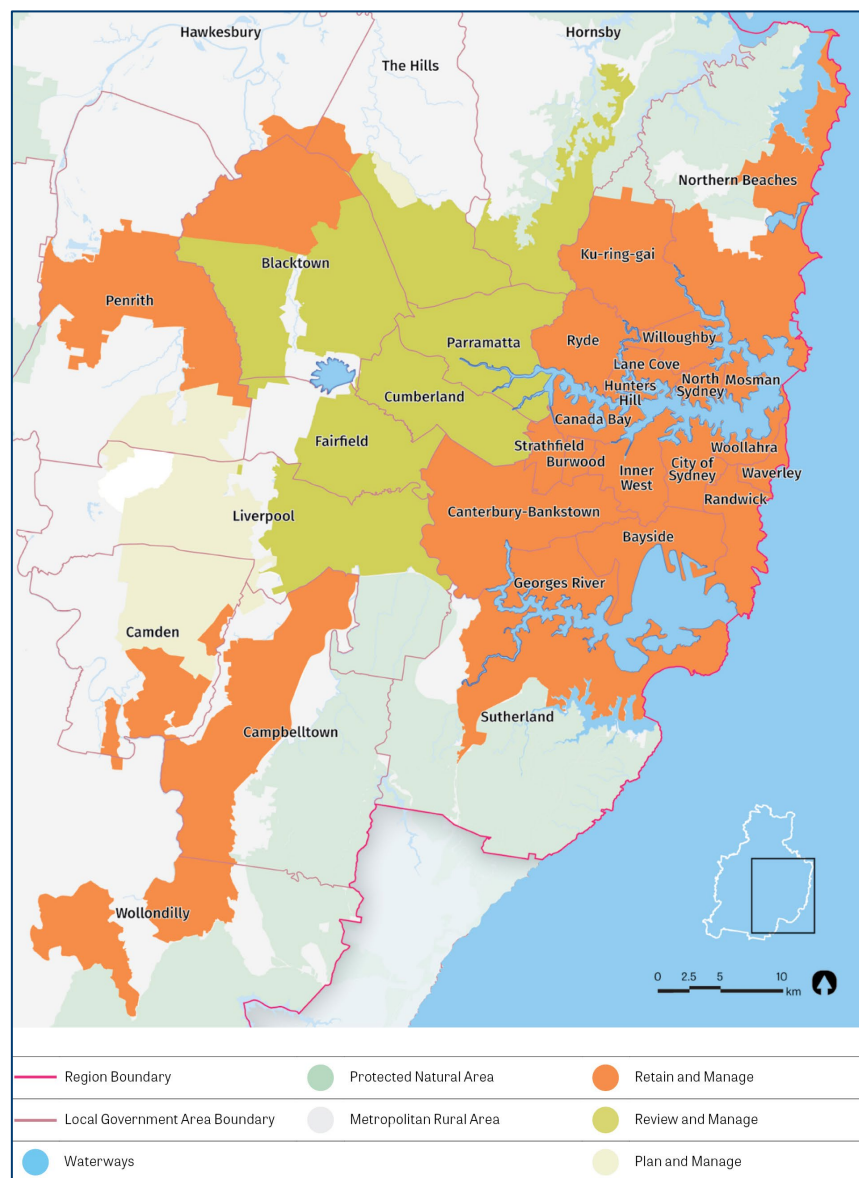
This submission forms NSW Ports' input into the above-mentioned evaluation.

It should be noted that the Productivity Commission states in its White Paper, in relation to industrial lands around Port Botany⁶:

In other precincts, there are strong grounds for land to be retained against encroachment from competing and incompatible uses. The Sydney Airport and Port Botany facilities, for example, Industrial lands in and around these logistical hubs:

- *serve the supply chain for import/export activities*
- *provide contingency for potential future needs of the Port-Botany/Sydney Airport precinct*
- *act as a buffer against land uses likely to conflict with heavy industrial and waterfront activities, especially residential.*

NSW Ports supports this statement by the Productivity Commission.



⁶ Productivity Commission White Paper 2021 Rebooting the economy p302 <https://www.productivity.nsw.gov.au/sites/default/files/2021-06/Productivity%20Commission%20White%20Paper%202021.pdf>

2. Current Challenges

If the availability, cost and location of industrial land is not suitable, industry may change service models and / or move out of Sydney. This will increase costs for consumers and directly impact the livelihoods of all Sydney residents.

Freight and logistics land must be retained and managed to meet the demands of a growing population and projected increases in Port trade volumes. This is vital to ensure the productivity of the City.

2.1.1. Availability

Eastern Sydney has relatively less supply of industrially zoned land compared to Western Sydney, particularly sites suitable for freight and logistics purposes. This is despite the population and business activity, and therefore greater demand, being higher in Eastern Sydney. There is approximately 2,938 hectares of industrially zoned land in Eastern Sydney compared with a greater supply of 8,186 hectares of industrially zoned land in Western Sydney⁷. This equates to 808 people per hectare of industrial land in Eastern Sydney vs 120 people per hectare of industrial land in Western Sydney. With population growth, and assuming no change to the current industrial land supply, by 2056 this will equate to 1,236 people per hectare of industrial land in Eastern Sydney vs 245 people per hectare of industrial land in Western Sydney.

The policy challenges in relation to industrial lands are most pertinent to Eastern Sydney given competition for other land uses, activities or changes in land use away from freight and logistics and the lack of available substitutions of land for freight and logistics. Port Botany's location in Eastern Sydney requires a greater focus on freight and logistics land in this part of the metropolis.

Figure 5 highlights just how scarce industrial land is in the Eastern Sydney (ie. areas to the east of the A3 corridor).

Regardless of location in Sydney, gross supply of industrial land remains lower than Melbourne year on year and vacancy rates remain very low.

The lack of availability of industrial land reduces Sydney and NSW's competitiveness.

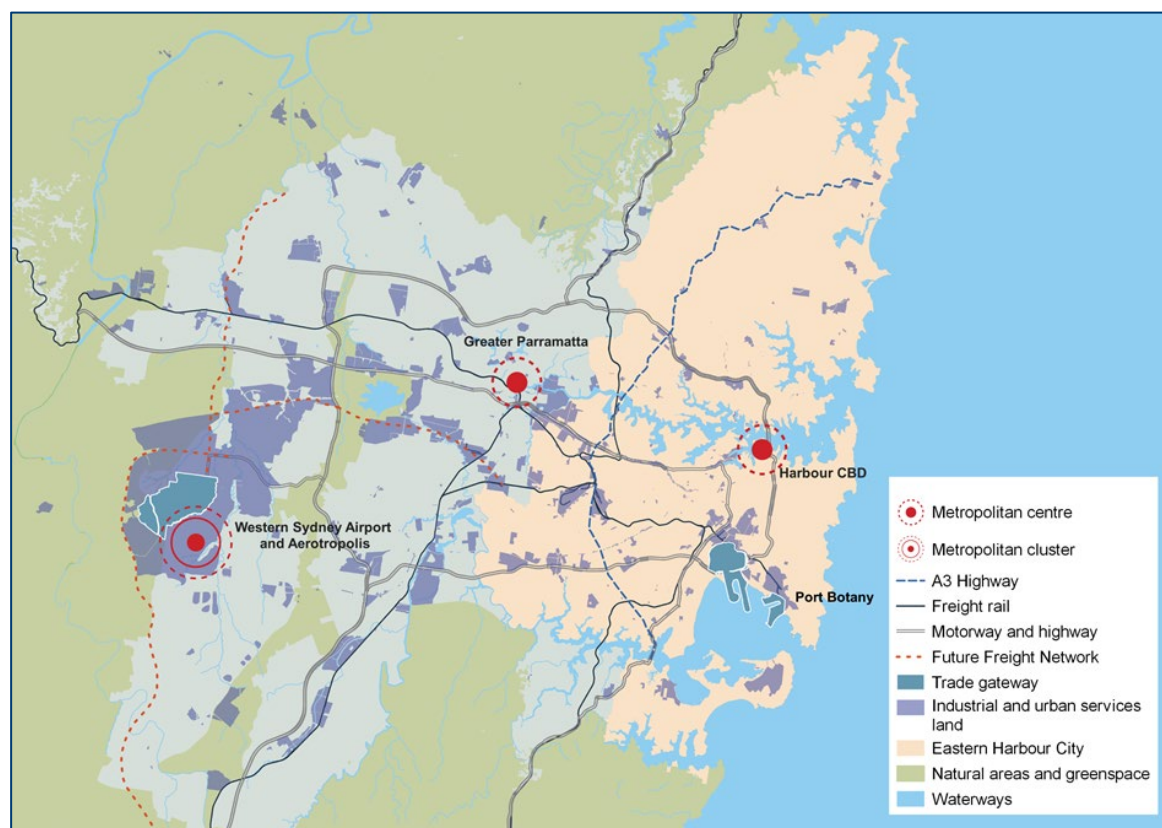


Figure 5 - Industrial Lands to the East and West of the A3 Corridor

⁷ NSW Department of Planning, Industry and Environment (2020), Employment Lands Development Monitor 2020

2.1.2. Costs

The current land value of Sydney's industrial land is significantly higher than equivalent land in Melbourne and Brisbane (see Table 1).

Table 1 - Comparative Industrial Land Costs on the East Coast⁸

CITY	GROSS SUPPLY 2020 (SQM)	GROSS SUPPLY 2021 (SQM)	LAND VALUES (\$/SQM)
Sydney	601,394	739,832	\$806
Melbourne	906,661	843,598	\$438
Brisbane	408,701	455,000	\$321

Increased land values and rental rates make Sydney less competitive than Melbourne or Brisbane should a new manufacturer or distributor be looking to set up in Australia. There are direct future cost impacts as a result of the availability and cost of Sydney's industrial land. Any further erosion of these land stocks, particularly in Eastern Sydney, will exacerbate this problem.

In addition to the increasing cost of the land itself, there are significant added transport costs to the supply chain because of the loss of industrial lands and the need to send containers further from the Port to be unpacked and distributed.

For example, a simple analysis of the change in transport costs if goods destined for Eastern Sydney are unpacked in Auburn or Erskine Park instead of Alexandria identified increased transport costs of 357% and 720% respectively.⁹

Industrial lands in Eastern Sydney are vital to service the population catchment. Coles, for instance, has developed a dark store in Alexandria to manage additional online demand and support deliveries where curfews impede early morning or late evening delivery slots. Alexandria provides good coverage for the Eastern Sydney catchment but is one of the few remaining significant pockets of industrial land in the East.

The cost of the loss of industrial lands and the displacement of freight and logistics uses from the Eastern City are directly borne by consumers. This impacts the entire metropolis and the social and economic wellbeing of the people of Greater Sydney.

2.1.3. Location and Urban Encroachment

Limitations on the availability of industrial land around Port Botany and the City and the failure to identify viable substitutions impact freight and supply chain flows and efficiency through increased congestion, travel time and costs, which impacts the cost of consumer products being imported and the competitiveness of NSW exports.

In areas around Port Botany and Sydney Airport, demand for residential housing and other commercial uses has seen tracts of freight and logistics land converted into mixed use residential/ commercial zones. This has:

- reduced the amount of freight and logistics land available
- increased prices for the remaining freight and logistics land
- increased congestion

⁸ Colliers Research (2021a), Industrial H1 2021 Research & Forecast Report, <https://www.colliers.com.au/en-au/research/industrialh1-2021-rfr>

⁹ Source: Astrolabe Group modelling *A City That Delivers* August 2021 p58-59. See Attachment 1

- required goods to be transported longer distances to warehouses relocating to Western Sydney.

Industrial land must be protected from encroachment in Eastern Sydney to meet projected increases in Port Botany trade volumes and port functioning. Without protection, the impacts of encroachment will be felt across the metropolis. Table 2 illustrates that the amount of residential and commercial land within five kilometres of Port Botany is significantly greater than that planned around the Western Sydney International Airport.

Table 2 - Comparative Land Uses Surrounding the International Gateways¹⁰

	Residential land (ha)	Residential percentage	Industrial land (ha)	Industrial percentage	Total (ha)
Port Botany 5km catchment	2,601.4	37%	858.8	12%	7,039.7
Western Sydney International Airport 5km catchment	1,336.3	17%	3,435.9	45%	7,683.2

Further, urban encroachment of sensitive uses can affect the ability for industrial areas to operate efficiently and therefore limit their productive capacity. Surrounding urban development has led to restricted operations around Port Botany. This limits the routes vehicles can take and by narrowing access options, can cause congestion and risk to supply chain resilience. Figure 6 demonstrates the increasing limitations put on road movements because of urban encroachment.

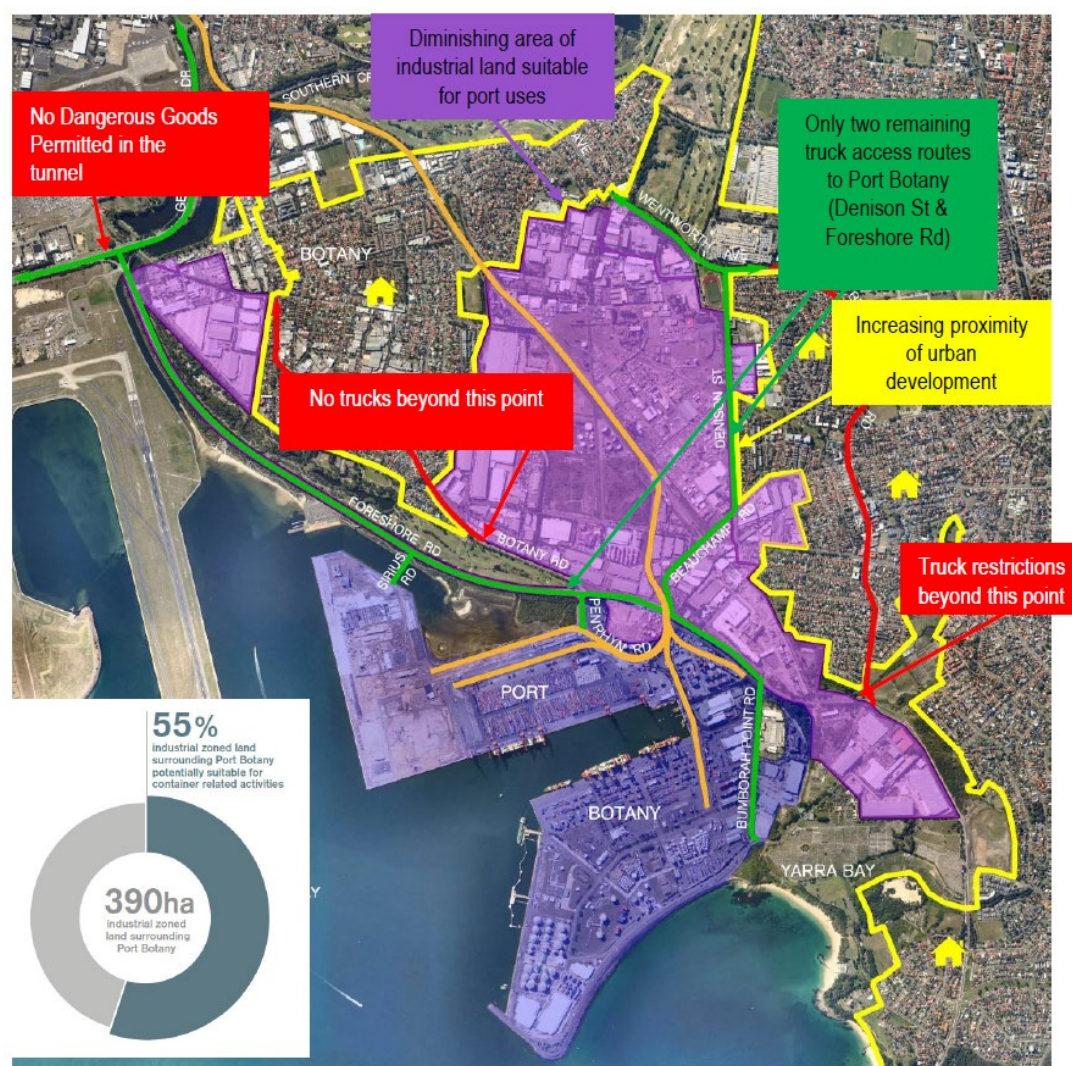


Figure 6 - Port Botany Access Limitations and Encroachment

¹⁰ Source: Astrolabe, calculations based on land use zoning; *A City That Delivers* August 2021 p38. See Attachment 1

3. Future Requirements

NSW Ports and Sydney Airport commissioned L.E.K. Consulting to prepare a report that investigates the future of freight in Sydney and the implications for land use planning (Attachment 2). *Future of Freight for Sydney's Trade Gateways: Managing Industrial Land Zoning in the Vicinity of Port Botany and Sydney Airport* ('Future of Freight'). This report addresses two issues fundamental to the development of the Retain and Manage policy:

1. How will freight trends affect the demand for industrially zoned land in and around the Port Botany and Sydney Airport precincts?
2. What are the potential negative impacts on supply chains within NSW resulting from the rezoning of industrial land around the Port Botany and Sydney Airport precincts given these trends?

Future of Freight also presents international examples of good and bad practice regarding ports and airports and the management of industrial lands and urban encroachment issues.

3.1. The Future of Freight in Sydney

Sydney's forecast population growth will drive consumer demand. As a result of Australia's limited domestic manufacturing capability, it is likely that the percentage of goods imported will remain at or above current levels. Consequently, import volumes into Port Botany will increase to service the needs of Sydney's population. The volume growth will also put pressure on existing supply chain infrastructure (e.g., warehouses, empty container parks, support facilities) and the need for industrially zoned land.

Figure 7 shows a comparison of the predicted growth in the population of NSW against the predicted growth in import TEU through Port Botany at 2036 and 2056. Imports will continue to grow with population and in fact will grow at an increased rate compared to the NSW population growth.

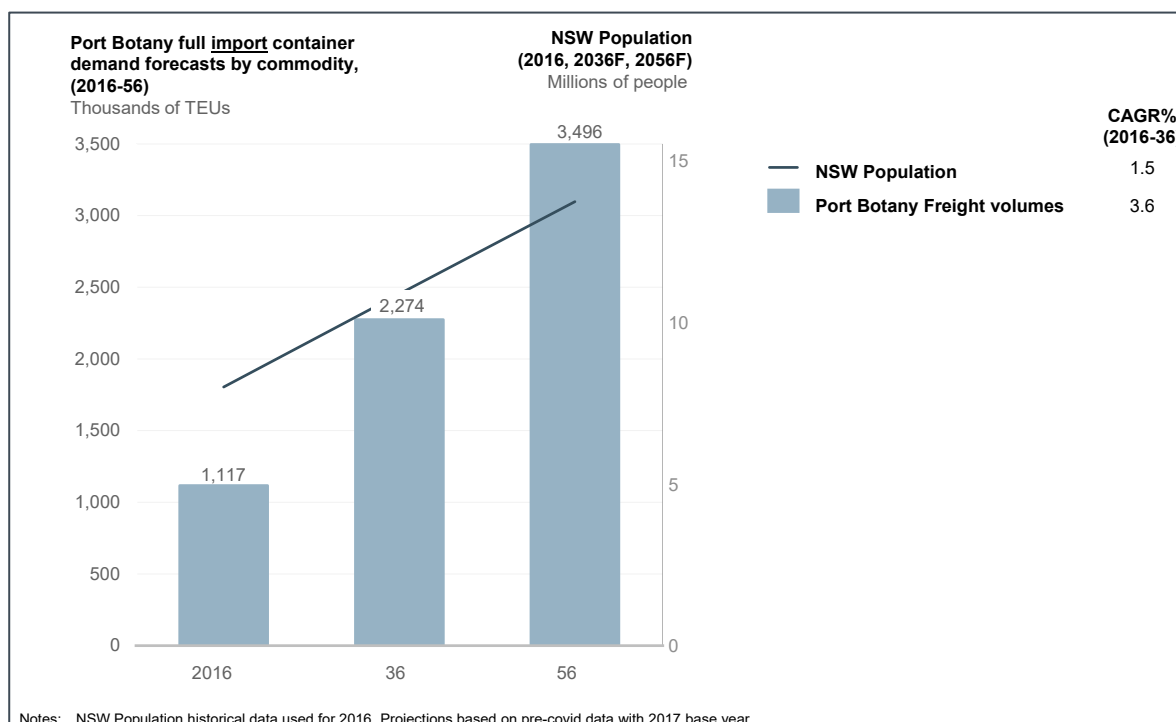


Figure 7 - Forecast Port Botany freight import volume growth in TEU¹¹

¹¹ ABS, Transport for NSW, NSW Freight Commodity Demand Forecasts 2016-2056 (2018)

Although freight import volumes are predicted to grow significantly, the industrial land around Port Botany will not.

With only c.11% of Sydney's industrial floor space within 15km or 30 minutes from the Sydney CBD, the supply of industrial zoned lands in Sydney's inner south (including PBSA) is very tight, with none of this industrial zoned lands undeveloped.

Given that current industrial land around Port Botany is highly occupied there will be a challenge to accommodate future growth needs with even the existing land area, let alone a reduced industrial area. This remains or is accelerated with technological and consumer trends highlighted below.

3.1.1. Future Industrial Land Pressures

The demand for industrial land around Port Botany will be exacerbated by trends currently observed across Sydney's supply chains:

- Pressure for quick, low-cost deliveries will create demand for fulfilment centres
- New modes of transport will further grow the demand for fulfillment centres and may require additional space for new technology such as robots and drones
- Growing fresh produce exports will increase demand for cold storage around Sydney Airport
- The growing volume of empty containers will increase demand for empty container parks
- The continued increase in the size of ships mooring in Port Botany will require additional space to accommodate the spikes in container throughput
- The Commonwealth's focus on the Supply Chain Resilience Initiative could lead to an increase in imports of intermediate goods and space required to accommodate additional stocks of goods of national importance

In order to meet these trends, the retention of industrial land around the Port as well as around intermodal terminals and along corridors of strategic importance is vital. Of equal importance is the protection of these lands from urban encroachment.

Having available industrial zoned land in the Port Botany / Sydney Airport precinct also makes NSW an attractive destination for global companies eyeing Australia to set up operations and generate value for the nation's economy.

3.1.2. E-Commerce

A substantial shift in Australian consumer behaviour is occurring, in part due to the growth in eCommerce. Technology that enables consumers to identify alternate suppliers, compare fully loaded prices, and obtain real-time information on product availability (e.g., Google Shopping) has forever changed how Australians purchase goods. This trend has been accelerated by COVID-19, as lockdowns and health concerns have led to a rapid uptick in online shopping.

Approximately 1.3m new households entered the eCommerce market in the last two years, and consumers have indicated they expect to shop online 28% more frequently than before COVID-19¹².

This evolution has in turn driven substantial change in the import/export supply chains which support retail operations.

¹² Australia Post, Inside Australian Online Shopping. 2021.

Given that the population will continue to be densely concentrated in and around the metropolitan Sydney area, businesses will increasingly seek micro-fulfilment centres in industrial areas close to population centres to meet customers' rapid delivery expectations and reduce their transportation and logistics costs.

The industrial zones adjacent to Port Botany and Sydney Airport remain one of the few areas where industrial land is available for businesses seeking to locate their micro-fulfilment capability. Further restricting the supply of this land through rezoning could have significant economic consequences.

3.1.3. Automation and Drone Delivery

Autonomous robots for last-mile delivery are well advanced, and extensive trials have already been undertaken, including by Australia Post in Brisbane. This market is expected to grow strongly over the next decade as consumer expectations for faster delivery increase, robot technology improves, and logistics operators seek to drive down last mile delivery costs. Last-mile delivery is estimated to account for 41-53% of overall delivery costs¹³.

Drone delivery of small parcels is slowly gaining momentum around the world. For small packages, drones can offer faster, cheaper, and lower emissions than delivery by cars or vans and could help reduce road-based congestion. Depending on the operation, small drones can carry between 1-12kg with an operating range of 1-25km.

Automation may require new ways to measure the productivity of freight and logistics land instead of traditional measures such as the number of jobs on a site, or job density in an employment lands precinct. Automation is an innovation process and important to productivity. The difference is that the benefit realisation is located 'offsite' through system and sector efficiencies – not necessarily 'onsite' in warehouses and distribution centres.

Adopting robot technologies for last-mile delivery will create further demand for fulfilment centres close to dense urban population centres to provide a suitable local environment for robot terrain navigation.

Small drone delivery facilities can be relatively compact, but operating at scale, such facilities would need a larger footprint to ensure safe take-off and landing for multiple drones. The relatively limited operating range of drones means that drone bases will need to be near major population centres, further increasing the need for industrial lands around the City.

3.2. International Case Studies

L.E.K. Consulting were tasked with identifying international case studies that demonstrate both good and poor practice in relation to planning for freight with industrial lands and port interfaces in mind. This allows Sydney to recognise both good and poor practice globally and ensure that industrial land policies that may be adopted are informed by the histories of other cities with high freight volumes.

It is imperative that Sydney learn from the land supply criticalities faced by international ports and have in place strong policy to resist urban encroachment, including in the form of 'mixed use' development.

¹³ Mordor Intelligence and Capgemini Research Institute

Table 3 - International Port Case Studies - Summary of Comparators

Key Comparator	Antwerp	Los Angeles	Rotterdam	Vancouver	Botany
Population (2019, million)	1.2	10.0	1.0	2.6	5.3
Port land area (km ²)	112	30	60	15	2.8
Available IZL area within 5km of port boundary (km ²)	High (30+)	Medium (c. 10-15)	High (30+)	Low (<5)	Low (<5)
Proximity to city centre (km)	3.0	20.0	6.1	2.3	10.5
Throughput (millions of TEUs, 2019)	11.9	9.3	14.8	3.4	2.5
Empties exported (millions of TEUs, 2019)	2.0	2.7	NA	0.5	0.8 (2018)

3.2.1. Port of Antwerp

Key Findings

The Port of Antwerp was facing significant growth constraints and an acute shortage of industrial land resulting in loss of volume to competing ports.

Proactive land planning, including the protection of industrial zoned land and creation of buffer zones has helped to facilitate the continued growth of the port.

Historically, the Port of Antwerp ("PoA") has faced challenges due to scarcity of industrial zoned lands in the area. Post WWII a modernisation plan saw the construction of residential centres on the land surrounding the PoA, including a new housing estate on its "Marshall Dock". PoA experienced an acute shortage of industrial land because of this residential expansion. By 1950, PoA was unable to accommodate cargo volume due to constrained port operating infrastructure.

In response to the loss of competitiveness of the PoA relative to Port Rotterdam, the Antwerp municipality developed and implemented a "Ten Year Plan" seeking to secure the long-term viability of PoA as a commercial port. The Plan provided that industrial land in neighbouring municipalities was thoughtfully protected with buffer zones introduced between industrial and residential activity while harbour industrial areas and supporting infrastructure were extended.

The PoA's Plan has been very successful. Through thoughtful planning and the proactive protection of industrial zoned lands, PoA has overcome their challenges to become Europe's second largest seaport. Availability of suitable areas for industrial settlement has allowed PoA to flourish, even during periods of rapidly changing freight volume driven by the global COVID-19 pandemic during which the port achieved record levels of throughput (12 million TEU in 2020¹⁴).

¹⁴ <https://newsroom.portofantwerp.com/record-container-throughput-limits-losses-in-2020-the-year-of-coronavirus>

3.2.2. Port of Los Angeles

Key Findings

Industrial Zoned Lands surrounding the Port of Los Angeles was not adequately protected for industrial uses, resulting in significant urban encroachment, and limiting port expansion.

As a result, future growth can only be supported with reclaimed land and costly repurposing of existing facilities to improve throughput capacity.

The Port of Los Angeles is the largest container port in North America. It is the main entry point for freight from Asia to North America, playing a similar role to Port Botany in Australia. Annual throughput at Los Angeles Port was 9.3 million TEU in 2019¹⁵.

The Los Angeles zoning code recognises the importance of protecting industrial-zoned land in order "to preserve industrial zoned land for light industrial uses and to provide for non-retail businesses which enhance the City's employment base" as well as prohibit unrelated commercial and non-industrial businesses. However, the Port of Los Angeles suffers from significant existing urban encroachment, like Port Botany. There is minimal buffering between the c.16km² of industrial zoned land and c.19km² of residentially zoned land in the local vicinity. The Port faces several demands from the local community, including access to the waterfront, traffic management, and a reduction of noise pollution. The distance from the Port of Los Angeles to the residential border is c. 5.5km, compared to just 500m for Port Botany.

Poor land management around the Port means port expansion plans have had to involve expensive land reclamation. A lack of land supply continues to limit the Port's capacity for growth, and created multiple issues including vessel bunching, congested terminals, lengthy truck queues and more during COVID 19.

3.2.3. Port of Rotterdam

Key Findings

Recent growth in container throughput at the Port of Rotterdam has forced expansion onto reclaimed land in the North Sea, at significant cost to the national Government.

However, as the Port has shifted West from the city centre, the local government, in collaboration with the Port of Rotterdam, has turned to urban renewal in the form of modern manufacturing and technology districts to foster innovation and trade, and thereby avoid urban encroachment on port activities.

The Port of Rotterdam is the largest container port in Europe. Although the Port's total container throughput is significantly higher than Port Botany, at 14.8 million TEU¹⁶, the Port is similarly located ~10km from the urban centre.

Like Port Botany, container volumes in the Port of Rotterdam have continued to increase on the back of strong demand for consumer goods (4.5% increase in TEU handled in Q1 2021¹⁷). To accommodate ongoing growth in container freight, constructing an automated container terminal, "Maasvlakte 2", commenced in 2009.

¹⁵ <https://kentic.portoflosangeles.org/getmedia/a43d3038-7713-4ebd-8c6a-dc72195a65f1/2019-facts-figures>

¹⁶ <https://www.portofrotterdam.com/en/news-and-press-releases/port-rotterdam-throughput-amounted-4694-million-tonnes-2019>

¹⁷ <https://www.portofrotterdam.com/en/news-and-press-releases/throughput-port-rotterdam-increases-30-first-quarter-2021>

A lack of available land to accommodate port growth meant that the Port of Rotterdam was forced to rely on funding from the Dutch Government for an expensive land reclamation project to accommodate growth in throughput. Construction has progressed and the final phases are due for completion in 2030.

3.2.4. Port of Vancouver

Key Findings

The failure to protect industrial zoned lands around the Port of Vancouver is likely to result in expensive land reclamation or repurposing to allow it to continue growing.

Metro Vancouver region is facing a critical shortage of industrial land. An environment for industrial lands like that of Sydney has resulted in extreme challenges:

“Years of steady population and economic growth in the region, ongoing conversion and non-industrial uses of industrial lands, and the constrained geography of the region, have precipitated the challenges facing Metro Vancouver’s industrial land supply.”¹⁸

Between 2010 and 2015, Metro Vancouver approved the rezoning of over 350 hectares of industrial land, most of which was close to and used by the Port of Vancouver. Now, less than 7% of the land around the Port is industrial, with residential and commercial making up virtually all the remaining land. The land around the Port continues to be rezoned. In 2021, five proposals to rezone industrially zoned land into residential or commercial around the Port have been approved to date. There is no policy for the protection of these lands.

Persistent urban encroachment threatens the Port of Vancouver’s ability to meet a growing population’s employment and goods demands. The Port of Vancouver state in their Land Use Plan 2020¹⁹:

“When industrial lands are redeveloped for residential or other uses, the region loses valuable employment lands. Approximately one in four jobs in Metro Vancouver is in industrial operations, and land is required to support these jobs. If large parcels of industrial land in strategic locations are not protected, trade-related businesses will situate themselves elsewhere, to locations outside of the region. This can have negative effects on the supply chain and ultimately the economy, creating further road congestion and emissions.

As more and more people live closer to industrial operations, the potential for conflict at the interface between the working waterfront and adjacent land uses will increase. While some of this is inevitable in a growing region with a limited land base, it nevertheless requires all jurisdictions to plan and manage growth, and to design communities in recognition of the critical role the port plays in the region. This will become even more important as port activities on and near the waterfront intensify due to new development and investments that increase the capacity and throughput of existing terminals in response to Canada’s trade growth.

The successful preservation of industrial lands will depend on the decisions of all jurisdictions that have authority over land use in the region. The port authority supports ongoing efforts to identify strategies that provide effective protection of the industrial land base. We will continue to provide input to municipal and other planning processes that may impact the industrial land supply, and to engage

¹⁸ Metro Vancouver. Regional Industrial Lands Strategy June 2020. http://www.metrovancouver.org/boards/IndustrialLandsStrategy/INL_2020-Jun-11_AGE.pdf

¹⁹ https://www.portvancouver.com/wp-content/uploads/2019/11/500_POV-Land-Use-Plan_FINAL-2.pdf, p25

the region in constructive and meaningful dialogue to find solutions to the critical shortage of industrial lands.”

At current consumption rates the Port of Vancouver predicts that industrial zoned land will run out within the decade. To grow the port it may in future be required to undertake expensive land reclamation projects.

4. Proposed Industrial Land Policy

NSW Ports commissioned Astrolabe Group to prepare a report that investigates the role and value of industrial lands in Sydney for the freight supply chain (Attachment 1). *A City that Delivers: The role of industrial land in supporting a productive freight and logistics system for Greater Sydney* takes a whole-of-system view that considers how components of the freight and logistics system can contribute to whole-of-State welfare and productivity benefits.

Four key typologies of industrial lands that are vital to the freight and logistics supply chain in Sydney have been identified. Industrial lands in these areas form part of the critical city freight and logistics system and **must be retained**.

NSW Ports recommends the following approach to the consideration of industrial lands:

1. **Adopt typologies for freight and logistics land** that recognise the function and significance of different land. This provides a clearer understanding of the land use requirements of the freight and logistics system and appreciates the role of different typologies of land in maintaining efficient freight flows and supporting a 30-minute city.
2. **Develop effective tools to support decision-making** to recognise the broader productivity costs and benefits of freight movements and evaluate decisions that either displace or substitute industrial land.
3. **Enable additional land to be made available within core freight and logistics areas** such as around Port Botany and intermodal terminals that are critical to Port operations and enable industry to co-locate. Providing land and setting policies to futureproof land for future freight and logistics needs will enable Port Botany to operate at capacity and generate efficiencies across the freight and logistics network.
4. **Improve the performance of freight and logistics land through addressing constraints**, particularly in Eastern Sydney where industrial land supply is limited.

These are further described below and at Attachment 1.

4.1. Adopt typologies for freight and logistics land

Four typologies of industrial land are proposed as it relates to freight and logistics across Greater Sydney:

1. Core land
2. Strategic sites
3. Catchment-serving sites
4. Western Sydney International Airport and Aerotropolis.

These typologies align with a whole-of-system freight and logistics approach and acknowledge that particular components of industrial land serve Greater Sydney in different ways. The following features were analysed in defining these typologies and relevant freight and logistics lands:

- proximity to critical freight and logistics infrastructure such as Port Botany, airports and intermodal terminals
- proximity to the motorway network and rail lines used for freight
- clustering of industrial land and the size and scale of industrial land precincts
- location within 30-minute catchments to Greater Sydney's residents.

The typologies allow land planning and management approaches based on that land's role and significance, rather than at a local government level. It recognises how different sites interact as a network and integrate with transport systems.

The typologies enable policy makers, planners and industry to:

- capture the tensions and dynamics of different use types
- balance state, metropolitan and local needs
- better communicate the opportunities or limitations and trade-offs for viable substitutes.

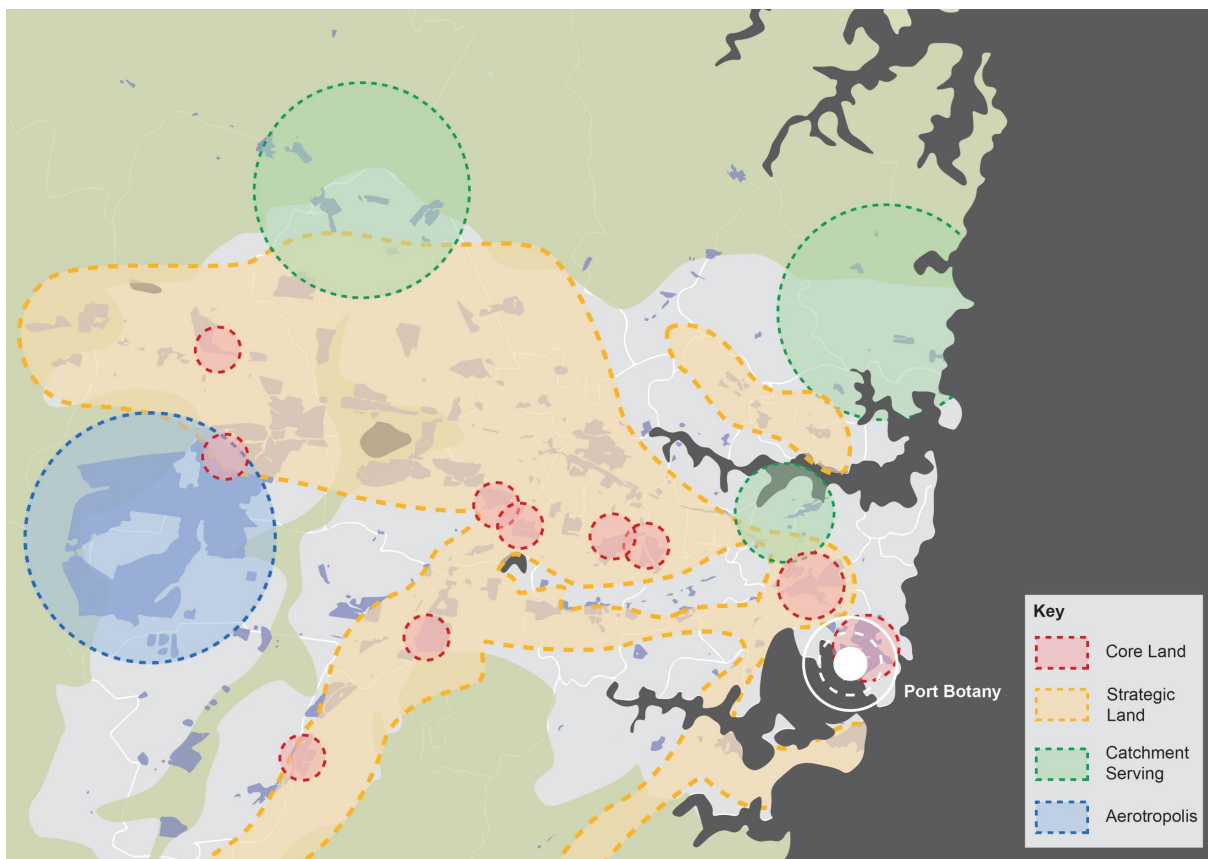


Figure 8 - Typologies of Freight and Logistics Land Across Greater Sydney

TYPOLGY	FUNCTIONAL CHARACTERISTICS	SIGNIFICANCE	EXAMPLE LOCATIONS
Core land	<ul style="list-style-type: none"> • Adjacent to gateways • Linked to Port and Airport operations • Directly manage freight 	<ul style="list-style-type: none"> • Support Port operations such as container imports, exports and storage • Support activities that rely on proximity to the Port, such as LPG storage 	<ul style="list-style-type: none"> • Port Botany and Sydney Airport precinct • IMTs <ul style="list-style-type: none"> ○ Cooks River ○ Enfield ○ Chullora ○ Villawood ○ Yennora ○ Moorebank ○ Minto ○ St Marys (proposed) ○ Mamre Road (proposed)
Strategic sites	<ul style="list-style-type: none"> • Located on key road and rail freight network corridors • Proximity and access to the road and rail freight network 	<ul style="list-style-type: none"> • Support efficient flows of freight and easy access to the transport network • Support transport operations • Provide land for distribution, warehousing and storage facilities 	<ul style="list-style-type: none"> • M2 Motorway corridor • M4 Motorway corridor • M7 Motorway corridor • M5 Motorway corridor • Glenfield to Campbelltown corridor
Catchment-serving sites	<ul style="list-style-type: none"> • Industrial land associated with last-mile distribution • Typically, flexible land that supports range of industrial uses 	<ul style="list-style-type: none"> • Support consumers and businesses, particularly e-commerce • Located to service 30-minute catchments 	<ul style="list-style-type: none"> • Brookvale • Taren Point • Marrickville
Western Sydney International Airport and Aerotropolis	<ul style="list-style-type: none"> • Land within enterprise and agribusiness zones around the Western Sydney International Airport 	<ul style="list-style-type: none"> • Support operations at the Airport • Provide new industrial land for distribution, warehousing and storage facilities • Rely on extension of the freight transport network 	<ul style="list-style-type: none"> • Mamre Road • Northern Gateway • Badgerys Creek • Aerotropolis Core

Recommendation

Industrial land in all these typologies **must be** retained.

4.2. Develop effective tools to support decision-making

The current performance measure for industrial land – employment density – is articulated in the Greater Sydney Region Plan and some Council employment studies. This suggests that the productivity of industrial land is linked to how many jobs is supported on a site, prompting a preference for development and activities that directly employ more people rather potential development that will make a significant impact on broader metropolitan economic output.

Maintaining appropriate industrial land supply is not about a single issue of maintaining employment opportunities in local areas. Industrial land, in the right locations, is a metropolitan issue that has implications for Greater Sydney's productivity and competitiveness and, in turn, the costs for citizens in accessing goods.

Astrolabe has provided an example of a potential cost benefit framework that is more applicable to freight systems than the current approach of a site based assessment (refer to Appendix 1). An example of the approach of this framework to container movements is included in Appendix 1. This framework may differ for different supply chains.

A broader cost-benefit framework that recognises the role of freight systems is required as an input into a whole-of-State welfare analysis (recommended by the Productivity Commission) of the retain and manage policy to freight and logistics sites.

Recommendation

Adopt a cost benefit analysis framework that captures the role of industrial lands in the freight and logistics system.

4.3. Enable additional land to be made available within core freight and logistics areas

Freight and logistics land around Port Botany provides space for activities that are critical for port operations. This includes land for container storage as well as road and rail space that enable a high volume of vehicles to access the Port every day.

When any new sites become available around Port Botany, their viability for freight and logistics activities must be adequately considered alongside other forms of development. For example, the Cooks Cove Precinct immediately west of Sydney Airport is being considered for development; the suitability of this site for freight and logistics uses would generate far greater productivity benefits for the community compared to other uses.

Recommendation

Prioritise protecting and supporting expanded operations on core land.

4.4. Improve the performance of freight and logistics land through addressing constraints

With limited additional land supply in Eastern Sydney, policies are needed to optimise the use and productivity of this land to support the growing freight task. This requires consideration beyond changes in zoning. Subdivision and encroachment by other uses limit site performance and the ability for it to be modified to improve utilisation and performance.

Recommendation

Take a whole-of-system view to improve the performance of existing industrial land and steer away from creating site-specific controls that generate system-scale impacts on productivity.

Partner across State agencies and with industry to consider reforms needed to better measure productivity of sites and support performance.

5. Summary of Recommendations

Industrial lands are crucial to the productivity of every city. Lands used for manufacturing generate employment while freight lands facilitate the efficient flow of goods through a city. NSW Ports strongly recommends the maintenance of the current 'Retain and Manage' policy for Industrial Lands by the Greater Sydney Commission.

Further, NSW Ports makes the following recommendations in respect of the consideration of the role of industrial lands in supporting productive freight and logistics systems for Greater Sydney:

1. Adopt specific typologies for freight and logistics land that recognises the function and significant of different land.
2. Adopt a cost benefit analysis framework that appreciates the system-wide benefits of freight and logistics lands.
3. Prioritise protecting and supporting expanded operations on core industrial lands.
4. Take a whole-of-system view to improve the performance of existing industrial land and steer away from creating site-specific controls that generate system-scale impacts on productivity.

Attachment 1: A City that Delivers: The role of industrial land in supporting a productive freight and logistics system for Greater Sydney

Astrolabe Group

August 2021

Attachment 2: Future of Freight for Sydney's Trade Gateways: Managing industrial land zoning in the vicinity of Port Botany and Sydney Airport

L.E.K Consulting

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Further information

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