



Roads and Maritime Services/Sydney Airport Corporation Limited

Sydney Gateway Road Project

Environmental Impact Statement/ Preliminary Draft Major Development Plan

Technical Working Paper 12
Business Impact Assessment

November 2019



Sydney Gateway road project – Road
Technical Advisory and Environmental Advisory
Services

SYDNEY GATEWAY ROAD PROJECT:

Technical Working Paper 12 – Business
Impact Assessment

Prepared for Roads and Maritime Services

November 2019

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Glossary of terms and abbreviations

Term	Definition
A	
Alignment	The geometric layout (eg of a road) in plan (horizontal) and elevation (vertical).
AM peak hour	Unless otherwise stated, this refers to vehicle trips arriving at their destination during the average one hour peak period between 7am and 9am on a normal working weekday.
Amenity	The character and atmosphere of an environment in which a business is operating. This includes absence of noise, unsightliness or offensive odours.
Arterial roads	The main or trunk roads of the State road network that carry predominantly through traffic between regions.
B	
Business viability	Viability refers to the long-term health and overall sustainability of a business. The viability of a business is influenced by factors that have an impact on its capacity to remain profitable, and therefore on its ongoing existence.
Business visibility	The exposure of a business storefront and signage/advertising to potential customers.
C	
Capacity	The nominal maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or roadway in one direction during a given time period under prevailing roadway conditions.
Changed consumer behaviour	Customers choose between centres that offer similar goods or services. Changes in access to a centre, for example through congestion and changes in travel times, may result in long-term changes in consumer behaviour and permanent economic impacts for certain local businesses.
Communication capacity	The ability to clearly articulate and be understood. For businesses, this includes operational conversations (eg receiving an order from a customer, coordinating between staff) and advertising.
Construction compound	An area used as the base for construction activities, usually for the storage of plant, equipment and materials, construction site offices or worker facilities.
Cumulative impacts	Impacts that, when considered together, have different and/or more substantial impacts than a single impact assessed on its own.
D	
dB(A)	A-weighted decibels
Distribution capacity	The overall volume of goods that a business can move through freight or deliveries.
Do minimum	A model that does not incorporate the proposed project infrastructure.
Do something	A model that incorporates the proposed project infrastructure.
E	
Employee and customer access	Alterations to employee and customer access and travel time may affect business operations due to delayed or hindered access to workplaces, owing to traffic constraints such as congestion, alterations to travel routes and parking accessibility.
Employee attraction	The ease of access to a place of employment may also be a factor in attracting or deterring existing or potential employees from remaining in a job or applying for a job (ie where a place of work becomes too difficult to access, potential employees may look elsewhere, therefore impacting business function through difficulty attracting or retaining staff).
Employee productivity	The efficiency of a worker or group of workers in terms of output and ability to undertake standard tasks over a specific period of time.
F	
Freight network efficiency	The overall operating efficiency of the means through which goods and other materials are transported to the business. Costs associated with this can be impacted by changes to the time it takes to move goods (eg physical disruption to the network) or changes in the cost of moving the goods themselves (eg fuel prices).
G	
H	
Heavy vehicles	A heavy vehicle is classified as a Class 3 vehicle (a two axle truck) or larger, in accordance with the Austroads Vehicle Classification System.
I	
Impact	Influence or effect exerted by a project or other activity on the natural, built or community environment.
Interchange	A grade separation of two or more roads with one or more interconnecting carriageways.

Term	Definition
J	
Just Terms Act	<i>Land Acquisition (Just Terms Compensation) Act 1991 (NSW)</i>
K	
L	
Local road	A road or street used primarily for access to abutting properties.
M	
M4 East	A component of the WestConnex program of works. Located from Homebush Bay Drive, Homebush to Parramatta Road and City West Link (Wattle Street) at Haberfield.
M4 Widening	A component of the WestConnex program of works. Located from Pitt Street, Parramatta to Homebush Bay Drive, Homebush.
M4–M5 Link	A component of the WestConnex program of works. A new inner western bypass of the Sydney central business district connecting the M4 and M5 (under construction).
MDP	Major Development Plan
Methodology	The method for analysis and evaluation of the relevant subject matter.
Mid-block	Section of road between two intersections.
Motorway	Fast, high volume controlled access roads. May be tolled or untolled.
N	
New M5	A component of the WestConnex program of works. Located from Kingsgrove to St Peters (under construction).
O	
Obstacle limitation surface (OLS)	An invisible surface that defines the airspace surrounding an airport that must be protected from obstacles to ensure that aircraft flying in good weather during the initial and final stages of flight, or in the vicinity of the airport, can do so safely.
Operating cost	The expense of maintaining the day to day functions of a business (eg staff, consumables, utility expenses and taxes), as it is a product of those component expenses, it is susceptible to changes in those costs (eg additional transport costs for consumables).
P	
Procedures for Air Navigational Services – Aircraft Operations (PANS-OPS)	The PANS-OPS surface protects aircraft flying into and out of the airport when the flight is guided solely by instruments in conditions of poor visibility. The PANS-OPS surface is generally situated above the OLS.
Passing trade	Pedestrians, cyclists and motorists who choose to patronise a business because they see it when walking/riding/driving past, not because they planned to go there.
PM peak hour	Unless otherwise stated, this refers to trips travelling on the network during the average one hour peak period between 3pm and 6pm on a weekday.
Project	The construction and operation of the Sydney Gateway road project.
Project site	The area that would be directly affected by construction (also known as the construction footprint). It includes the location of operational project infrastructure, the area that would be directly disturbed by the movement of construction plant and machinery, and the location of the storage areas/compounds etc that would be used to construct that infrastructure.
Property	Based on ownership, with the potential to contain more than one lot and DP.
Public transport	Includes train, bus (government and private), ferry (government and private) and light rail (government and private) services.
Q	
Qualitative	Relating to or concerned with quality or perceived value, rather than quantity or measured value.
Quantitative	An assessment based on quantifiable, measured data.
R	
Repeat clients	Recurring business customers (ie those who regularly use that service).
Relocation costs	Impacts associated with physically moving a business between premises.
Roads and Maritime	NSW Roads and Maritime Services
S	
Statistical Area 1	Statistical Area 1 (ABS) refers to the smallest unit for the release of census data. SA1s have a population of between 200 and 800 people with an average population size of about 400 people.
Statistical Area 2	Statistical Area 2 (ABS) are medium-sized general purpose areas built up from whole Statistical Areas Level 1. Their purpose is to represent a community that interacts together socially and economically.

Term	Definition
Sensitive receiver/receptor	Land uses and activities that are sensitive to potential noise, vibration, air and visual impacts, such as residential dwellings, schools and recreation areas.
Service demand	Demand for service and resource providers employed directly or benefiting indirectly from a project (ie construction recruitment agencies, construction material suppliers etc).
Servicing and deliveries	Many businesses rely on regular deliveries to support the sale of products and/or services and provide other business supporting essential services (eg refuse collection). Disruptions to these business supporting activities can therefore directly affect business operation.
Shared path	Used by pedestrians and cyclists.
Spoil	Material generated by excavation.
St Peters interchange	A component of the New M5 project, located at the former Alexandria Landfill site at St Peters. In its ultimate configuration it would connect the New M5, the M4–M5 Link and the Sydney Gateway road project with Euston Road and Gardeners Road.
Study area	The study area is defined as the wider area including and surrounding the project site, with the potential to be directly or indirectly affected by the project (eg by noise and vibration, visual or traffic impacts). The actual size and extent of the study area varies according to the nature and requirements of each assessment and the relative potential for impacts.
T	
Terminal 1 (T1)	Sydney Airport's international terminal
Terminals 2/3	Sydney Airport's domestic terminals
Transport Performance and Analytics	Transport Performance and Analytics operates as a Centre of Excellence, providing objective and credible transport data, advice and analysis. TPA combines the Bureau of Transport Statistics and Bureau of Freight Statistics.
Trade catchment	The area from which a business draws its customers.
U	
Urban design	The process and product of designing human settlements, and their supporting infrastructure, in urban and rural environments
V	
Value added	Value added in the economy is the contribution of a private industry or government sector to overall gross domestic product (Kenton, W 2019).

Abbreviations

Abbreviation	Defined
ABS	Australian Bureau of Statistics
Airports Act	<i>Airports Act 1996 (Cwlth)</i>
Airports Regulations	<i>Airports (Environment Protection) Regulations 1997 (Cwlth)</i>
ANZSIC	Australian and New Zealand Standard Industrial Classification
BIA	Business impact assessment
CBD	Central business district
dB(A)	A-weighted decibels
EIS	Environmental impact statement
EP&A Act	<i>Environmental Planning & Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
IVA	Industry value added
LEP	Local Environmental Plan
LGA	Local Government Area
MDP	Major development plan
NSW	New South Wales
OLS	Obstacle limitation surface
PANS-OPS	Procedures for Navigational Services – Aircraft Operations
SA1	Statistical Area Level 1
SA2	Statistical Area Level 2
SEARs	Secretary’s Environmental Assessment Requirements
TPA	Transport Performance and Analytics

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1.0 INTRODUCTION

1.1 Overview

1.1.1 Sydney Gateway and the project

Sydney Kingsford Smith Airport (Sydney Airport) and Port Botany are two of Australia's most important infrastructure assets, providing essential domestic and international connectivity for people and goods. Together they form a strategic centre, which is set to grow significantly over the next 20 years. To support this growth, employees, residents, visitors and businesses need reliable access to the airport and port, and efficient connections to Sydney's other strategic centres.

The NSW and Australian governments are making major investments in the transport network to achieve this vision. New road and freight rail options are being investigated to cater for the forecast growth in passengers and freight through Sydney Airport and Port Botany. Part of this solution is Sydney Gateway, which comprises the following road and rail projects:

- Sydney Gateway road project (the subject of this assessment)
- Botany Rail Duplication.

Sydney Gateway will expand and improve the road and freight rail networks to Sydney Airport and Port Botany to keep Sydney moving and growing. The Sydney Gateway road project forms part of the NSW Government's long-term strategy to invest in an integrated transport network and make journeys easier, safer and faster.

Roads and Maritime and Sydney Airport Corporation propose the Sydney Gateway road project (the project). The project comprises new direct high capacity road connections linking the Sydney motorway network at St Peters interchange with Sydney Airport's terminals and beyond. It involves constructing and operating new and upgraded sections of road connecting to the airport terminals, four new bridges over Alexandra Canal, and other operational infrastructure and road connections

The project and its location are shown on Figure 1-1.

1.1.2 Approval requirements

The project is subject to approval under NSW and Commonwealth legislation. Parts of the project located on Commonwealth-owned land leased to Sydney Airport (Commonwealth land) are subject to the Commonwealth *Airports Act 1996* (the Airports Act). In accordance with the Airports Act, these parts of the project are defined as major airport development. A major development plan (MDP), approved by the Australian Minister for Infrastructure, Transport and Regional Development, is required before a major airport development can be undertaken at a leased airport.

Parts of the project located on other land are deemed State significant infrastructure in accordance with the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). As State significant infrastructure, these parts of the project require approval from the NSW Minister for Planning and Public Spaces. An environmental impact statement (EIS) is required to support the application for approval for State significant infrastructure under the EP&A Act.

An integrated EIS and draft MDP is being prepared to:

- Support the application for approval of the project in accordance with NSW and Commonwealth legislative requirements
- Address the environmental assessment requirements of the then Secretary of the Department of Planning and Environment (the SEARs), issued on 15 February 2019
- Address the MDP requirements defined by section 91 of the Airports Act.

This report was prepared on behalf of Roads and Maritime and Sydney Airport Corporation to support the EIS/draft MDP.

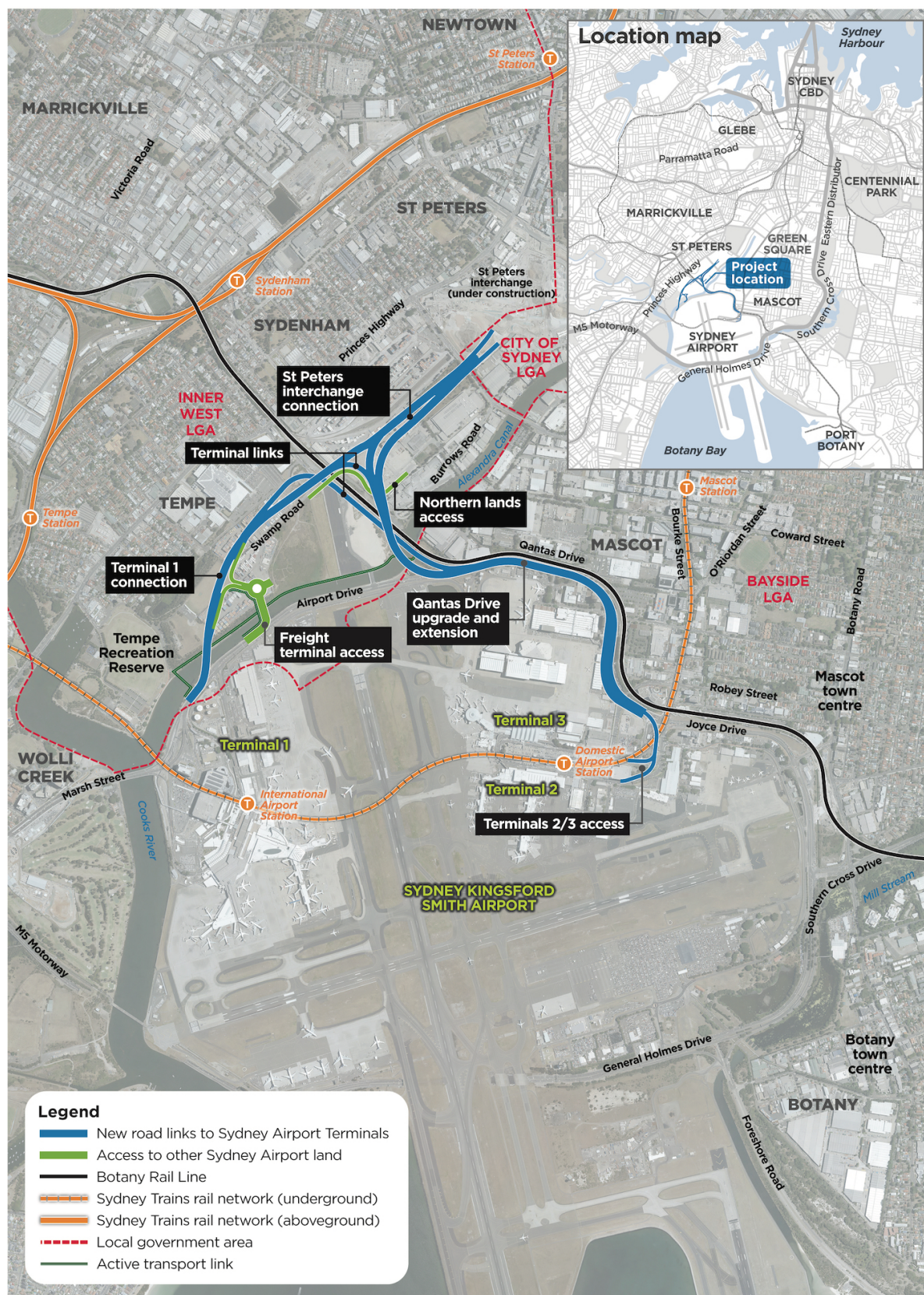


Figure 1-1: The project

Source: Gateway to Sydney Joint Venture

1.2 Purpose of this report

The purpose of this Business Impact Assessment (BIA) report is to assess the potential business impacts from constructing and operating the project. This assessment addresses the relevant Secretary's environmental assessment requirements, the MDP requirements according to the *Airports Act 1996*, as outlined in Table 1-1 and Table 1-2.

The report:

- Identifies and describes the study area by considering the existing planning zones, businesses, industries employment number, economic contribution and access routes
- Assesses the potential direct, indirect, negative and beneficial impacts to businesses, including evaluating the significance of the impacts
- Identifies mitigation and management measures to avoid or minimise potential adverse impacts and maximise benefits to businesses.

This report has relied on information provided by Roads and Maritime and various technical specialist reports prepared for the combined EIS/preliminary draft MDP. It also considers the information obtained through a business survey that was undertaken by Roads and Maritime and HillPDA representatives. Technical Working Paper 11 – Socio-economic Impacts (GHD, 2019) can be referred to for the assessment of the potential direct and indirect impacts on the social and economic environment, including residents, community infrastructure users, motorists and the economy.

Table 1-1: Secretary's environmental assessment requirements relevant to this assessment

Requirement	Where addressed in this report
1. The Proponent must assess social and economic impacts in accordance with the current guidelines.	The BIA has been prepared in accordance with the Roads and Maritime Services Environmental Impact Assessment Practice Note: Socio-economic Assessment and the <i>EPBC Act – Significant impact guidelines 1.2</i>
2. The Proponent must assess the social and economic impacts from construction and operation on potentially affected properties, infrastructure, utility services, businesses (including impacts to freight management associated with the reduction of container storage, and consequent impacts to the broader industry), recreational users and land and water users.	An assessment of potential construction and operation impacts on businesses is included in section 6.0 and 7.0. Effects on utility services are assessed in section 6.5. Refer to Technical Working Paper 11 – Socio-economic Impacts for the assessment of other social and economic factors. Refer to section 6.4.3 and Appendix D for consideration of freight management associated with the reduction of container storage, and consequent impacts on the broader industry.
3. The assessment must address as relevant, how environmental changes in the locality may affect people's: <ul style="list-style-type: none"> • (a) way of life; • (b) community; • (c) access to and use of infrastructure, services and facilities (including recreational facilities and open space); • (d) culture; • (e) health and wellbeing; • (f) surroundings; and • (g) relevant statutory rights including personal and property rights. It must also consider how different groups may be disproportionately affected and communities severed by the proposal.	An assessment of potential construction and operation impacts on businesses is included in section 6.0 and 7.0. Refer to Technical Working Paper 11 – Socio-economic Impacts for the assessment of other social and economic factors.

Table 1-2: MDP requirements relevant to this assessment

Requirement	Where addressed in this report
Consistency with master plan 1 (a) consistency with the airport lease (d) if a final master plan for the airport is in force—whether or not the development is consistent with the final master plan; and	Refer to section 6.8(construction) and section 7.6 (operation).
Effect on noise exposure levels (e) if the development could affect noise exposure levels at the airport—the effect that the development would be likely to have on those levels; and	Refer to section 6.3.1 and Technical Working Paper 2 – Noise and Vibration
Effect on flight paths (ea) if the development could affect flight paths at the airport—the effect that the development would be likely to have on those flight paths; and	Refer to section 6.4.4 Technical Working Paper 3 – Aviation Safety
Effect of the development on: (ga) the likely effect of the proposed developments that are set out in the major development plan, or the draft of the major development plan, on; (i) traffic flows at the airport and surrounding the airport; and (ii) employment levels at the airport; and (iii) the local and regional economy and community, including an analysis of how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area	Refer to Technical Working Paper 1 – Transport and Traffic for assessment of traffic flows at the airport and surrounding the airport Section 6.7.1 and section 7.5.1 addresses impacts on employment levels at the airport and impacts on the local and regional economy. Sections 6.4, 6.7, 7.3 and section 7.5 address the business impacts on Sydney Airport land and broader local and regional economy.
Assessment of environmental impacts (h) the airport-lessee company’s assessment of the environmental impacts that might reasonably be expected to be associated with the development; and	Section 6.0 assesses the construction impacts. Section 7.0 assesses the environmental impact upon operation.
Plans for dealing with environmental impacts (j) the airport-lessee company’s plans for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts)	Potential management measures for addressing environmental impacts of the project are outlined in section 9.0

1.3 The project

1.3.1 Location

The project is located about eight kilometres south of Sydney's central business district and to the north of Sydney Airport on both sides of Alexandra Canal. The northern extent of the project is located at St Peters interchange, which is currently being constructed to the north of Canal Road in St Peters. The western extent of the project is located near the entrance to Sydney Airport Terminal 1 on Airport Drive, to the north of the Giovanni Brunetti Bridge and south-west of Link Road. The eastern extent of the project is located near the intersection of Joyce Drive, Qantas Drive, O'Riordan Street and Sir Reginald Ansett Drive.

The project is located mainly on government owned land in the suburbs of Tempe, St Peters and Mascot, in the Inner West, City of Sydney and Bayside local government areas.

1.3.2 Key design features

The project provides a number of linked road connections to facilitate the movement of traffic between the Sydney motorway network, Sydney Airport Terminal 1 (Terminal 1) and Sydney Airport Terminals 2 and 3 (Terminals 2/3). The project would connect Terminal 1 and Terminals 2/3 with each other and with the Sydney motorway network. The project would also facilitate the movement of traffic towards Port Botany via General Holmes Drive. It would provide three main routes for traffic:

- Between the Sydney motorway network and Terminal 1, and towards M5 motorway and Princes Highway
- Between the Sydney motorway network and Terminals 2/3, and towards General Holmes Drive, Port Botany and Southern Cross Drive
- Between Terminal 1 and Terminals 2/3.

The key features of the project include:

- Road links to provide access between the Sydney motorway network and Sydney Airport's terminals, consisting of the following components:
 - St Peters interchange connection – a new elevated section of road extending from St Peters interchange to the Botany Rail Line, including an overpass over Canal Road
 - Terminal 1 connection – a new section of road connecting Terminal 1 with the St Peters interchange connection, including a bridge over Alexandra Canal and an overpass over the Botany Rail Line
 - Qantas Drive upgrade and extension – widening and upgrading Qantas Drive to connect Terminals 2/3 with the St Peters interchange connection, including a high-level bridge over Alexandra Canal
 - Terminal links – two new sections of road connecting Terminal 1 and Terminals 2/3, including a bridge over Alexandra Canal
 - Terminals 2/3 access – a new elevated viaduct and overpass connecting Terminals 2/3 with the upgraded Qantas Drive
- Road links to provide access to Sydney Airport land:
 - New section of road and an overpass connecting Sydney Airport's northern lands either side of the Botany Rail line
 - New section of road, including a signalised intersection with the Terminal 1 connection and a bridge connecting Sydney Airport's existing and proposed freight facility either side of Alexandra Canal
- An active transport link approximately 1.3 kilometres in length along the western side of Alexandra Canal to maintain connections between Sydney Airport and the city and Mascot
- Intersection upgrades or modifications at Link Road/Airport Drive, Lancastrian Road/Qantas Drive, Robey Street/Seventh Street/Qantas Drive and Shiers Avenue/Sir Reginald Ansett Drive

- Provision of operational ancillary infrastructure including maintenance bays, new and upgraded drainage infrastructure, signage and lighting, retaining walls, noise barriers, flood mitigation basin, utility works and landscaping.

1.3.3 Construction overview

A conceptual construction methodology has been developed based on the preliminary project design to be used as a basis for the environmental assessment process. Detailed construction planning, including programming, work methodologies, staging and work sequencing would be undertaken once construction contractor(s) have been engaged.

Timing and work phases

Construction of the project would involve four main phases of work. The indicative construction activities within each phase are outlined below:

Table 1-3: Timing and work phases

Phase	Indicative construction activities
Enabling works	<ul style="list-style-type: none"> ● Construction of the temporary active transport link ● Modification of various road intersections to facilitate main construction works.
Site establishment	<ul style="list-style-type: none"> ● Installing site fencing, hoarding and signage ● Establishing construction compounds, work areas and site access routes.
Main construction works	<ul style="list-style-type: none"> ● Clearing/trimming of vegetation ● Removal (or partial removal) of a number of buildings and other existing infrastructure eg concrete hardstand areas, drainage infrastructure, sheds, advertising structures, containers ● Roadworks, including bridge and viaduct construction and drainage works ● Utility works.
Finishing works	<ul style="list-style-type: none"> ● Erecting lighting, signage and street furniture, landscaping works and site demobilisation and rehabilitation in all areas.

Specific construction issues which will require careful planning and management and close coordination with relevant stakeholders include:

- Works within the prescribed airspace of Sydney Airport
- Works interfacing with the Botany Rail Line
- Piling in the vicinity of the T8 Airport and South line underground rail tunnels
- Works within the former Tempe Tip site and Alexandra Canal that are subject to remediation orders and specific management plans
- Excavation, storage and handling of contaminated soils generally within the project site and contaminated groundwater from the Botany Sands aquifer.

It is anticipated that construction would start at the end of 2020 and take about three and a half years to complete. Detailed construction planning would be confirmed once construction contractors have been engaged.

The project would include work undertaken during recommended standard hours as defined by the Interim Construction Noise Guideline (DECC, 2009):

- Monday to Friday: 7am to 6pm
- Saturday: 8am to 1pm
- Sundays and public holidays: no work.

It would also include work outside these hours (out-of-hours work) to minimise the potential for aviation and rail safety hazards.

Construction footprint

The land required to construct the project (the construction footprint) is shown on Figure 1-2. The construction footprint includes the land needed to construct the proposed roadways, bridges and ancillary infrastructure and land required for the proposed construction compounds. Utility works to support the project would generally occur within the construction footprint, however, some works (such as connections to existing infrastructure) may be required outside the footprint.

Compounds, access and resources

Construction would be supported by five construction compounds located to support the main construction works (shown on Figure 1-2). Construction compounds would include site offices, staff amenities, storage and laydown areas, workshops and workforce parking areas.

Materials would be transported to and from work areas via construction haul routes, which have been selected to convey vehicles directly to the nearest arterial road.

The construction workforce requirements would vary over the construction period based on the activities underway and the number of active work areas. The workforce is expected to peak at about 1,000 workers for a period of about 13 months, starting from the fourth quarter of 2021. Either side of this peak, workforce numbers are expected to reduce to about two thirds.

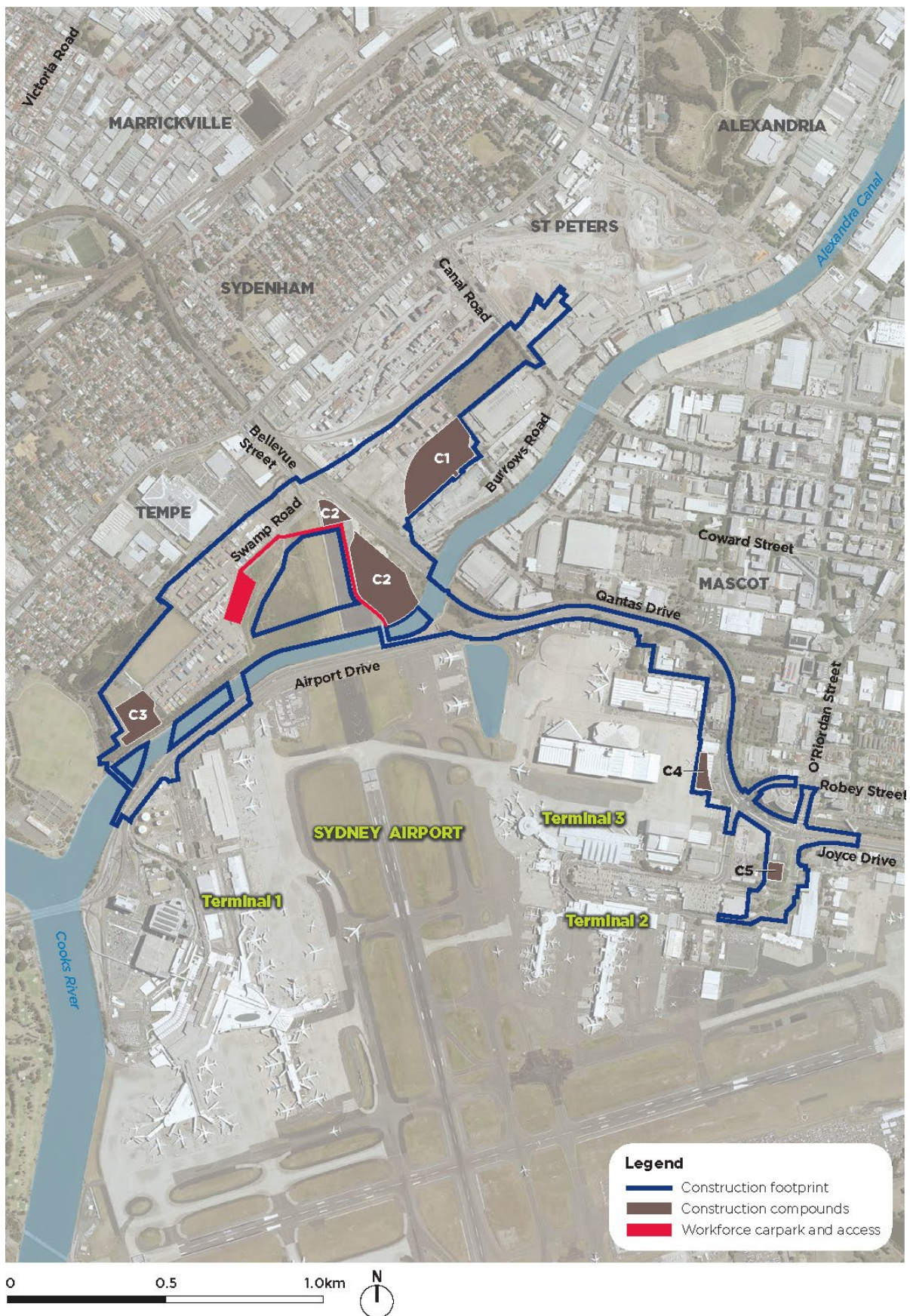


Figure 1-2: Construction footprint and facilities

1.4 Structure of this report

The structure of this report is outlined below:

- Section 1 – provides an introduction to the report and overview of the project
- Section 2 – provides an overview of the legislative and policy setting
- Section 3 – documents the methodology for undertaking the assessment of business impacts
- Section 4 – describes the existing business environment
- Section 5 – provides a summary of the stakeholder consultation that has been undertaken to inform the sensitivity of businesses to potential project impacts
- Section 6 – assesses the impacts of project construction on the business environment
- Section 7 – assesses the impacts of project operation on the business environment
- Section 8 – documents the cumulative business impacts where other planned infrastructure is also considered
- Section 9 – outlines recommended mitigation measures
- Section 10 – outlines the conclusions for construction, operation and cumulative impacts.

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2.0 LEGISLATIVE AND POLICY CONTEXT

Several legislative and policy documents were reviewed where relevant to the BIA. This includes planning guidelines and policies from the Australian Government, NSW Government and local government. Further detail regarding the legislative and policy context of the Sydney Gateway road project can be found in the environmental impact statement.

Other literature relevant to the BIA has been considered and is provided in 0.

2.1 Commonwealth legislation and policies

Table 2-1 identifies the Commonwealth legislation and plans relevant to the BIA.

Table 2-1: Australian Government plans and legislation

Legislation and policy	Relevance to business impact assessment
<i>Airports Act 1996 and associated regulations</i>	<p>The project site includes areas of Commonwealth-owned land leased by Sydney Airport Corporation. <i>The Airports Act 1996</i> and associated regulations provide the assessment and approval process for development on Commonwealth-owned land and land leased to Sydney Airport Corporation for the operation of Sydney Airport.</p> <p>Section 89 of the Airports Act specifies types of development that constitute ‘major airport development’. Section 90 of the act determines that a MDP approved by the Australian Minister for Infrastructure, Transport and Regional Development is required before major airport development can be undertaken at a leased airport.</p> <p>The Airports Act and regulations are the statutory controls for ongoing regulation of development activities on Commonwealth-owned land leased from the Australian Government for the operation of Sydney Airport.</p> <p>Section 70 of the Airports Act requires there to be a final master plan for the airport that has been approved by the Australian Minister for Infrastructure, Transport and Regional Development.</p> <p>Part 5 of the Act also requires that each airport develop an environment strategy which is included in its master plan. Once approved, Sydney Airport and all persons who carry out activities at the airport are obliged to take all reasonable steps to ensure compliance with the environment strategy.</p> <p>Section 91(1)(ga)(iii) requires an analysis of the project’s effects on the local and regional economy including an analysis of how the project fits within the local planning schemes for commercial and retail development in the adjacent area. This BIA discusses the project’s potential effects on the local and regional economy from a business perspective. The relevance of planning schemes is discussed below, in the context of the <i>National Aviation Policy White Paper: Flight Path to the Future</i>.</p>
<i>Airports (Environment Protection) Regulations 1997</i>	<p>The objective of the <i>Airports (Environment Protection) Regulations 1997</i> (the regulations) is to establish a system of regulation for activities at airports that generate or have potential to generate pollution or excessive noise. The regulations impose a general duty to prevent or minimise environmental pollution and have as one of their objects the promotion of improved environmental management practices at Commonwealth-leased airports. The regulations contain detailed provisions setting out:</p> <ul style="list-style-type: none"> • Definitions, acceptable limits and objectives for air, water and soil pollution, and offensive noise • General duties to prevent or minimise pollution, preserve significant habitat and cultural areas and to prevent offensive noise • Monitoring and reporting requirements for existing pollution. <p>Part 2 of the regulations defines pollution in relation to air (including odour), water, soil and offensive noise. Schedules 1–4 of the regulations provide the acceptable limits of pollutants and offensive noise, which, in conjunction with other national environment protection measures, provide the system of environmental regulation at airports.</p>

Legislation and policy	Relevance to business impact assessment
Commonwealth of Australia 2009, National Aviation Policy White Paper: Flight Path to the Future (White Paper)	<p>The White Paper states “the Government’s position is that the primary purpose of federal leased airports is aviation, with non- aeronautical land uses consistent with the airport planning framework where it places no unnecessary restriction on aviation at the airport. Non-aeronautical development is defined as non-aviation commercial developments, such as retail outlets and office buildings, on airport sites.”</p> <p>The White Paper notes particular concern regarding retail development, which has the potential to impact the community due to traffic flows and competition with surrounding retail developments. As non-aeronautical development may be relatively low cost, the Government has decided that a development may trigger an MDP if a significant community impact is identified, regardless of cost.</p> <p>This concern resulted in the introduction of section 91(1)(ga)(iii) of the <i>Airports Act 1996</i>, requiring MDPs to consider how proposed developments fit within local planning schemes for commercial and retail development in the adjacent area. Given the context of the white paper, “local planning schemes for commercial and retail development in the adjacent area” has been interpreted to mean how on-airport development relates to local retail and commercial strategies. As the project does not include on-airport retail or commercial uses, it would not be relevant to such strategies as per the section.</p>
Environment Protection and Biodiversity Conservation Act 1999	<p>The <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) is administered by the Australian Department of the Environment and Energy and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as “matters of national environmental significance”.</p> <p>Under the EPBC Act, proposed actions (ie activities or projects) with the potential to significantly impact matters protected by the EPBC Act must be referred to the Australian Minister for the Environment to determine whether they are controlled actions, requiring approval from the Minister. The following matters are defined as protected matters by Part 3 of the EPBC Act:</p> <ul style="list-style-type: none"> • Matters of national environmental significance • The environment of Commonwealth land • The environment in general if they are being carried out by an Australian Government agency. <p>The project has the potential to affect the environment of Commonwealth owned land. The Minister may determine, as part of the provision of advice on the MDP (as required under section 160(1)) of the EPBC Act that the project is a controlled action requiring approval. Section 160(1) requires an agency of the Commonwealth to authorise the adoption or implementation of a MDP. Therefore, as part of the assessment of the draft MDP, the Department of Infrastructure, Regional Development and Cities will, on behalf of the Minister for Infrastructure and Transport, seek advice from the Australian Minister for the Environment under section 160(1) of the EPBC Act.</p>
The National Airports Safeguarding Framework	<p>The National Airports Safeguarding Framework is a national land use planning framework that aims to:</p> <ul style="list-style-type: none"> • Improve community amenity by minimising aircraft noise-sensitive developments near airports • Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues. <p>The National Airports Safeguarding Framework provides guidance on planning requirements for development that affects aviation operations. The Sydney Gateway road project is consistent with the framework’s expectations for development. Where possible, impacts to Sydney Airport operations should be minimised.</p> <p>The BIA assesses the impacts to Sydney Airport operations as a result of construction and operation of the project.</p>

Legislation and policy	Relevance to business impact assessment
Australian Infrastructure Plan (Infrastructure Australia 2016)	<p>At the Australian Government level, the Australian Infrastructure Audit 2015 projected that, in the absence of interventions to address the problem, the cost of congestion in the Sydney/Wollongong/Newcastle area would more than double from \$5.6 billion in 2011 to \$14.8 billion in 2031. The following recommendations are relevant:</p> <ul style="list-style-type: none"> • Recommendation 1.3 – caps, curfews and other restrictions on how our infrastructure is operated and used should be avoided where possible • Recommendation 10.6 – Australia needs strong and dependable commitments to proceed with planned projects and reforms to establish confidence in infrastructure markets • Recommendation 10.7 – project proponents should routinely develop strategies to ensure the full benefits of infrastructure investments are realised. <p>Reductions in the cost of congestion through the implementation of road projects such as Sydney Gateway can have direct benefits to business and industry.</p>
Sydney Airport Master Plan 2039	<p>The <i>Sydney Airport Master Plan 2039</i> outlines the 20 year strategy for the development and operation of Sydney Airport in accordance with the requirements of the <i>Airport Act 1996</i>. The <i>Sydney Airport Master Plan 2039</i>:</p> <ul style="list-style-type: none"> • Establishes the strategic direction for efficient and economic development at the airport over the planning period • Provides for the development of additional uses of the airport site • Indicates to the public the intended uses of the airport site • Reduces potential conflicts between uses of the airport site, to ensure that uses of the airport site are compatible with the areas surrounding the airport • Ensures that operations at the airport are undertaken in accordance with relevant environmental legislation and standards • Establishes a framework for assessing compliance at the airport with relevant environmental legislation and standards • Promotes continual improvement of environmental management at the airport. <p>The <i>Sydney Airport Master Plan 2039</i> identifies that Sydney Airport is a vital infrastructure asset that supports local, state and national employment, tourism and development objectives. Land around the airport is also identified as having strategic importance for the ongoing function and operation of the airport. The <i>Sydney Airport Master Plan 2039</i> recognises that the Sydney Gateway road project would assist in improving traffic flow and connections to and around the airport and meeting ground transport demands.</p>
Sydney Airport Environment Strategy 2019-2024	<p>The Sydney Airport Environment Strategy 2019–2024 (the Environment Strategy), which forms part of Master Plan 2039, provides strategic direction for the environmental performance and management of Sydney Airport for the five year period between 2019 and 2024. The purpose of the Environment Strategy is to:</p> <ul style="list-style-type: none"> • Establish a framework for assessing compliance and ensuring that all operations at Sydney Airport are undertaken in accordance with relevant environmental legislation and standards • Promote the continual improvement of environmental management and performance at Sydney Airport and build on the achievements and goals of previous strategies • Realise improvements in environmental sustainability, by minimising Sydney Airport’s environmental footprint and working towards a more efficient and resilient airport. <p>One of the objectives of Sydney Airport Environment Strategy 2019–2024 is to minimise traffic-related environmental impacts such as air and noise emissions on local communities. Three main sources of traffic in and around the airport include freight travelling to and from Port Botany, vehicles associated with the daily operation of the airport (passengers, their family/friends, freight and workers), and commuter and residential traffic. Relevant to this BIA are the changes to access in and around the airport, and the potential impacts to and from businesses in the area.</p>

Legislation and policy	Relevance to business impact assessment
Infrastructure Priority List (Infrastructure Australia) 2019	The project is categorised as a high priority initiative in the Infrastructure Priority List. The project would aid in improving connectivity at the State level, as well as reducing urban congestion through eastern Sydney and other trade corridors. The document states that road congestion in and around Sydney Airport and Port Botany causes significant delays to road users, which affects the access of both airport passengers and local communities. Relevant to this BIA are the changes to access and the resulting social and economic impacts from the Sydney Gateway road project on these road users.

2.2 NSW Government legislation and policies

Table 2-2 identifies the NSW Government legislation and plans relevant to the BIA.

Table 2-2: NSW Government policy and legislation

Legislation and policy	Relevance to business impact assessment
Environmental Planning and Assessment Act 1979 (NSW)	<p>Roads and Maritime is seeking approval, as State significant infrastructure, for those parts of the project subject to the EP&A Act under Part 5, Division 5.2 of the EP&A Act (i.e. the project on NSW land).</p> <p>Clause 94 of <i>State Environmental Planning Policy (Infrastructure) 2007</i> (ISEPP) applies to development for the purpose of a road or road infrastructure facilities and provides that these types of works are permissible without consent if being undertaken by or on behalf of a public authority. The project is for the purpose of a 'road' and 'road infrastructure facilities' under ISEPP.</p> <p>Roads and Maritime has formed the opinion that the project is likely to significantly affect the environment and would require the preparation of an EIS. On this basis, pursuant to Section 5.12(2) of the EP&A Act, the project is declared to be State significant infrastructure under Clause 14 of State Environment Planning Policy (State and Regional Development) 2011. The project requires approval from the NSW Minister for Planning and Public Spaces under Section 5.14 of the EP&A Act.</p> <p>The SEARs for the project were issued on 15 February 2019. The SEARs identify the assessment requirements for the project. A copy of the relevant SEARs for this BIA, and where they have been addressed in this report is provided in Table 1-1.</p>
Greater Sydney Region Plan – A Metropolis of Three Cities (2018)	<p>The Greater Sydney Region Plan integrates land use, transport and infrastructure planning to establish a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. The following objectives are specifically relevant to the BIA:</p> <ul style="list-style-type: none"> • Objective 2 – Infrastructure aligns with forecast growth – growth infrastructure compact • Objective 15 – The Eastern, GPOP and Western Economic Corridors are better connected and more competitive • Objective 16 – Freight and logistics network is competitive and efficient • Objective 23 – Industrial and urban services land is planned, retained and managed. <p>Sydney Gateway road project adheres to the broad objectives of the Greater Sydney Region Plan. It is applicable to the BIA as it supports the growth of the airport and intent to maintain surrounding land use appropriate for proximity to the airport.</p>

Legislation and policy	Relevance to business impact assessment
Eastern City District Plan (2018)	<p>The Eastern City District Plan provides a 20 year plan to manage growth within the Eastern City District. The study area sits within the Eastern Economic Corridor and international trade gateway. The following objectives and specific actions are relevant to the BIA:</p> <ul style="list-style-type: none"> • Objective 15 – The Eastern, GPOP and Western Economic Corridors are better connected and more competitive • Objective 18 – Harbour CBD is stronger and more competitive • Objective 16 – Freight and logistics network is competitive and efficient • Objective 23 – Industrial and urban services land is planned, retained and managed <ul style="list-style-type: none"> – Action 30 – Manage the interfaces of industrial areas, trade gateways and intermodal facilities – Action 31 – Protect and grow the trade gateways – Action 32 – Optimise the efficiency and effectiveness of the freight handling and logistics network. <p>Where relevant to the BIA, the Sydney Gateway road project adheres to the Eastern City District Plan in the following ways:</p> <ul style="list-style-type: none"> • Identifies and helps retain strategically important employment and urban services land in and near Sydney Airport precinct • Protects Sydney Airport’s function as an international gateway for passengers and freight, and supports airport-related land uses and infrastructure in the area around the airport • Facilitates road planning to connect Sydney Airport to the Sydney Motorway network at St Peters • Protects current and future freight corridors and shared freight corridors • Balances the need to minimise negative impacts of freight movements on urban amenity with the need to support efficient freight movements and deliveries.
Land Acquisition (Just Terms Compensation) Act 1991	<p>The <i>Land Acquisition (Just Terms Compensation) Act 1991</i> (Land Acquisition Act) sets out the process to be followed including how notice must be given, minimum timeframes for notice, how valuation is determined and how disputes are resolved. Where land containing businesses would be acquired or temporarily occupied for the project, it would be done so in accordance with the Land Acquisition Act. This Act is only applicable to land under State jurisdiction.</p>
Building Momentum - State Infrastructure Strategy 2018–2038	<p>Building Momentum – State Infrastructure Strategy 2018–2038 identifies policies and strategies needed to provide infrastructure to meet the growing needs of the population and economy. Directions specifically relevant to the BIA include:</p> <ul style="list-style-type: none"> • Direction 2 – Plan, prioritise and deliver an infrastructure program that represents the best possible investment and use of public funds • Direction 3 – Optimise the management, performance and use of the State's assets. <p>Sydney Gateway road project aligns with the directions with the ability to optimise the land around the project, supporting the growth of businesses and future investment.</p>

Legislation and policy	Relevance to business impact assessment
Future Transport Strategy 2056 (2018)	<p>The Future Transport Strategy 2056 (Transport Strategy) is seen as an enabler of economic and social activity. It establishes a vision built on six outcomes:</p> <ul style="list-style-type: none"> • Customer focused • Successful places • A strong economy • Safety and performance • Accessible services • Sustainability. <p>Sydney Gateway road project is not specifically identified in the Transport Strategy. The Transport Strategy does however establish the need for city shaping corridors and major trunk roads to provide higher speed and volume connections for businesses.</p>
NSW Freight and Ports Plan 2018–2023 (2018)	<p>NSW Freight and Ports Plan 2018–2023 (Freight and Ports Plan) sets the NSW Government’s priorities for the sector over the next five years. The Freight and Ports Plan describes Port Botany and Sydney Airport as pivotal trade gateways for NSW’s economy. The Freight and Ports Plan has the following key objectives:</p> <ul style="list-style-type: none"> • Drive economic growth – by delivering more than \$5 billion worth of infrastructure • Increase efficiency, connectivity and access by recognising that time is money • Deliver greater capacity by investing and enabling regional growth • Improve safety and sustainability by doing more together. <p>The Sydney Gateway road project would provide additional road infrastructure to enhance the connectivity of Sydney motorway network to the busy road freight precincts of Port Botany and Sydney Airport.</p> <p>The Sydney Gateway road project aligns with the following policy outcomes identified in the Freight and Ports Plan that would also have direct benefits to businesses:</p> <ul style="list-style-type: none"> • Boost the efficiency of the trade gateways • Improve the road network • Enhance productivity • Protect land for freight and logistics.
Navigating the future: NSW Ports’ 30 Year Master Plan (2015)	<p>Navigating the Future: NSW Ports’ 30 Year Master Plan (Ports’ Master Plan) outlines actions required to create a sustainable port supply chain to meet the needs of NSW over the next 30 years and beyond. Port Botany is identified as the only NSW container port and primary bulk liquid and gas port. Port Botany handles 99 per cent of the State’s container demand, 98 per cent of the State’s consumption of LPG, 90 per cent of bulk chemical products, 30 per cent of refined petroleum fuels and 100 per cent of the State’s bitumen products (NSW Ports, 2018).</p> <p>In 2015, it was said to contribute \$3.2 billion to the NSW Gross State Product and 21,000 jobs. The port operates 24 hours a day seven days a week.</p> <p>Cooks River Intermodal Terminal (Intermodal Terminal) is identified in the Ports’ Master Plan as an inland extension of the port and an important contribution to the container logistics freight task. The Intermodal Terminal offers container storage as well as facilities for the repair, washing and upgrading of empty containers and other ancillary container-related services. The Cooks River Intermodal Terminal is within the BIA study area.</p>
Premier’s Priorities (2019)	<p>The Premier’s Priorities 2019 reflect the NSW Government’s commitment to the people of NSW. The priorities relevant to the BIA include: creating 150,000 new jobs by 2019 and delivering key metropolitan infrastructure projects on time and on budget.</p>

2.3 Local government policy

The BIA study area (described in section 3.2) encompasses three local government areas: Bayside Council, Inner West Council and the City of Sydney. The Local Environmental Plans applicable to the study area are described in 0. Table 2-3 identifies the local strategies relevant to the BIA.

Table 2-3: Local government policy

Legislation and policy	Relevance to business impact assessment
Sustainable Sydney 2030	Sustainable Sydney 2030 is the City of Sydney's overarching strategic plan that guides growth and change in the LGA to 2030 and beyond. It includes ten strategic directions as well as ten targets against which to measure progress. This strategy aligns with the proposal through acknowledgment of the roles of airport, port and city as employment land. The strategic plan acknowledges the southern employment land adjacent to the airport includes the main transport corridor between the airport, port and the City. The strategy supports the improvement of the transport network and public transport system that service the employment lands.
City of Sydney Employment Lands Strategy 2014–2019	<p>The <i>City of Sydney Employment Lands Strategy 2014–2019</i> is a strategic document that guides growth and change to 2030 for employment land in the southern area of the City of Sydney LGA. The objective of the study was to facilitate new business and industry opportunities, provide employment across a range of sectors, and provide land for strategic industrial activity and urban services.</p> <p>The strategy places an emphasis on the retention of significant strategic industrial lands associated with Sydney Airport and Port Botany and recommended key changes in terms of land use controls, which have since been adopted in the Local Environmental Plan.</p>
Bayside 2030: Community Strategic Plan 2018–2030	<p><i>Bayside 2030</i> is Bayside Council's Community Strategic Plan 2018–2030 that forms an overarching plan to guide the council's broader strategic framework over the long term across four themes. The fourth theme focuses on developing a prosperous community through enhanced services, transport and innovation.</p> <p>The Sydney Gateway road project specifically aligns with ensuring that opportunities for economic development are recognised and realised through enhancing the LGA's position as an international hub for transport and logistics related business.</p> <p>Bayside Council is currently undertaking an Employment Land Strategy to inform the development of its Local Strategic Planning Statement. The Strategy is due to be released on public exhibition this year.</p>
Our Inner West 2036	<p><i>Our Inner West 2036</i> is the overarching Community Strategic Plan for Inner West Council that establishes a 20 year blueprint designed to inform strategic decision-making for Inner West LGA. Strategic direction three: Creative communities and a strong economy outlines the council's priorities around accessible and sustainable employment. This is to be achieved through encouraging local industry and jobs, as well as connecting them with regions beyond the LGA.</p> <p>Inner West Council is currently undertaking an Employment Land Strategy to inform the development of their Local Strategic Planning Statement. The Strategy is due to be released on public exhibition this year.</p>
Marrickville Employment Lands Study 2014	<i>Marrickville Employment Lands Study 2014</i> (SGS Economics and Planning, 2014b) identifies that industrial and urban services land in inner urban areas are increasingly under threat. It outlines a commitment to maintain a core industrial zone in the south west of the city to accommodate 'traditional industrial' use. Inner West Council is currently reviewing employment land as part of the Local Strategic Planning Statement process required by the NSW Government.
Mascot Station Town Centre Precinct Masterplan 2012	The <i>Mascot Station Town Centre Precinct Masterplan 2012</i> is a strategic land use study to guide the development of planning controls for the Bayside LEP 2013. Land subject to the masterplan is between Coward Street, Kent Road, Gardeners Road and Botany Road. The area has been transitioning from former industrial uses to high density mixed use living. The area now operates as a centre, rather than an industrial precinct and has been considered in this way for the BIA. Mascot Station Town Centre is the largest retail centre in proximity to the precinct.

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3.0 METHODOLOGY

3.1 Summary of methodology

This business impact assessment methodology has been developed in accordance with the Roads and Maritime Services Socio-economic Assessment Practice Note EIA-N05 (Roads and Maritime 2013), the SEARs and section 91 of the *Airports Act 1996* as set out in section 1.1.2 of this report. Impacts on Sydney Airport land have been assessed with consideration of the *Environment Protection and Biodiversity Conservation Act 1999 – Significant impact guidelines 1*.

The business impact assessment is informed by the technical working papers that have been prepared for the combined EIS/preliminary draft MDP, including:

- Technical Working Paper 1 – Transport and Traffic
- Technical Working Paper 2 – Noise and Vibration
- Technical Working Paper 3 – Aviation Safety
- Technical Working Paper 4 – Air Quality
- Technical Working Paper 11 – Socio-economic
- Technical Working Paper 13 – Place Making, Urban Design and Visual Impacts
- Technical Working Paper 15 – Human Health.

The business impact assessment is also informed by chapters within the environmental impact statement/draft major development plan including:

- Chapter 3 – Statutory context and approval requirements
- Chapter 4 – Consultation
- Chapter 5 – Strategic context and project need
- Chapter 7 – Design features and operation
- Chapter 8 – Construction
- Chapter 19 – Land use and property.

The following steps were undertaken:

- A review of conditions of approval for similar projects, including the WestConnex program of works, to scope issues and identify the potential scale and magnitude of impacts
- Definition of the BIA study area
- A review of strategic planning and policy documents to determine the existing and future proposed characteristics of the BIA study area
- Profiling the existing business environment affected by the project including zoning, amenity and business types
- Calculating the number of businesses, employment levels and economic contribution of industries in the study area
- A survey of businesses and review of characteristics, values and sensitivities raised during these business surveys
- Identifying likely changes/impacts that may occur as a result of the project, including specific effects on businesses
- Assessing the significance of business impacts during construction and operation
- Assessing the cumulative business impacts
- Identifying measures to manage impacts during both construction and operation.

3.2 Defining the BIA study area

Australian Bureau of Statistics (ABS) geographic boundaries (referred to as Statistical Area Level 2 (SA2)) were used to define the BIA study area (the study area) (see Figure 3-1). The SA2 extents that either overlapped with or contained businesses within a one kilometre radius of the project alignment defined the study area. The study area extends across seven SA2s, including Botany, Mascot – Eastlakes, Sydney Airport, Marrickville, Sydenham – Tempe – St Peters, Erskineville – Alexandria, and Arncliffe - Bardwell Valley. Although a study area has been defined, it is acknowledged that the spatial extent of potential effects would vary and would not be limited to the study area. For this reason, the impact assessment does consider changes to the business environment both within the study area and further afield.

When considering construction and operational effects, businesses that are within immediate proximity to the construction footprint are more likely to be exposed to business impacts. The likelihood of a business experiencing construction or operational effects reduces the further a business is located from the activity. The relevant Local Environment Plan zone extents have been used to profile each of the areas in, adjoining or near the project site (see section 4.3). The project site corresponds with the construction footprint. The names of each business precinct profile (set out in section 4.3) have been defined with consideration of the zone name and a location attribute. Samples of business and industries have been identified to provide an example of the types of businesses and industries that may be found in each area. These lists are not exhaustive and are reflective of a point in time. The relevant business zone objectives under the applicable local environmental plan or *Sydney Airport Master Plan 2039* have been defined to illustrate the future intent of the zone.

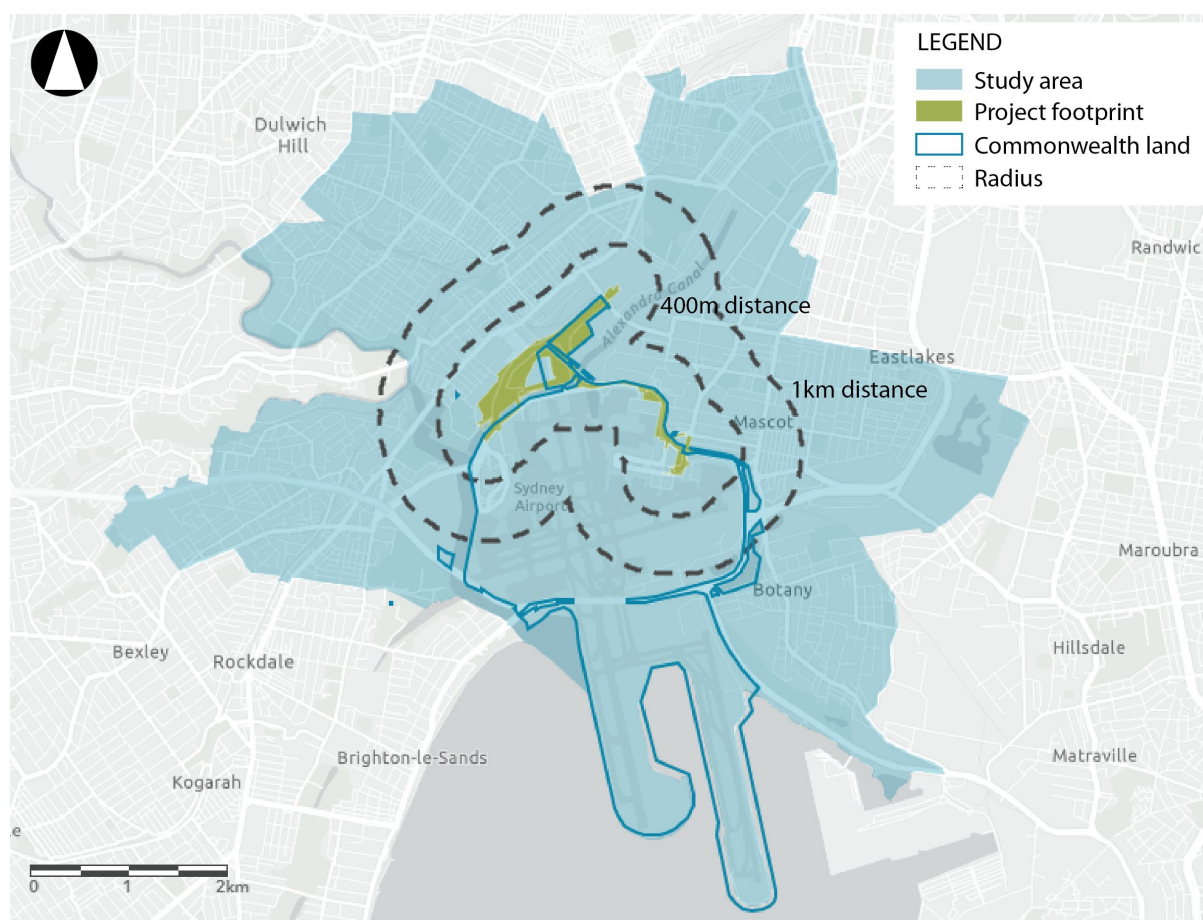


Figure 3-1: BIA study area

Source: HillPDA, 2019

3.3 Data sources used to inform the study

In preparing this report, HillPDA has relied primarily on project design information developed by Roads and Maritime, and technical specialist reports prepared for the combined EIS/preliminary draft MDP. Additional data in this report has been derived from:

- ABS, Census 2016
- ABS, 8165.0 Counts of Australian Businesses, 2016
- Transport for NSW, Transport Performance and Analytics (TPA), 2017
- Outcomes of business surveys (0)
- Geographic information system information on land use zones as informed by relevant Local Environmental Plans
- Policy and legislation (section 0)
- A literature review (0).

3.4 Business survey

A business survey was conducted to gain an understanding of the main issues, perceptions and concerns of businesses with regard to the project during construction and operation. The business surveys were conducted within one kilometre of the project footprint over a three-week period in October and November 2018 and then again in February and March 2019. The survey was voluntary with over 100 business representatives choosing to participate.

The survey did not involve businesses located on properties that would be directly affected by the project. Although these businesses did not participate in the survey, Roads and Maritime undertook direct consultation with the affected businesses. Relevant information was shared to inform the assessment and understand business sensitivities. The findings of consultation with these businesses are summarised in section 5.0. All information gathered as part of the business surveys was collated into a database. The survey report is provided as 0 to this assessment.

3.5 Evaluation methodology

The impact assessment presented in this report identifies and evaluates changes to the business environment and to businesses arising from construction and/or operation of the project. This includes the assessment of direct and indirect impacts and benefits, as well as consideration of cumulative impacts. The evaluation methodology used for this assessment has been developed with consideration of the Roads and Maritime Environmental Impact Assessment Practice Note – Socio-economic assessment (EIA-N05) (see 0) and *Significant impact guidelines 1.2 Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* (Department of Sustainability, Environment, Water and Communities, 2013.)

The assessment of impacts considers the level of sensitivity of receptors and the magnitude of the proposed changes based on the information available at the time, research undertaken to prepare this BIA, other technical studies and review of consultation outcomes undertaken by Roads and Maritime. Where there is known effectiveness of environmental management measures (see section 9.0), these have been taken into consideration when assessing the level of significance.

3.5.1 Sensitivity

Sensitivity refers to the qualities of the receptor which influence its vulnerability to change and capacity to adapt. In this context the receptor may include the environmental characteristics, communities, businesses, business clusters, social infrastructure, residences etc.

Qualities that contribute to the level of sensitivity of a receptor may include but are not limited to existing aspects of the social and economic environment such as:

- Amenity such as noise levels, visual quality, air quality etc
- Demographic composition and patterns
- Economic activity, types of industry and businesses present
- Connectivity and access
- Property and land use types and known future changes (eg re-zoning)
- Community values
- Community cohesion
- Level of community concern.

The levels of sensitivity are set out in Table 3-1 below. Professional judgement has been used to determine the level of sensitivity.

Table 3-1: Levels of sensitivity

Sensitivity	Example
Negligible	No vulnerability and ability to absorb or adapt to change
Low	Minimal areas of vulnerabilities and a high ability to absorb or adapt to change
Moderate	Several vulnerabilities but retains some ability to absorb or adapt to change
High	Multiple vulnerabilities and/or very little capacity to absorb or adapt to change

3.5.2 Magnitude

Magnitude refers to the scale, duration, intensity and scope of the project including how it would be constructed and operated. Qualities of magnitude include, but are not limited to:

- Scale and intensity (the types of works, operational uses and built form etc)
- Spatial extent (eg the geographical area affected which may be local, suburb, regional, State, International or to community groups)
- Duration (short, medium or long-term, hours of works, frequency, reversibility etc).

The levels of magnitude are set out in Table 3-2 below. Professional judgement has been used to determine the level of magnitude.

Table 3-2: Levels of magnitude

Magnitude	Example
Negligible	No discernible positive or negative changes caused by the impact. Change from the baseline remains within the range commonly experienced by receptors.
Low	A discernible change from baseline conditions. Tendency is that the impact is to a small proportion of receptors over a limited geographical area and mainly within the vicinity of the project. The impact may be short term or some impacts may extend over the life of the proposal.
Moderate	A clearly noticeable difference from baseline conditions. Tendency is that the impact is to a small to large proportion of receptors and may be over an area beyond the vicinity of the project. Duration may be short term to medium or some impacts may extend over the life of the project.
High	A change that dominates over existing baseline conditions. The change is widespread or persists over many years or is effectively permanent.

3.5.3 Assessing level of significance

Only negative impacts have been assigned a level of significance. Positive social and economic impacts and opportunities are discussed in the report, however, are not subject to this methodology. The level of significance is considered for construction impacts, operational impacts and cumulative impacts.

Potential impacts are considered using Table 3-3. The combination of sensitivity and magnitude determines the level of significance of the impact when compared to the baseline condition.

Table 3-3: Assessing the level of significance

	Magnitude				
		High	Moderate	Low	Negligible
Sensitivity	High	High impact	High-Moderate	Moderate	Negligible
	Moderate	High-Moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

3.5.4 Assessing impacts on Commonwealth land

The *EPBC Act – Significant impact guidelines 1.2* outlines the methodology for assessing the impacts on Commonwealth Land. It requires the severity of impact on Commonwealth land to be considered based on the following criteria:

- **Severe:** Severe impacts generally have two or more of the following characteristics: permanent/irreversible, medium-large scale, moderate-high intensity
- **Moderate:** Moderate impacts generally have two or more of the following characteristics: medium-long term, small-medium scale, moderate intensity
- **Minor:** Minor impacts generally have two or more of the following characteristics: short term/ reversible, small-scale/localised, low intensity.

The potential changes resulting from the project must then be considered in the context of the environment and whether the change is likely to impact upon sensitive or valuable components of the environment. Positive impacts are qualitatively assessed and not subject to the criteria.

The level of significance is then determined, utilising guidance questions associated with people and communities. While the most relevant questions are focused around people and communities and not businesses specifically, they have been considered in the context of potential impacts on businesses, employees and customers to determine if there is a chance or possibility that the project would:

- Substantially increase demand for, or reduce the availability of, community services or infrastructure which have direct or indirect impacts on the environment, including water supply, power supply, roads, waste disposal and housing?
- Affect the health, safety, welfare or quality of life of the members of a community, through factors such as noise, odours, fumes, smoke or other pollutants?
- Cause physical dislocation of individuals or communities?
- Substantially change or diminish cultural identity, social organisation or community resources?

If the answer is yes to any of the guidance questions outlined above, it is expected that the project would have a significant impact on the environment.

This assessment method is utilised in section 6.7 and section 7.5 to evaluate impacts on Sydney Airport land.

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4.0 EXISTING ENVIRONMENT

4.1 Summary of key findings

This section describes the characteristics of the existing (baseline) business environment within the study area. The business zone profiles are focussed on the areas that have a higher likelihood of being affected. The broader study area has been considered when defining the number of businesses, industry value added (economic contribution to gross domestic product) and employment generation. Key findings for consideration during the impact assessment include the following:

- The study area is located in a trade gateway as defined in the Greater Sydney Region Plan. The trade gateway makes up a proportion of the Eastern Economic Corridor. This corridor is recognised as the State's greatest economic asset, significantly contributing to economic growth in NSW (Greater Sydney Commission, 2018a).
- Sydney Airport is the largest Australian airport. It generates \$6.2 billion in value added and employs 30,900 full time equivalent employees on the airport land (Deloitte Access Economics, 2018). Sixty-three per cent of employment on airport land is associated with transport and storage.
- The study area contained around 12,957 registered businesses with the greatest proportion of businesses associated with the professional, scientific and technical services (13.9 per cent), rental, hiring and real estate services (13.3 per cent) and transport, postal and warehousing (10.6 per cent).
- Around 86,305 people were employed within the study area based on ABS Place of Work 2016. The top three industries of employment were transport, postal and warehousing, retail trade and manufacturing.
- The study area was found to generate around \$10.04 billion of industry value added per year. Across the study area the top three industries by industry value added were transport, postal and warehousing (around 30 per cent), manufacturing (around 8.2 per cent) and wholesale trade (around 7.8 per cent).
- The freight and logistics industry is an important part of the NSW economy as an enabler of economic activity. Freight volumes are anticipated to double in Greater Sydney over the next 40 years, driven by population growth, increased consumer expectations, online technologies and the decline in manufacturing.

4.2 BIA study area context

The study area is within the Eastern Economic Corridor, which extends from Macquarie Park through the Sydney CBD to Sydney Airport. This corridor is recognised as the State's greatest economic asset – contributing two-thirds of economic growth in NSW during the 2015-16 financial year (Greater Sydney Commission, 2018). Sydney Airport and Port Botany are recognised in the *Eastern City District Plan* as Sydney's global gateways, with a recognised need to protect international trade and freight routes, as well as surrounding land uses that support these gateways (see Figure 4-1).

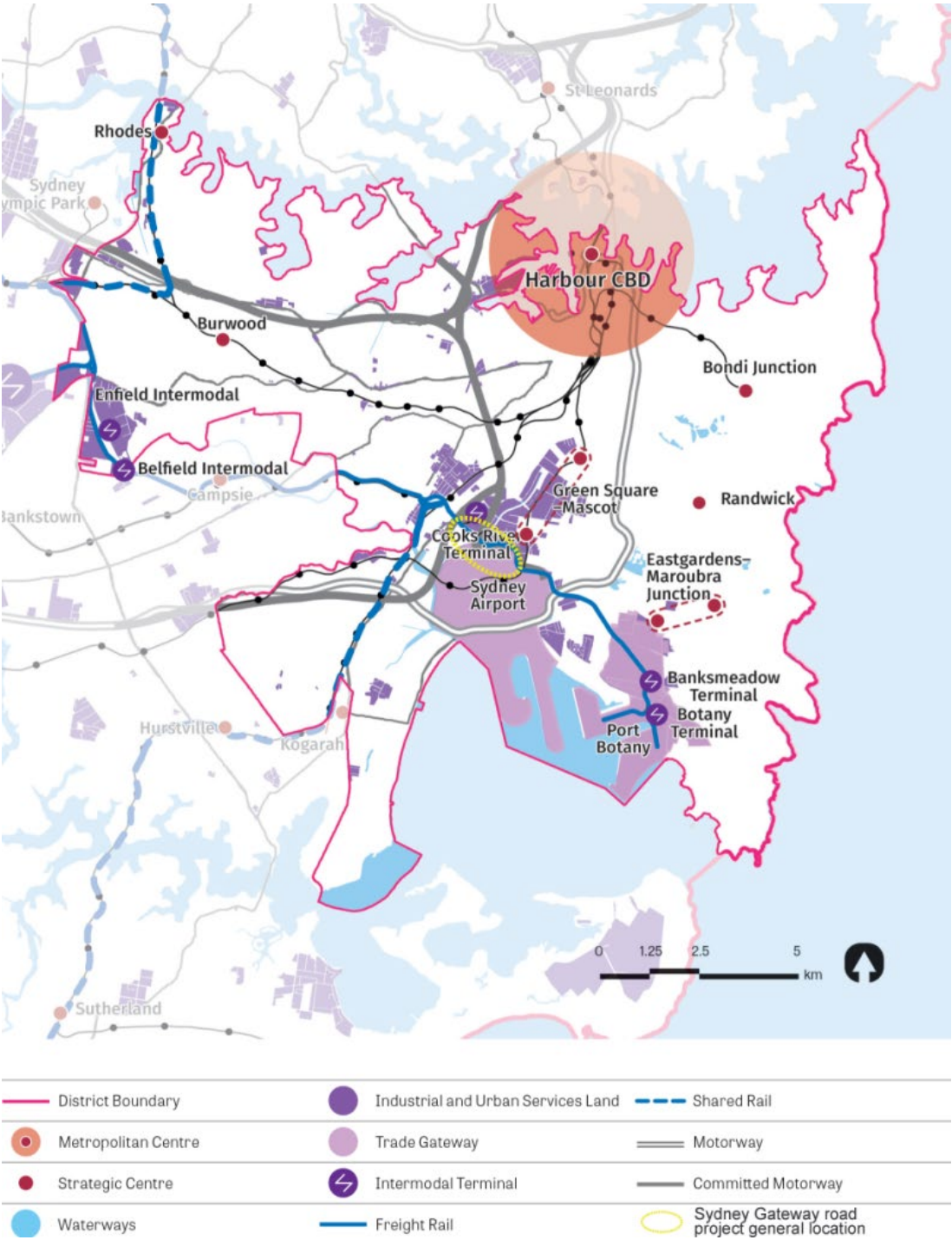


Figure 4-1: Eastern City District – Trade Gateway

Source: Greater Sydney Commission – Eastern City District Plan 2018

The major strategic centres and metropolitan centres are highlighted in Figure 4-1. Mascot Station Town Centre, in the Green Square-Mascot strategic centre is located in the study area. This centre offers a broad diversity of uses including commercial and retail. Other larger shopping centres outside the study area include Marrickville Metro, Eastlakes Shopping Centre and East Village Shopping Centre. As indicated in section 3.2, direct project impacts can be experienced by businesses in immediate proximity to the project, with potential effects dissipating the further the business is located from the source of impact. The business zone profile (section 4.3) identifies the characteristics of business areas located near the construction footprint and operational road alignment. All other information relates to the broader study area and has been informed using the ABS and the Transport Performance and Analytics statistical information.

4.3 Business precinct profiles

The extent of business, industrial and special purpose land zoning has been used to define the existing business environment. Land in the study area that does not fall within a business precinct (precinct) relates to residential, special purpose or recreation zoned land. The following section provides an overview of the precincts located in, adjoining to and near the project site as illustrated in Figure 4-2. These include:

- Sydney Airport
- O’Riordan Street business
- Ricketty Street business park
- Mascot station precinct
- Qantas Drive industrial
- Airport industrial
- Princes Highway enterprise corridor.

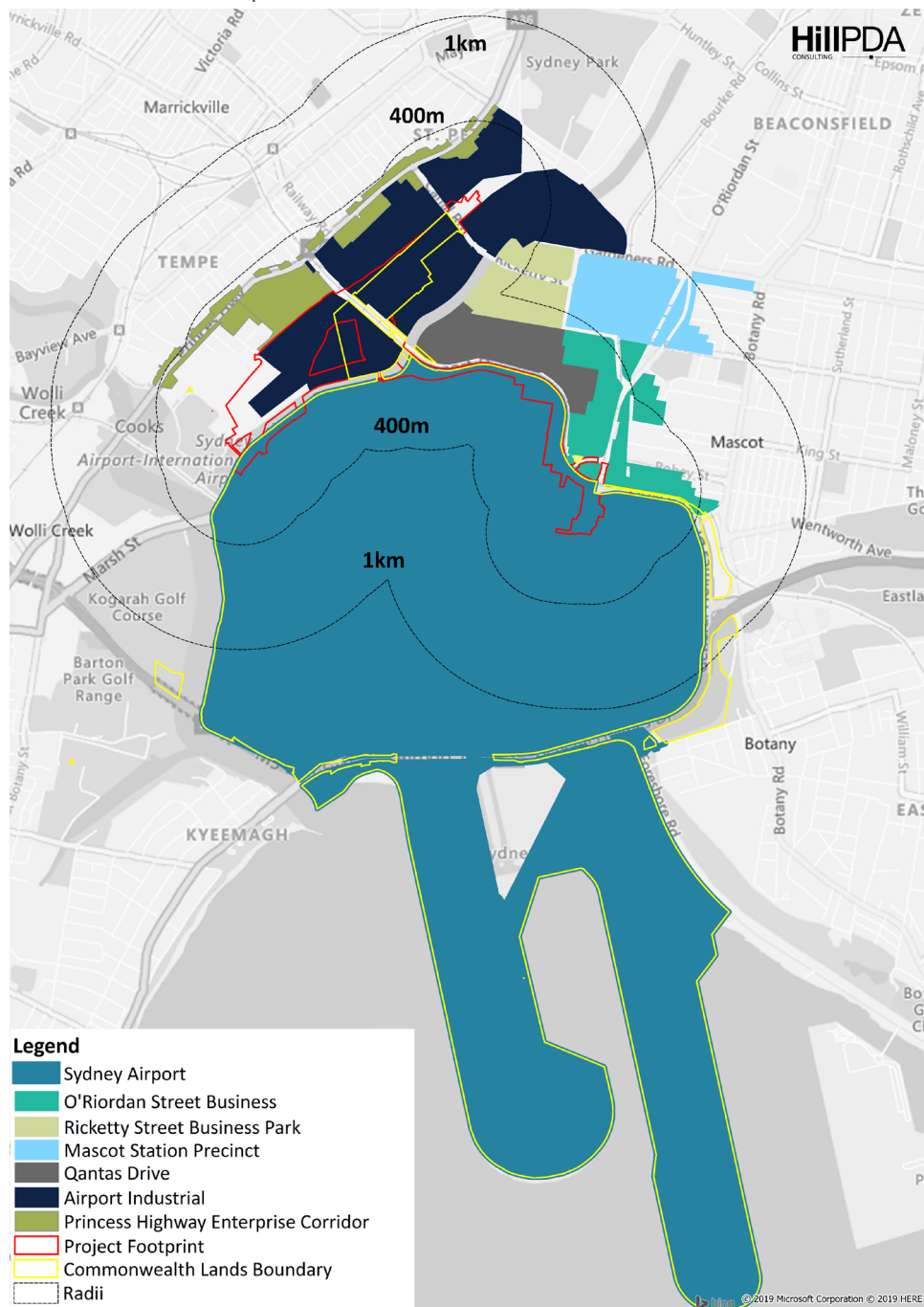


Figure 4-2: Business zone profile areas

4.3.1 Sydney Airport precinct

Sydney Airport is the largest Australian airport containing domestic and international passenger airline activities and associated support activities including catering, baggage handling, maintenance and refuelling. Sydney Airport also incorporates businesses associated with:

- Onsite retail, such as car dealership, newsagencies, clothing and duty-free stores
- Hospitality, including accommodation and on-site food and beverage options
- Ground transport, including terminal shuttle buses and taxi services
- Security and other government services, including Australian Border Force, Australian Quarantine and Inspection Services, Australian Federal Police and security contractors
- Dedicated freight and logistics business
- Other corporate/office-based businesses (Deloitte Access Economics 2018).

Businesses on Sydney Airport land would cater to both a domestic and international market. Passenger airlines and transport and logistics would be highly sensitive to scheduling delays. Air freight is a vital economic activity at Sydney Airport, with about half of Australia's international air freight passing through the airport (Sydney Airport Corporation Limited 2018b). The retail and hospitality businesses have a relatively captured market; a reduction in time spent at the airport may influence customer sales and revenue. Ground transport services would also be particularly sensitive to delays in travel time, road alterations and congestion. Office and accommodation businesses are generally more sensitive to changes in amenity. Major industries of employment at Sydney Airport are outlined in Table 4-1.

Table 4-1: Major areas of employment in Sydney Airport

Area	Employment proportion
Transport and storage	63%
Construction	8%
Retail, cafes and accommodation	9%
Government services	7%
Property and business services	5%
Maintenance, cleaning and engineering services	2%

Source: Deloitte Access Economics 2018

Deloitte Access Economics reported that in 2017, Sydney Airport generated \$6.2 billion in value added and employed 30,900 full time employees on the airport land. The Eastern City District Plan describes the airport as:

A major freight, business and tourism gateway for the Harbour CBD and the nation. It contains Sydney's existing domestic and international air terminals, and is located approximately six kilometres from the Harbour CBD. It generates an estimated 18,100 jobs (Sydney Airport operations only) and has a passenger rail connection to the Harbour CBD. Public transport access for employees is hindered by the high costs of travel when disembarking at Sydney Airport train stations.

A commercial core has developed around Mascot Station which comprises a number of hotels and high density, mixed-use A-grade commercial buildings catering to large tenants. The amount of industrial land supporting Sydney Airport has decreased with encroachment from residential developments and knowledge-intensive jobs. The surrounding industrial land provides essential supporting functions for the airport. (Greater Sydney Commission, 2018b).

The airport is zoned SP2 Special Purpose – Infrastructure: Airport under Botany Bay LEP 2013. Land uses at Sydney Airport are subject to the *Airports Act 1996*. The *Sydney Airport Master Plan 2039* has been developed under the Airports Act. The Master Plan outlines specific land uses that are divided into eight zones:

- AD1 – Aviation Activity and Aviation Support Facilities
- AD2 – Airport Terminal and Support Services
- AD3 – Airport Logistics and Support
- AD4 – Utilities Reservation
- AD5 – Aviation Reservation
- BD1 – Business Development
- BD2 – Enviro-Business Park
- EC1 – Environmental Conservation

The land use plan for the airport is illustrated in Figure 4-3. Note that land identified north of Airport Drive and Qantas Drive is known as the 'northern lands sector' (see Figure 4-4). For the purpose of this study, the northern lands sector is included in the Airport industrial precinct.

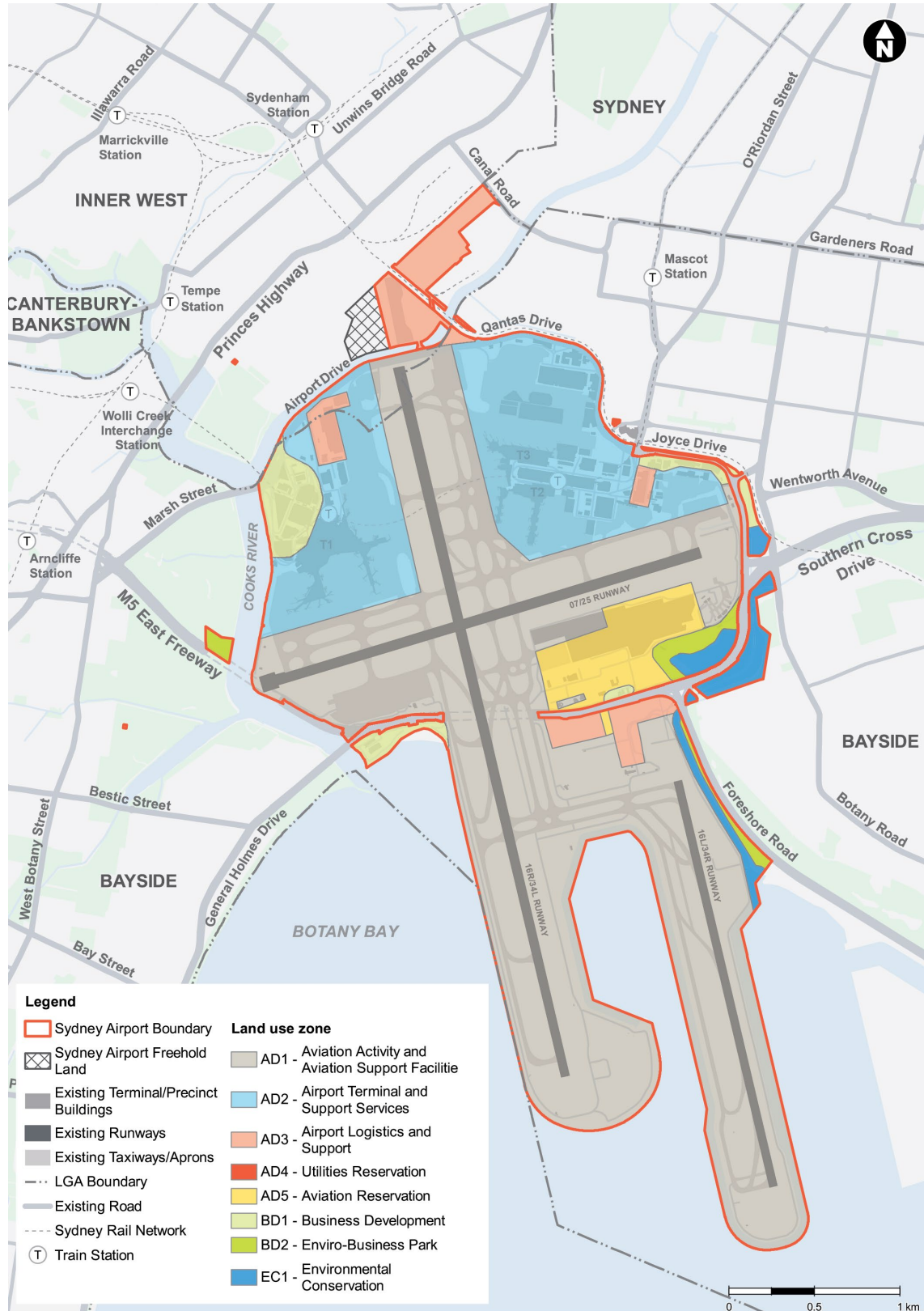


Figure 4-3: Sydney Airport Land Use Plan

Source: Sydney Airport Masterplan 2039

Table 4-2 summarises the zone objectives relating to businesses as outlined in *Sydney Airport Master Plan 2039* and provides a sample of companies operating in the precinct.

Table 4-2: Sydney Airport Master Plan zone objectives summary

Land zone	Master Plan Zone objectives	Sample companies
AD1 – Aviation Activity and Aviation Support Facilities	<ul style="list-style-type: none"> Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function Provide for aviation activities and aviation support facilities Facilitate compatible and ancillary functions within the zone, provided that development does not render the land permanently unfit for aviation activities Coordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities Ensure heritage items are appropriately considered and managed. 	Bondi Helicopters Heli Experiences, Blue Sky Helicopters, Sydney Heli Tours
AD2 – Airport Terminal and Support Services	<ul style="list-style-type: none"> Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function Facilitate development of contemporary passenger terminals and related facilities for the handling, transfer and processing of passengers that are capable of meeting the standards expected by international, domestic and regional travellers, as well as supporting the needs of Sydney Airport's workforce Provide for aviation activities and support facilities Facilitate compatible and ancillary functions within the zone provided that development does not render the land permanently unfit for aviation activities Encourage employment opportunities Ensure heritage items are appropriately considered and managed. 	Airport Fuel Services, Menzies Cargo, Qantas Airways, Jetstar Engineering, Cathay Pacific Engineering, Virgin Australia, Emirates, Toll Air Express, Mercedes, Emirates Leisure Retail, Heinemann, SkyCargo
AD3 – Airport Logistics and Support	<ul style="list-style-type: none"> Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function Facilitate the development of freight services and airport logistics (and ancillary office space) Facilitate compatible and ancillary functions within the zone provided that development does not render the land permanently unfit for aviation activities Ensure development is compatible, where practicable, with surrounding land uses in this area Ensure heritage items are appropriately considered and managed. 	DHL, Virgin Australia Cargo, OZ Pet International Pet Transport, Polar Air Cargo, Qantas Freight, Dnata, Menzies
AD4 – Utilities and Reservation	<ul style="list-style-type: none"> Accommodate special uses off the airport site that are consistent and compatible with surrounding development and land use zones Ensure heritage items are appropriately considered and managed. 	N/A
AD 5 – Aviation Reservation	<ul style="list-style-type: none"> Protect the long-term viability and operational efficiency of Sydney Airport for its primary function Co-ordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities Integrate compatible aviation, business and industrial activities in accessible locations Facilitate the development of freight services and airport logistics (and ancillary office space) Encourage appropriate employment opportunities in accessible locations Ensure that development will not render the land permanently unfit for aviation activities or aviation support facilities when it is required for these purposes Ensure heritage items are appropriately considered and managed. 	Emu Blue Car Park, Ace Rental Cars Sydney Airport, Alpha south, Gray Line Sydney, Carbridge

Land zone	Master Plan Zone objectives	Sample companies
BD1 – Business Development	<ul style="list-style-type: none"> • Enable a mix of business, retail and industrial uses in locations that are close to and that support the functioning of Sydney Airport • Integrate suitable and compatible land uses in accessible locations so as to maximise public transport patronage and encourage active transport • Encourage employment opportunities and promote businesses along main roads • Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce • Ensure heritage items are appropriately considered and managed • Maximise, where possible, the use of existing access and egress points to the on-airport road network. 	Rydges Sydney Airport, Australian Customs and Border Protection Service, SNP Security, AMG, KFC, McDonalds, IBIS Budget Sydney Airport, Mantra Hotel at Sydney Airport, Krispy Kreme Mascot, IMO Car Wash, BP
BD2 – Enviro-Business Park	<ul style="list-style-type: none"> • Provide for a limited range of sustainable development, particularly for business purposes, that will not compromise the ecological, cultural or scientific value of this land or adjacent land including the Mill and Engine Ponds and the Mill Stream • Ensure buildings achieve design excellence having particular regard to the surrounding natural and built environment and the associated sensitivities • Encourage appropriate employment opportunities in accessible locations • Enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce • Incorporate appropriate environmental management principles and controls into development proposals • Ensure heritage items are appropriately considered and managed. 	Hanrob Pet Hotels, Apex Car Rentals Sydney Airport

The *Sydney Airport Master Plan 2039* includes plans to expand operations in the future to meet growing demand. The Airport Development Plan Sectors, as outlined in *Sydney Airport Master Plan 2039*, are identified in Figure 4-4. These sectors have been used to describe the location of potential impacts during the assessment. To note, for the purpose of this report and considering the airport logistics and support function, the northern lands sector has been included in the airport industrial precinct (see section 4.3.2).

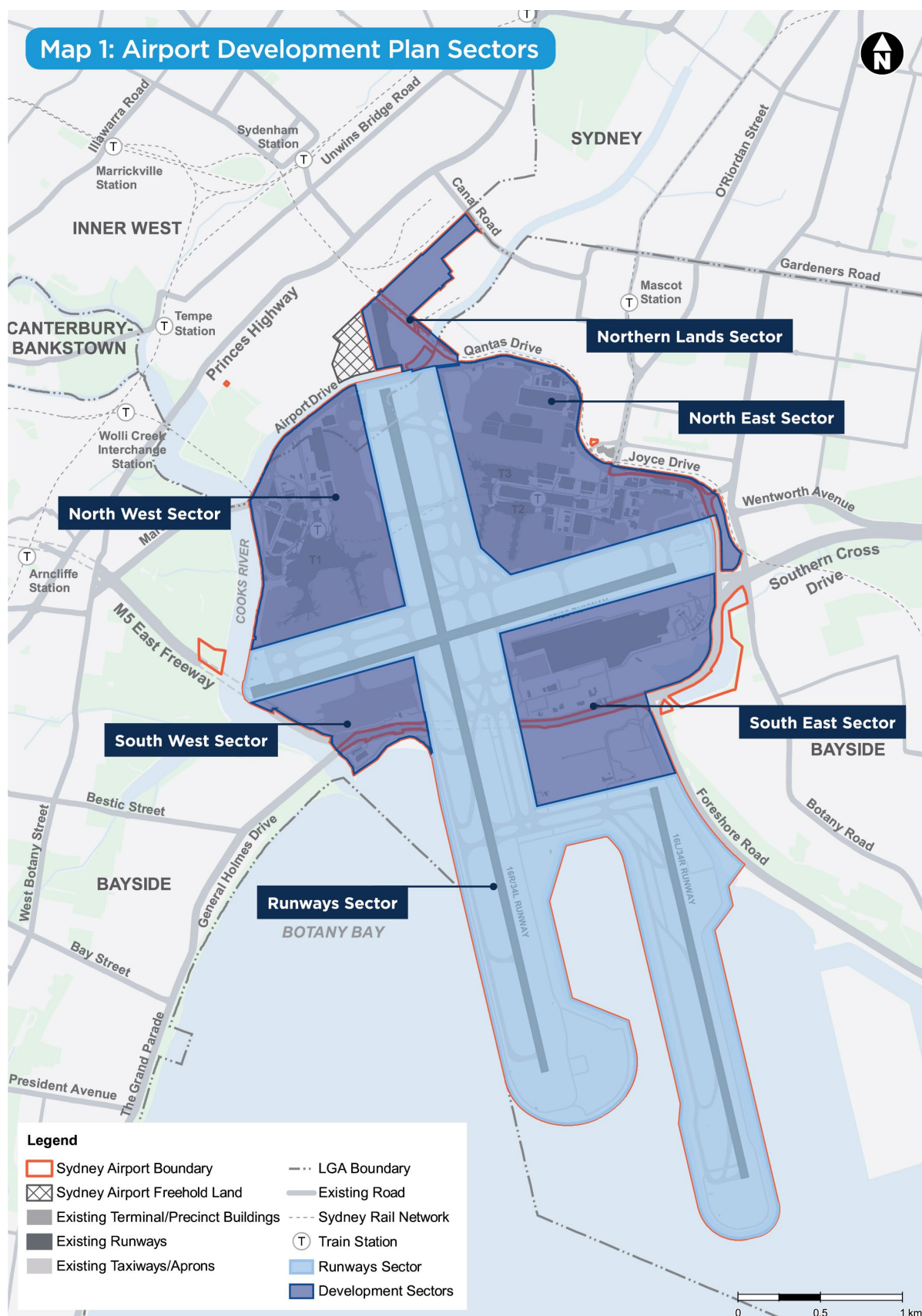


Figure 4-4: Airport Development Plan Sectors

Source: Sydney Airport Masterplan 2036

4.3.2 Airport industrial precinct

The Airport industrial precinct contains mixed industrial uses such as container storage, urban support services, wholesalers, manufacturing, specialist suppliers and services. Businesses in the precinct generally cater to the LGA and wider region. The empty container parks would cater to both a domestic and international market. Empty container parks aid in the servicing of containerised trade. Businesses would have a higher dependency on access and connectivity and would be significantly reliant on efficient access to motorways. The Cooks River Intermodal Terminal (intermodal terminal) is located in this precinct. As discussed in Table 2-2, the intermodal terminal is a logistics centre and container park which is important to the container logistics freight function of Port Botany (NSW Ports, 2019). Construction work related to the development of WestConnex program of works at St Peters is also taking place within the area.

The precinct is zoned IN1 General Industrial under the *Marrickville LEP 2013*. The Sydney Airport northern lands sector (see Figure 4-4) is located in the Airport industrial precinct, which is subject to *Sydney Airport Master Plan 2039* zoning. AD3 – Airport logistics and support. Table 4-3 summarises the zone objectives and provides a sample of industries and companies in the precinct. Figure 4-5 illustrates the Airport industrial precinct and the project site.

Table 4-3: Airport industrial precinct zone summary

Land zone	Zone objectives	Sample industries	Sample companies
IN1 – General industrial (Marrickville LEP 2013)	<ul style="list-style-type: none"> To provide a wide range of industrial and warehouse land uses To encourage employment opportunities To minimise any adverse effect of industry on other land uses To support and protect industrial land for industrial uses To protect industrial land in proximity to Sydney Airport and Port Botany To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house. 	Container storage services, concrete batching, corporate offices, wholesalers, automotive repair, manufacturing and furniture retailing	Staging Rentals & Construction, Boral Concrete St Peters, Maritime Container Services, Visy Recycling, Sydney Airport North Car Park, Tiger Container Hire Sales and Modification Pty Ltd, Tyne Container Services
IN2 – Light industrial (Marrickville LEP 2013)	<ul style="list-style-type: none"> To provide a wide range of light industrial, warehouse and related land uses To encourage employment opportunities and to support the viability of centres To minimise any adverse effect of industry on other land uses To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area To support and protect industrial land for industrial uses To provide business and office premises for the purposes of certain art, technology, production and design sectors To enable a purpose-built dwelling house to be used in certain circumstances as a dwelling house. 	Wholesale trade, automotive repairs, computer consultants, food product supplier, vehicle rental, equipment rental, dance school	Rug Depot, Darkside Gym, Clearchoice Products Pty, WF O'Brien Sydney Door Specialists, Bravo Repair Centre, Knives and Stones, Network Brokers, Tempe Tyres Wholesale, Orana Car and Truck Rental, Gobblers

Land zone	Zone objectives	Sample industries	Sample companies
AD3 – Airport logistics and support (Master Plan zone)	<ul style="list-style-type: none"> Protect the long term viability and operational efficiency of Sydney Airport for its primary aviation function Facilitate the development of freight services and airport logistics (and ancillary office space) Facilitate compatible and ancillary functions within the zone provided that development does not render the land permanently unfit for aviation activities Ensure development is compatible, where practicable, with surrounding land uses in this area Ensure heritage items are appropriately considered and managed. 	Construction material recycling	Sydney Airport North Car Park, Boral Recycling St Peters

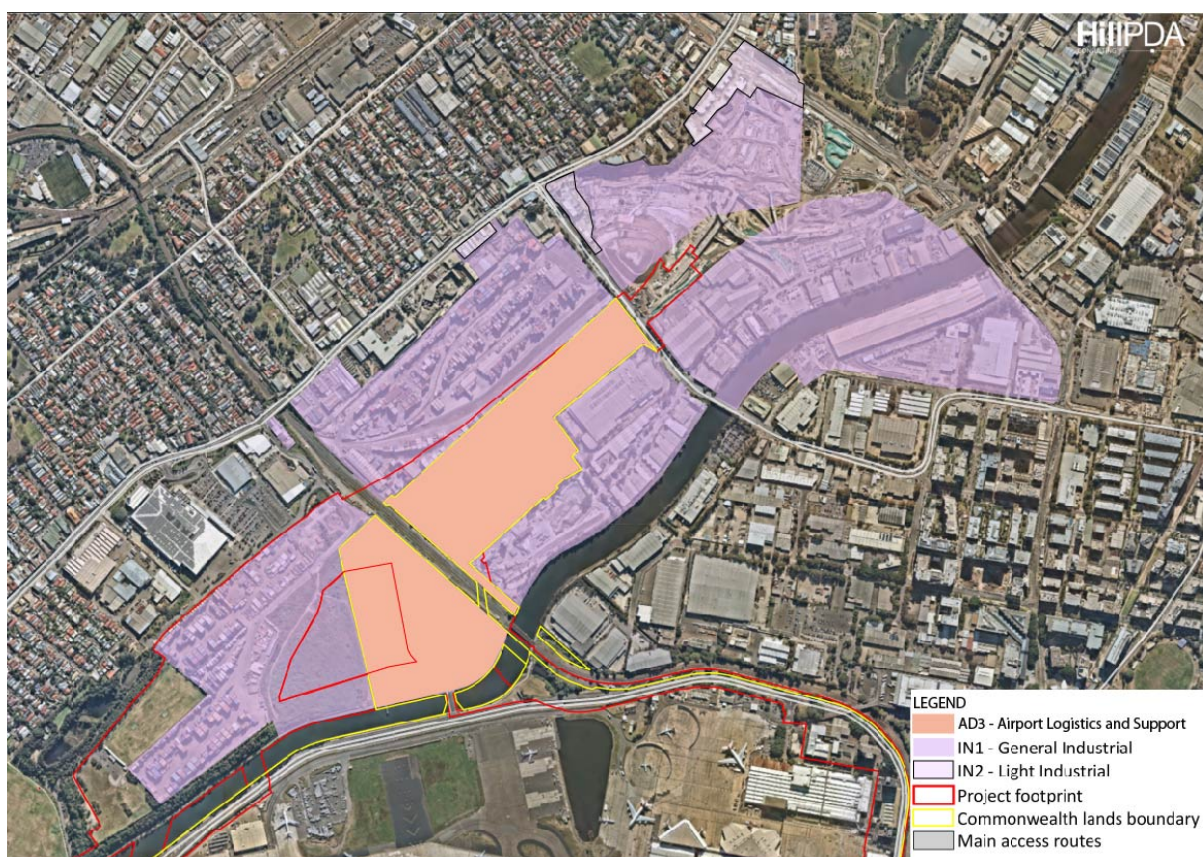


Figure 4-5: Airport industrial zones

4.3.3 O’Riordan Street business precinct

The O’Riordan Street business precinct has a large proportion of short-term accommodation, car rental services and airline corporate headquarters. Businesses in this area demonstrate strong synergies with Sydney Airport. Short-term accommodation providers would most likely be sensitive to alterations in amenity and reduced connectivity with the airport. Businesses in the precinct generally cater to the LGA and wider region.

Figure 4-6 illustrates the area referred to as O’Riordan Street business precinct in relation to the project site. The precinct is zoned B5-Business Development. Table 4-4 summarises the zone objectives and provides a sample of industries and companies in the precinct.

Table 4-4: O’Riordan Street business precinct summary

Land zone	Zone objective	Sample industries	Sample companies
B5 – Business Development	To enable a mix of business and warehouse uses, and bulky goods premises that require a large floor area, in locations that are close to, and that support the viability of, centres.	Serviced apartments and hotels, food wholesalers, hospitality suppliers, airline corporate headquarters, early learning centre, corporate offices, food manufactures/suppliers, car rental, airport parking, hospitality services, courier services	Automotive repairs, Ibis Sydney Airport, Colliers International, Daiwa Food Corporation, Pullman Sydney Airport, Suprema Foods Australia, Hertz Car Rentals, Redspot Car Rentals, Mascot Airport Parking, Mezza Train Mascot, QANTAS, Mascot Car Wash, Stamford Plaza Sydney Airport, Citadines Connect Sydney Airport, Quest Mascot, RSL Cabs, Regional Express



Figure 4-6: O’Riordan Street business precinct

4.3.4 Ricketty Street business park precinct

The Ricketty Street business park precinct includes mainly urban services (such as automotive repairs, storage, postal services etc), suppliers, distribution/warehousing centres, wholesale trade and manufacturing. Businesses in this area would service the LGA and wider region and have a high dependency on access and connectivity. Businesses are unlikely to be dependent on passing trade and business exposure as their customer base extends beyond the local catchment. The sample industries identified would mostly have a low sensitivity to amenity impacts. The hospitality uses in the precinct would predominantly service local workers and are unlikely to be dependent on passing trade.

Figure 4-7 illustrates the Ricketty Street business park precinct and the project site. The precinct is zoned B7-Business Park. Table 4-5 summarises the zone objectives and provides a sample of industries and companies in the precinct.

Table 4-5: Ricketty Street Business Park summary

Current land zoning	Zone objectives	Sample industries	Sample companies
B7 – Business Park	<ul style="list-style-type: none"> To provide a range of office and light industrial uses To encourage employment opportunities To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area To encourage uses in the arts, technology, production and design sectors. 	Concrete batching, freight forwarding services, building and trade material suppliers, event planning, Asian supermarket, equipment suppliers, distribution centre, automotive, landscaping suppliers, textile manufacturing, medical equipment manufacturing, food manufacturing, shelving store, electronics manufacturer, indoor recreation, food product supplier and general retail	Uniair Cargo Australia, JPJ Audio, City Hydraulics, Greyhound Freight, Procal Dairies, International Cargo Express, Permathene Pty Ltd, HY-TEC, Trend Lighting, Porter's Paints, Redy2Go, Ricketty's Gourmet Café, Instyle, Athlegen, Azima and Centurion, Michael Bros Automotive, Access Hardware, Maloufs, EATON, On-track technology, Ice Zoo Sydney, Farmer Joe's Chickens



Figure 4-7: Ricketty Street business park

4.3.5 Mascot station precinct

The Mascot station precinct is located close to Mascot railway station and predominantly provides commercial and retail services to support the relatively new resident population surrounding the station. Buildings in the area generally contain ground floor shopfront premises with shop top housing above. Some short-term accommodation is also located in the area. Businesses in the area would support a predominantly local catchment including residents and workers. Businesses in this area are considered to have a dependency on passing trade, business visibility and good amenity.

The precinct is zoned B2 – Local Centre. Table 4-6 summarises the zone objectives and provides a sample of industries and companies in the precinct. Figure 4-8 shows the Mascot Town Centre precinct and the project site.

Table 4-6: Mascot station precinct summary

Land zone	Zone objectives	Sample industries	Sample companies
B2 – Local Centre	<ul style="list-style-type: none"> To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area To encourage employment opportunities in accessible locations To maximise public transport patronage and encourage walking and cycling. 	Fast food/ restaurants, cafes, other speciality food retailing, supermarket, florist, chemist, short-term accommodation	BWS, Woolworths, Dominos, Priceline, Cuppa Flower, La Bufala, Meriton Suites Mascot Central, Sumo Ramen, Camy's Chargrill Chicken
B4 – Mixed Use	<ul style="list-style-type: none"> To provide a mixture of compatible land uses To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling To ensure uses support the viability of centres. 	Short-term accommodation, recruiter, gym, laboratory, cafes, fuel services, auto-electrical services, dance school	Futra iApartment, Caltex Mascot, Anytime Fitness, Bourke and Hare, Active Kids Group M, Labsupply Australia Pty, Hitech

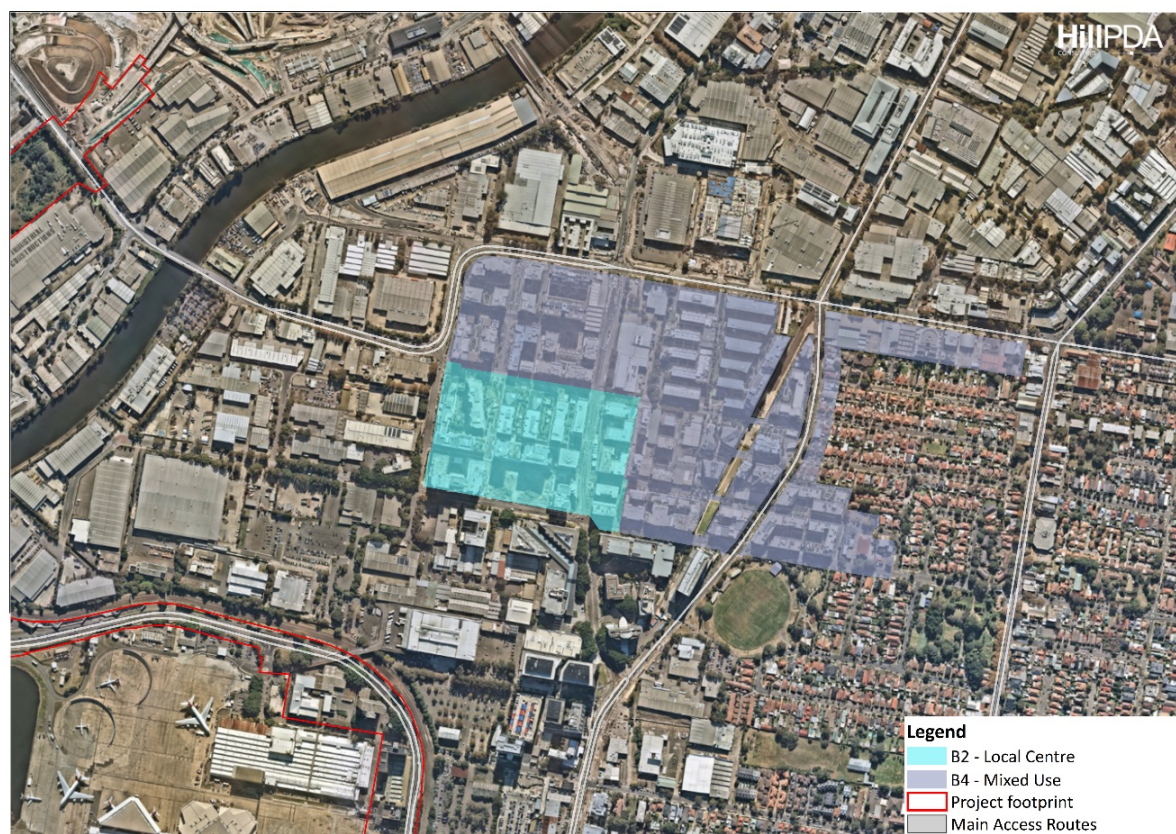


Figure 4-8: Mascot station precinct

4.3.6 Qantas Drive industrial

Qantas Drive industrial precinct is closely linked to airport and freight activity, with a high presence of distribution centres, logistic and freight services. Businesses would generally service a regional, interstate and potentially international client base. The sample industries have a higher dependency on access and connectivity, lower dependency on passing trade and would be reliant on efficient access to motorways. The businesses would have lower sensitivities to changes in amenity.

This precinct is zoned IN2 – General Industrial. Table 4-7 summarises the zone objectives and provides a sample of industries and companies located in the Qantas Drive industrial precinct. Figure 4-9 illustrates the Qantas Drive industrial precinct and the project site.

Table 4-7: Qantas Drive industrial summary

Land zone	Zone objectives	Sample industries	Sample companies
IN2 – General Industrial	<ul style="list-style-type: none"> To provide a wide range of industrial and warehouse land uses To encourage employment opportunities To minimise any adverse effect of industry on other land uses To support and protect industrial land for industrial uses. 	Distribution centres, cafes, logistics service, freight forwarding service, professional services, courier services, airline catering, airline corporate supply chain, airline training facilities, clothing supplier, steel fabrication, mail service, flooring contractor	Woolworths Online Store, Hellmann Worldwide Logistics, DSV Air and Sea Sydney, Bailey Personnel, Nippon Express, Toll, Qantas Catering, Qantas Distribution



Figure 4-9: Qantas Drive industrial

4.3.7 Princes Highway enterprise corridor

Princes Highway enterprise corridor extends around 2.5 kilometres along the Princes Highway from the Cooks River in the south to around Albert Street in the north. Businesses in this area predominantly consist of bulky goods/large format retailers, fast food restaurants, manufacturing wholesalers, short-term accommodation, transport and warehousing and some urban services. The majority of businesses front the Princes Highway with passing trade and accessibility for customers, workers and services to and from the highway being of particular importance to these businesses. Businesses would service the LGA and wider region.

The precinct is zoned B6 – Enterprise Corridor. Table 4-8 summarises the zone objectives and provides a sample of industries and companies in the Princes Highway Enterprise Corridor precinct. Figure 4-10 illustrates the Princes Highway enterprise corridor precinct and the project site.

Table 4-8: Princes Highway enterprise corridor zone summary

Land use	Zone objectives	Sample industries	Sample companies
B6 – Enterprise Corridor	<ul style="list-style-type: none"> To promote businesses along main roads and to encourage a mix of compatible uses To provide a range of employment uses (including business, office, retail and light industrial uses) To maintain the economic strength of centres by limiting retailing activity To provide for residential uses, but only as part of a mixed development To enable a purpose-built dwelling house to be used in certain circumstances as a dwelling house. 	Transportation services, auto repair services, bulky goods/large format retailers, car rental, wholesaling, short-term accommodation, fast-food retailers, health and recreation and general retail	Transit Systems: Tempe Depot, Riders Highway, IKEA, Orana Car & Truck Rental, Hard Rock Clothing, Tempe Tyres Wholesale, Tempe Mechanical & Smash Repairs, The Good Guys, KFC, McDonald's, Southern Cross Hotel, Ibis Budget St Peters, Flash Hand Car Wash, Fitness Empire



Figure 4-10: Princes Highway Enterprise Corridor zone spatial extent

4.4 Total number of businesses

At the time of the data collection, the study area contained around 12,957 registered businesses (ABS, 2019). The distribution of business counts by industry across the study area is illustrated in Figure 4-11. The figure indicates that the types of businesses most commonly located in the study area are professional, scientific and technical services (13.9 per cent), rental, hiring and real estate services (13.3 per cent), construction (12.1 per cent) and transport, postal and warehousing (10.6 per cent). A more detailed breakdown can be found in 0.

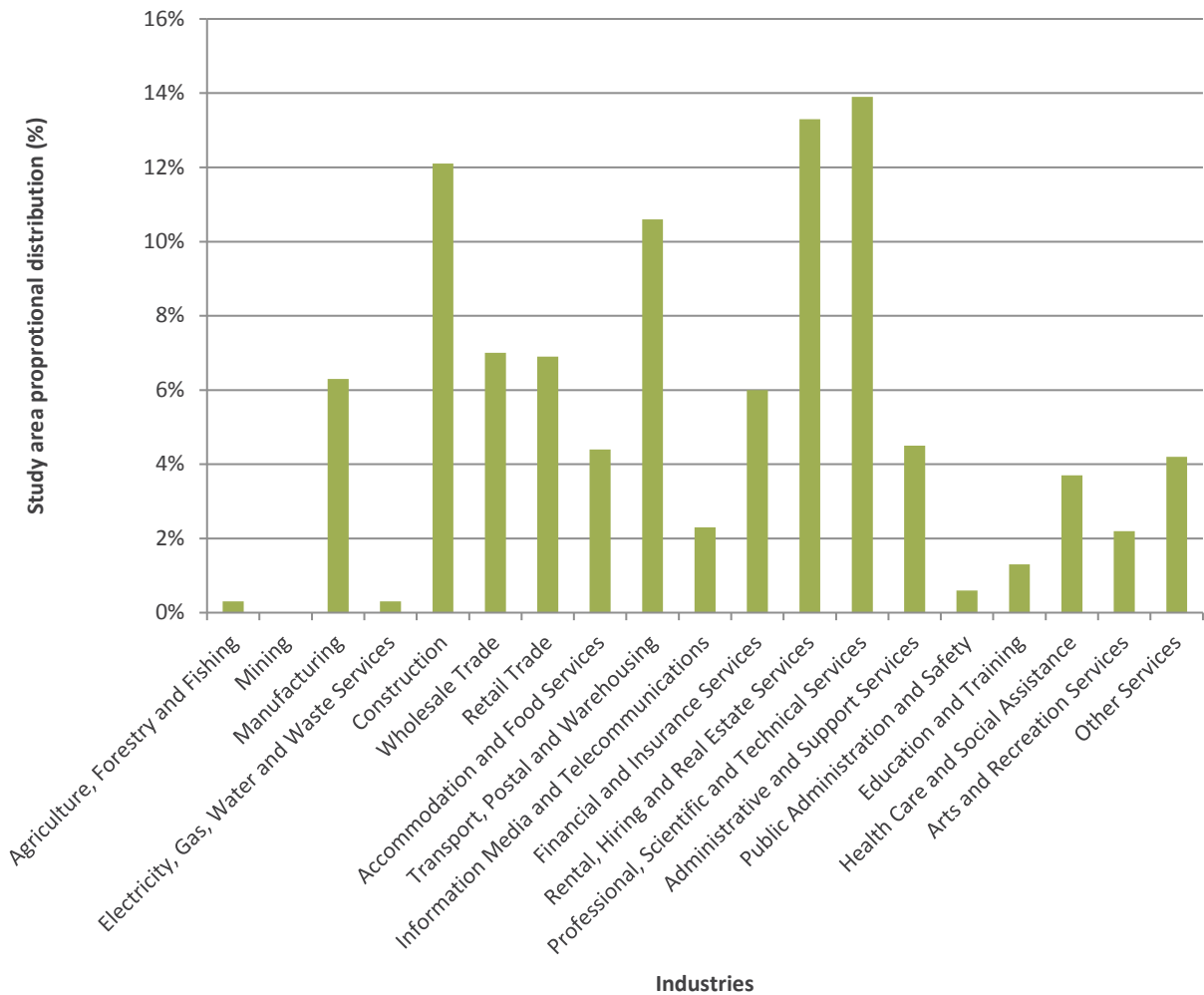


Figure 4-11: Study area SA2 business count by industry sector

Source: ABS, 8165.0 – Counts of Australian Businesses, including Entries and Exits (2017) *Information for Sydney Airport SA2 is not a true reflection for the number of businesses on the land

4.5 Employment by industry

In 2016, around 86,305 people were employed within the study area (ABS Place of Work, 2016). Note that the ABS records 9266 persons employed within Sydney Airport SA2, whereas the Sydney Airport Master Plan report indicates 32,700 full time equivalent jobs relating to airport lands. Figure 4-12 reflects the ABS Census data only and shows that the top three industries of employment were transport, postal and warehousing, retail trade and manufacturing. A detailed breakdown can be found in 0.

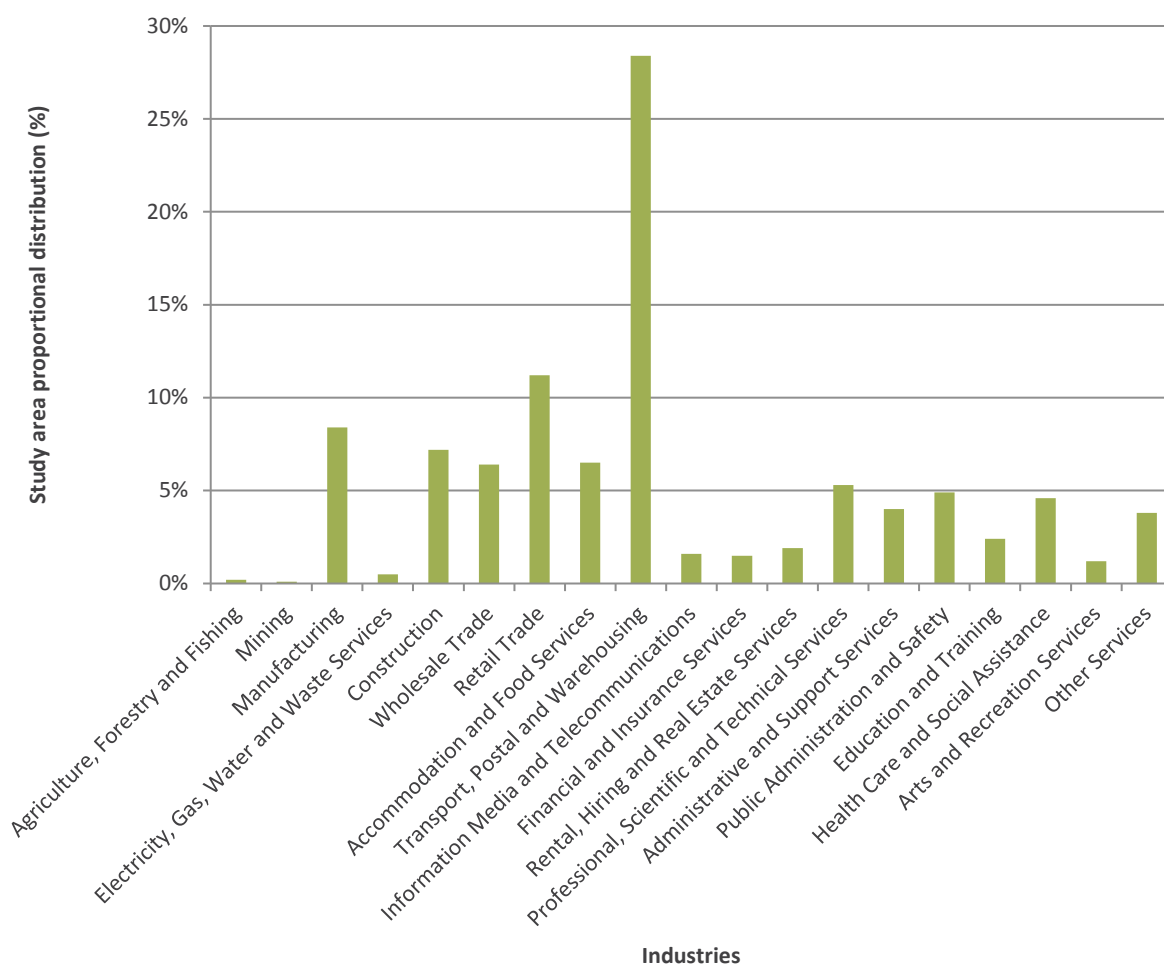


Figure 4-12: Study area employment by industry sector

Source: ABS Census 2016 – Place of Work – Counting Employed Persons (1 Digit Level by SA2)

4.6 Industry value added

Industry value added refers to the economic contribution (total value of goods and services) produced by an industry, minus the cost of goods and services used in the production process per year. Industry value added is a more refined measure of economic contribution than gross output as some industries have higher levels of output but require large amounts of input expenditure to achieve that (eg mining versus retail sales).

Small area estimates of industry value added (eg at the SA2 level) are not routinely provided by the ABS as part of their standard release. As a result, to estimate local economic activity HillPDA multiplied total Botany or Inner West worker productivity (sourced from economy.id) by the most recent industry employment estimates within the study area (sourced from ABS place of work – SA2 level). Using this approach, the study area was found to generate around \$10.04 billion of industry value added per year. A detailed breakdown can be found in 0.

Figure 4-13 illustrates the proportional distribution of industry value added by industry sector for the study area. The values in the figure exclude the categories of inadequately described, not stated and not applicable. The figure indicates that transport, postal and warehousing proportionally contributes 30 per cent of the overall study area industry value added, far greater than the next largest economic contributions of manufacturing (8.2 per cent) and wholesale trade (7.8 per cent).

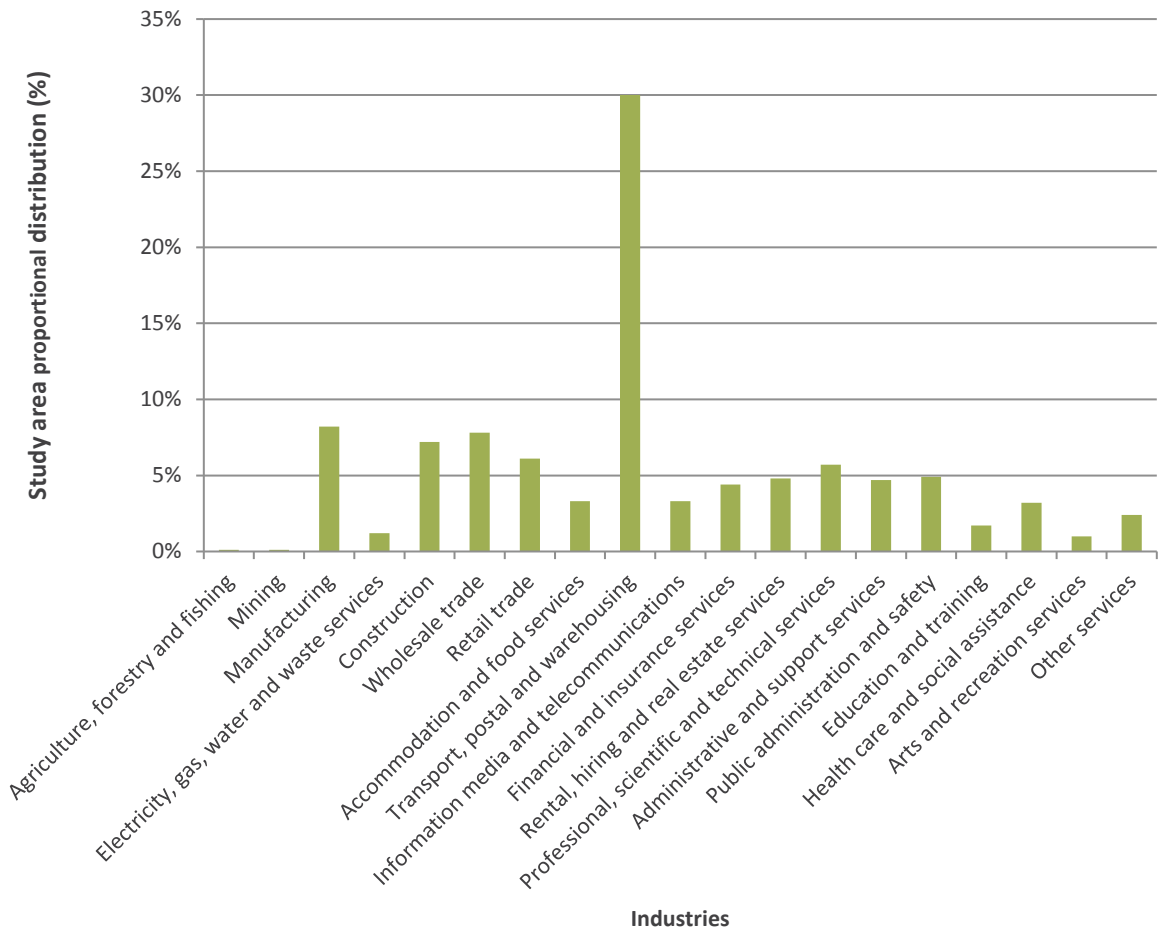


Figure 4-13: Annual industry value added by industry sector (\$million per year, rounded (year 17/18)

Source: ABS place of work and Economy ID – adapted by HillPDA, 2018

4.7 Transport

4.7.1 Journey to work

As can be seen in Figure 4-14, the majority (62 per cent) of employees working in the study area travelled to work by private vehicle. Travelling by train was another key travel mode at 17 per cent. Travelling by bus and active transport was four per cent respectively. A full breakdown of journey to work across the various travel modes and SA2 locations can be found in Appendix C.4.

■ Active ■ Bus ■ Train ■ Private vehicle ■ Worked at home ■ Other ■ Did not work/not stated

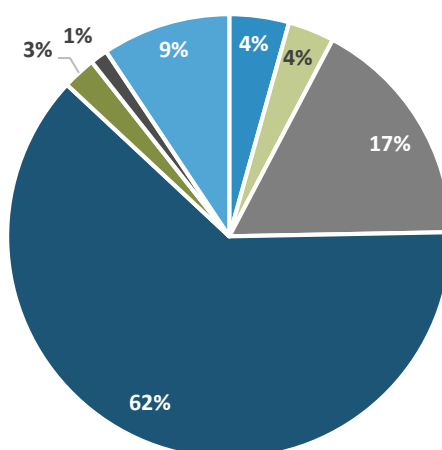


Figure 4-14: Employee journey to work

Source: ABS Census 2016, Method to travel to work by SA2

4.7.2 Road freight and arterial networks

Technical Working Paper 1: Transport and Traffic identifies several major arterial roads and motorways in the study area that carry higher volumes of freight and commercial vehicles. Freight and arterial road connections are important for businesses and any changes would potentially affect business operations, goods distribution, costs and revenue.

The freight and logistics industry is important to the NSW economy and drives economic activity. The *NSW Freight and Ports Plan 2018* (Transport for NSW, 2018a) estimates that freight and logistics contributed \$66 billion per annum to NSW State Gross Product in 2017, with the estimated value of products moved by freight in NSW over \$200 billion per annum (Transport for NSW, 2018b). A large proportion of goods are imported and exported to and from Port Botany, in Sydney. In addition, in 2017, Sydney Airport handled 643,000 tonnes of air freight. Sydney Airport Corporation in 2018 estimated that it contributed around \$17.6 billion annually from freight exports (Sydney Airport Corporation Limited, 2018).

The *Future Transport Strategy 2056* estimates that road, rail and air freight volumes could double in Greater Sydney in the next 40 years in response to population growth, increased consumer expectations, online technologies and the decline in manufacturing (Transport for NSW, 2018b). Air freight forecasts for Sydney Airport indicate a growth from 643,000 tonnes in 2017 to 1,018,000 tonnes in 2039 (Sydney Airport Corporation Limited 2018b). Businesses are becoming increasingly dependent on product and service distribution, with efficiency and reliability of the road network being fundamental to the economic prosperity of businesses and cost savings for the end customer.

The freight industry is expected to increase by 28 per cent to 618 million tonnes compared to 2016 (Transport for NSW, 2018a). 'First and last mile' freight would be partially driving this growth with a substantial increase in

small parcel movements and direct-to-consumer deliveries. Over 70 per cent of total freight in 2016 was moved by roads in heavy vehicles. This is likely to continue (Transport for NSW, 2018a). Increasingly, road freight is subject to congestion and capacity constraints, particularly on the M4 and M5 motorways in peak periods and around Sydney Airport and Port Botany.

Delays in vehicle movements directly affect businesses expenditure and productivity. The former NSW Long Term Transport Master Plan estimates Sydney's congestion costs around five billion dollars per year – equivalent to an annual cost of \$1100 per capita within Sydney. Without action, these costs are forecast to rise to \$14.8 billion per year by 2031 (Infrastructure Australia, 2015)

4.7.3 Public transport

Technical Working Paper 1: Transport and Traffic identifies that the project is located near the junction of several heavy rail lines. Sydney Airport is serviced by the T8 Airport and South Line. The underground portion of the line extends from Wolli Creek to Central with stations at the International Airport, Domestic Airport, Mascot and Green Square. The T4 Eastern Suburbs and Illawarra line runs near the western edge of the project site with stations at Wolli Creek, Tempe, and Sydenham, interchanging with the T8 Airport and South line at Wolli Creek. Some employees and customers accessing businesses in the study area would utilise the rail services.

The key bus corridors and the related bus routes within the study area are as follows:

- Princes Highway – 348, 418, 422, 425
- O'Riordan Street and Bourke Road – 305, 307, 357, 400, 420, 420N
- Botany Road – M20, 301, 303, 307, 309, 309X, 310X, 400, 420, 420N
- Gardeners Road – X93, 305, 357, 418
- Marsh Street, Airport Drive and Qantas Drive – 400, 420, 420N.

Changes in road accessibility, including congestion and alterations may affect bus routes and the efficiency of travel time for employees and customers accessing businesses in the area.

4.7.4 Active transport

Technical Working Paper 1: Transport and Traffic describes the active transport environment. The key cycling infrastructure is made up of three key off-road links: Alexandra Canal shared path, Cooks River shared path and its connections and the Bourke Road cycleway. The active transport network has been updated to improve connections across the area, with future plans also proposed to increase active transport connectivity.

4.8 Amenity

4.8.1 Noise

Technical Working Paper 2: Noise and Vibration describes the existing acoustic environment of the study area, with noise levels largely attributed to transportation activities. This includes aircraft flyovers, rail movements, and light and heavy vehicle movements. Noise impacts are generally greater during business hours, with reduced noise levels during morning, evening and night-time periods due to reduced air and ground traffic. This is further reduced outside of Sydney Airport's operational hours of 6 am to 11 pm.

Additional noise impacts have been attributed to operational activities associated with light industrial premises in the surrounding area, largely identified during standard business hours.

The location of hotels and associated precincts are identified in Table 4-9.

Table 4-9: Hotel receptor locations

Precinct	Description	Address	Sydney Airport land?
Airport industrial	Southern Cross Hotel	340 Princes Highway, St Peters	-
Sydney Airport – north-west sector	Rydges Sydney Airport	Sydney Airport, 8 Arrival Circuit, Mascot	Yes
Sydney Airport – north-east sector	Ibis Budget Sydney Airport	5 Ross Smith Avenue, Mascot	Yes
	Mantra Hotel	3 Ross Smith Avenue, Mascot	Yes
	Future Airport Hotel (land use option)	Qantas Drive and Seventh Street, Mascot	Yes
O’Riordan Street business	Holiday Inn	Corner of O’Riordan Street & Bourke Road, Mascot	-
	Ibis Sydney Airport	205 O’Riordan Street, Mascot	-
	Stamford Plaza Sydney Airport	Corner of Robey Street & O’Riordan Street, Mascot	-
	Adina Apartments	17 Bourke Road, Mascot	-
	Travelodge	289 King Street, Mascot	-
	Pullman Hotel	191 O’Riordan Street, Mascot	-
	The Branksome Hotel	60 Robey Street, Mascot	-
	Quest Mascot (Hotel)	108-114 Robey Street, Mascot	-
	Citadines Connect Sydney Airport	121 Baxter Road, Mascot	-

Source: Technical Working Paper 2: Noise and Vibration, SLR 2019

4.8.2 Visual

The Technical Working Paper 13: Place Making, Urban Design and Visual Impacts describes the character of the study area, including the physical and visual settings associated with urban form. The study area, centred on the northern perimeter of Sydney Airport and across Alexandra Canal, is high urbanised with industrial and business uses surrounding the primary Sydney Airport use. Supporting transport infrastructure, comprising road and rail assets, is interspersed between the uses, servicing Sydney Airport and surrounding businesses.

The built form across the study area is largely dependent on land use. Western industrial, warehousing and business park uses are generally one to two storeys, while eastern hotel and commercial buildings are generally six storeys tall. Floor plate sizes vary across the study area, largely based on lot sizes.

The study area is also notable in the abundance of advertising and dedicated at-grade and multi storey car parking. Large free standing advertising structures address the existing road corridors, blocking views of vegetation, businesses and infrastructure. Car parking is largely associated with Sydney Airport passenger and employee car parking and dedicated parking for certain large lot developments (eg hotels and bulky good premises).

Vegetation in the study area is of mixed quality and biodiversity value, with native and exotic vegetation planted along roads and as part of development, native vegetation communities in Tempe recreation areas, formal open space associated with parks and overgrown undeveloped land.

This mix of uses provides a variety of landscape elements unique to the study area, with several landscape character zones applicable to local businesses.

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5.0 CONSULTATION FINDINGS

This section describes consultation carried out with local businesses in proximity to the project site. Consultation allows for an understanding of values and sensitivities within a community. The consultation strategy and approaches used to consult on the project are described, along with the result of consultation with stakeholders.

5.1 Broader consultation findings

In addition to the findings identified in the below section, Roads and Maritime undertook other engagement activities between September and October 2018 and May to June 2019. The main activities included:

- Distribution of 22,000 community updates to homes and businesses
- Door knocking over 470 local residents and businesses
- Three information sessions, with 101 people in attendance
- Five information booths, with 387 people in attendance
- Reaching 94,000 people via Facebook posts
- Sydney Gateway road project interactive website attracting over 8,500 visitors
- Individual stakeholder briefings.

Key issues raised and feedback received during the broader consultation activities that are of relevance to this technical working paper include:

Traffic

- During construction, the project would cause travel delays for retailers, pilots, cabin crew, suppliers and employees traveling to work, particularly for employees who are performance measured on punctuality.
- Congestion on surrounding motorways and around the airport precinct would impact the customer experience.

Business and revenue

- Employee travel delays would result in financial implications for airlines.
- Construction staging, height of the road, proposed traffic volumes and reduced travel times would impact on advertising revenue for advertisers.
- The project would cost businesses money through loss of trade due to ongoing construction impacts.
- The project would impact how advertising is installed and promoted throughout the airport precinct.
- Tempe Golf Range and Academy should be relocated to a mutually agreed site of similar size and located within Council's LGA to provide benefits and income for Council services.

Empty container industry

- The closure of Tyne Containers at Tempe would divert containers to other facilities like the Cooks River Intermodal Terminal, increasing the volume of heavy vehicles in St Peters.
- Empty containers should be deferred to Port Botany and repositioned.
- Loss of this investment land would significantly impact on Council financially as it is significant revenue.

Heavy vehicle and freight operations

- Concern is expressed over the impact on empty container storage from the loss of Tyne Containers at Tempe, as no similar size sites are available for the facility's relocation in proximity to the existing site. A consequence of relocating this site, and possibly creating several small sites, would require alterations to existing freight movements.

Chapter 4: Consultation and the Community and Stakeholder Consultation Report (Roads and Maritime, July 2019) provide a full overview of the consultation findings.

5.2 BIA Consultation methods

HillPDA, Roads and Maritime and Sydney Airport Corporation undertook community consultation and stakeholder engagement activities, including:

- Targeted direct consultation with businesses by Roads and Maritime representatives (and Sydney Airport Corporation where relevant)
- Face to face business consultation surveys by HillPDA and Roads and Maritime representatives
- Drop in sessions for Sydney Airport tenants held by Roads and Maritime and Sydney Airport Corporation.

Consultation generally focused on the impacts of land requirements, construction and operation of the project on the businesses surrounding the project site.

5.2.1 Targeted stakeholder consultation

Roads and Maritime undertook formal stakeholder consultation with businesses and landowners in the study area directly impacted by project land requirements. These stakeholders include Boral Concrete St Peters, Tyne Container Services, Maritime Container Services, Tempe Golf Range and Academy, Inner West Council, ARTC and Sydney Airport Corporation.

Roads and Maritime and Sydney Airport Corporation have also been engaging with airport tenants anticipated to be affected by the project including Qantas, AMG, Boral Recycling, Swissport and Visy Recycling. Sydney Airport Corporation is managing the ongoing negotiations with its tenants in regards to facilitating land use requirements for the project.

The table below outlines the characteristics of these stakeholders, the perceived effects of land requirements on their operations and potential mitigation measures that may be employed by Roads and Maritime.

Table 5-1: Targeted stakeholder consultation with directly affected landowners and leaseholders (off-Airport land)

Stakeholder	Issue area	Response
Boral Concrete St Peters	Type of business	<ul style="list-style-type: none"> Concrete batching plant.
	Unique features	<ul style="list-style-type: none"> Largest concrete batching plant supplier in Sydney Only concrete batching plant within 10 kilometre of inner city and supplies major development/infrastructure sites Concrete is perishable and must be dispatched and poured in a time window.
	Long term plans	<ul style="list-style-type: none"> Current development approval for upgrade and expansion of the concrete batching plant and materials handling.
	Direct property impact	<ul style="list-style-type: none"> Minor acquisition anticipated (one per cent of land) that would not impact operations of concrete batching plant Consultation ongoing regarding temporary impacts during construction.
	Potential business operation concerns	<ul style="list-style-type: none"> Changes to traffic conditions and access routes may disrupt concrete batching plant access Potential increase in service demand for concrete batching would be positive.
	Potential mitigations discussed	<ul style="list-style-type: none"> Modify design to reduce impacts to the site Maintain truck turning circles in project design Land requirements minimised Rail siding work to be done during track possession where possible, to limit any impacts to Boral operations.

Stakeholder	Issue area	Response
Tyne Container Services	Type of business	<ul style="list-style-type: none"> Empty container storage, container supplier, and modification/repair services.
	Unique features	<ul style="list-style-type: none"> Site owned by Inner West Council Family owned business, operating for 44 years on the site Employs 60 to 70 mix of permanent and contractors Serves international shipping market.
	Direct property impacts	<ul style="list-style-type: none"> Whole land parcel is required to facilitate the project.
	Potential business operation impacts	<ul style="list-style-type: none"> Relocation or potential closure of business Loss of income and business revenue – if unable to relocate before land is required for the project Impacts to employees, customer base and market share.
	Potential mitigations discussed	<ul style="list-style-type: none"> Ongoing communication regarding land requirements and possible relocation capacity opportunities.
Maritime Container Services	Type of business	<ul style="list-style-type: none"> Major international logistics provider and operator of Cooks River Intermodal Terminal Services include containerised freight movement by rail and road, container storage and related services.
	Unique features	<ul style="list-style-type: none"> Certain heritage items on site Site is primarily leased from NSW Ports (State land) with a small parcel sub-leased from Sydney Airport Corporation (Commonwealth land).
	Long term plans	<ul style="list-style-type: none"> Early planning is progressing for a development application for operational improvements on the site.
	Potential direct property impacts	<ul style="list-style-type: none"> Land leased from Sydney Airport/NSW Ports to be required for the project equating to around five per cent of the land leased from NSW Ports (State land) and the entire site leased from Sydney Airport Corporation Maritime Container Services would be unable to operate on Sydney Airport land Disruption of long-term investment plans for the site Access to rail siding may be disrupted during construction.
	Expected impacts on site operations	<ul style="list-style-type: none"> Alignment may impact on Maritime Container Services operational capacity, including use of the siding Future investment would need to consider alignment of the project Improved capacity and service reliability of the freight network would be beneficial Increased vehicle height clearance to airport terminals would be beneficial Greater road capacity to Port Botany.
	Potential mitigations discussed	<ul style="list-style-type: none"> Ongoing communication regarding acquisition and design Exploring opportunities for road design to shift away from the site to minimise impacts.

Stakeholder	Issue area	Response
Tempe Golf Range and Academy	Type of business	<ul style="list-style-type: none"> Golf training facility and driving range.
	Unique features	<ul style="list-style-type: none"> Family owned and operated business Site is owned by Inner West Council and leased to Tempe Golf Range and Academy.
	Long term plans	<ul style="list-style-type: none"> Site was recently refurbished, with further plans to invest in the site.
	Expected impacts during construction/operation	<ul style="list-style-type: none"> Land would be required to facilitate construction of the project with business leases ceased.
	Expected impacts on site operations	<ul style="list-style-type: none"> Land required for construction of the project Potential relocation or closure of business.
	Potential mitigations discussed	<ul style="list-style-type: none"> Ongoing communication regarding relocation and compensation strategy Business successful in securing a site at Campbelltown.

Roads and Maritime and Sydney Airport Corporation will continue consultation with these and other stakeholders that may be directly impacted by land requirements related to the project.

5.2.2 Business consultation surveys

Businesses were surveyed in locations anticipated to experience direct or indirect impacts from the project, generally within a one kilometre buffer around the project alignment and construction footprint. The survey was undertaken between November 2018 and March 2019.

The following factors were considered when determining the extent of the survey area:

- Roads and Maritime Construction Noise and Vibration Guideline (worst case scenario for urban/industrial environment)
- Noise catchment areas defined by the Technical Working Paper 2 – Noise and Vibration
- Business and industrial zones as applicable to the current relevant local environmental plans.

The surveys were of a cross-section of businesses including local retailers, commercial operators, freight and logistics and other businesses that could be affected directly or indirectly by the project.

Sydney Airport Corporation and Roads and Maritime also contacted over 70 businesses in the airport precinct to offer a project briefing on two separate occasions. Businesses included airlines, freight forwarders, car hire companies, billboard operators and retailers. Seventeen businesses accepted and were provided a project briefing on an individual basis.

A total of 115 surveys were completed. Completed surveys were collated using the online survey tool, Survey Monkey, with the data later consolidated and analysed. Themes gathered from the survey are discussed in the consultation summary in section 0, with a full analysis in 0.

5.3 Consultation summary

This section provides a summary of findings from the business consultation surveys. Findings have been divided into how respondents classify their businesses and requirements and the anticipated impacts of the construction and operational phases of the project.

5.3.1 Business characteristics and existing sensitivities

The survey collected information about businesses based on set questions and provided the opportunity to provide general comment.

While survey respondents were not asked specifically to comment on existing issues within the project site, these questions provide an opportunity to consider the characteristics of businesses in the survey area, their views and considerations relevant to the project.

Business characteristics

When considering the types of businesses in the survey area, the Australian and New Zealand Industrial Classification (ANZSIC) code was used. The ANZSIC business industry codes that were most commonly chosen by surveyed business respondents are outlined in Table 5-2.

Table 5-2: Distribution of common business types (ANZSIC)

Sector	Count	Per cent
Transport, postal and warehousing	21	18
Retail trade	20	17
Other (please specify)	16	14
Wholesale trade	13	11
Information media and telecommunications	10	9
Construction	7	6
Administrative and support services	6	5

The most common sector categorised by respondents was transport, portal and warehousing (18 per cent). These uses include a range of business types, including passenger airlines and freight facilities. The next most common responses were retail (17 per cent) or wholesale trade (11 per cent). Information and telecommunications (nine per cent), construction (six per cent) and administrative (five per cent) businesses are also relatively common in the survey area. The use of 'other' was generally chosen by government, auto parts/repair, aerospace businesses and non-government organisations, such as unions.

As shown by these responses, there were a variety of business types in the survey area, with a range of workers, visitors, needs and sensitivities. These dependencies and sensitivities are discussed below.

The majority (53 per cent) of survey respondents identified that their businesses employed between one and 10 personnel, around 19 per cent employed between 11 and 20 personnel, 16 per cent employed between 21 and 50 personnel and the remaining 11 per cent employed over 50 personnel.

The majority of respondents (59 per cent) indicated their businesses were open standard hours (ie 8 am to 5.30 pm), with the majority of staff (74 per cent) usually travelling to work by private vehicle.

Transport

In order to understand the transport needs of businesses, respondents were asked to consider the mode of transport their customers and clients used to access their businesses, their general business catchments, their parking habits and when they typically took deliveries. They were also given the opportunity to provide general feedback as part of the survey, which generally considered the topic of transport.

From a business survey respondent perspective, the majority of respondents (77 per cent) indicated that customers and clients typically travelled to their businesses via private vehicle.

When asked to consider where their customers were from, respondents chose their local suburb, local government area, the wider district, or the greater Sydney or wider area. The majority of businesses indicated that they attracted customers (72 per cent) travelling from greater Sydney or wider. About 12 per cent indicated that their catchment extended to the district, while 14 per cent considered their catchment to include the LGA. About three per cent stated that their customers only came from the local suburb.

With relation to parking, 85 per cent of respondents indicated that their business had some level of off-street parking. In a separate question, 37 per cent of respondents indicated that their businesses relied on on-street parking. Thirty-three per cent of respondents indicated that their business both had off-street parking and relied on on-street parking.

Nearly all respondents (93 per cent) indicated that their businesses required deliveries, with 47 per cent of those businesses taking deliveries during standard hours, nine per cent taking deliveries during the early morning, and one business taking deliveries after hours. The remaining businesses did not indicate when deliveries were received.

The following comments regarding transport needs were noted in survey responses:

Table 5-3: Business perceptions relating to transport issues

Issue type	Issue	Relevant businesses
Competition	<ul style="list-style-type: none"> Businesses lose customers and employees due to congestion. 	<ul style="list-style-type: none"> Transport, postal and warehousing Retail trade Other (Local services).
Delays	<ul style="list-style-type: none"> Staff arriving after 6am are often late due to traffic Freight cannot be reliably dispatched for 9am flights Travel time is considered a financial cost of being in the area Passengers are often late for flights due to traffic and place blame on airlines Congestion delays reduces time available to spend in retail outlets at the airport. 	<ul style="list-style-type: none"> Transport, postal and warehousing Retail trade Other (Local services).
Logistics	<ul style="list-style-type: none"> Deliveries are scheduled early morning (pre 6am) Deliveries after 6am can be late, resulting in delays at the airport Site-to-site trips within the study area contribute to congestion Containerised freight should be transported by rail away from airport. 	<ul style="list-style-type: none"> Transport, postal and warehousing Other (car rental).
Transport	<ul style="list-style-type: none"> Private vehicles are used due to poor early/late shift public transport access Rail access fee reduces staff and resident use of public transport Shared space between light/heavy vehicles presents safety issues Freight/industrial movements are disruptive and damage roads. 	<ul style="list-style-type: none"> Transport, postal and warehousing Retail trade Other (Local services).

These responses indicate a high value on predictable transport, with workers, customers, dispatching and deliveries impacted by delays associated with congestion. Project impacts to transport, such as increased congestion and travel times or loss of access, should be considered as a major sensitivity to businesses in the survey area.

Proximity to supporting land uses

The survey asked respondents if their businesses were dependent on proximity to certain land uses: the airport, the port, motorways and other businesses, with respondents able to choose more than one answer. Analysis of outcomes are made in Table 5-4 and Table 5-5. The table below shows the number of respondents that indicated their business was dependent on proximity to those uses.

Table 5-4: Dependence on proximity to supporting land uses

Supporting use	Count	per cent
Proximity to airport	49	43%
Proximity to port	22	19%
Proximity to motorways	66	58%
Other businesses in the area	70	61%

Overall, respondents indicated that their businesses were heavily dependent on proximity to other businesses and access to motorways. About half of respondents indicated that their business was dependent on proximity to the airport in some way, with less than a quarter requiring proximity to the port. It is noted that businesses did not describe why they were dependent, but potential reasons could include business-to-business trade, clustering/district effects, or passer-by trade.

The following table examines dependency on proximity to uses required by the most common business types.

Table 5-5: Dependence on proximity to supporting land uses, by common business type

Sector	Airport	Port	Motorway	Other businesses
Transport, postal and warehousing	75%	37%	75%	65%
Retail trade	25%	16%	58%	79%
Other	75%	25%	63%	75%
Wholesale trade	31%	31%	62%	46%
Information media and telecommunications	30%	0%	70%	40%
Construction	14%	0%	29%	29%
Administrative and supports services	50%	33%	67%	50%

According to these responses, transport, postal and warehousing businesses (eg airlines and freight) and 'other' businesses (eg aerospace, unions and car rental) were generally dependent on proximity to the airport, motorway and other businesses. While respondents indicated that retail trade businesses were less dependent on proximity to the airport and port, they were very dependent on proximity to other businesses and access to the motorway. Construction related businesses were not identified by respondents to be especially dependent on proximity to any of these land uses, suggesting that there is another reason for their locating in the area.

Considering these responses, it appears that businesses consistently value access within the study area and connections outside of the study area. These values provide additional context to the general transport theme above, suggesting that impeding connections temporarily or permanently would significantly alter how businesses operate within the area.

5.3.2 Perceptions on construction related issues and impacts

Effects of construction on businesses

Survey respondents were asked to consider how Sydney Gateway’s construction phase could impact their businesses. The results for each identified aspect are illustrated in Figure 5-1.

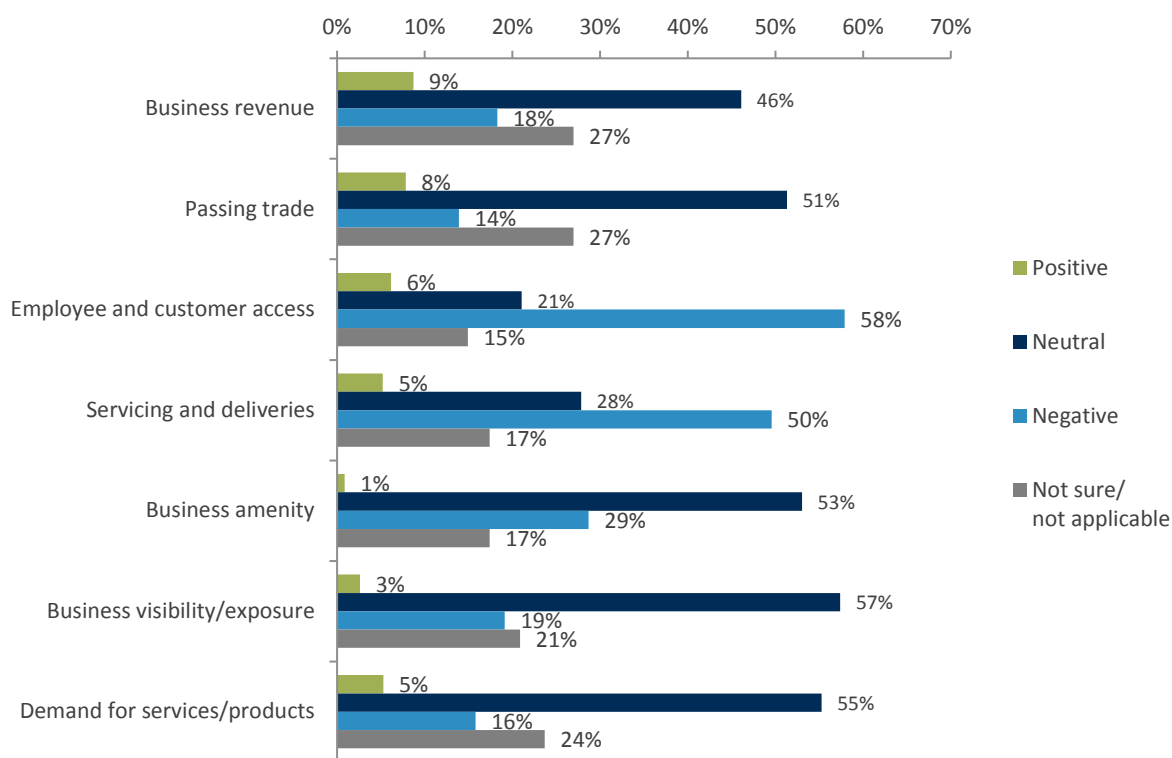


Figure 5-1: Anticipated impacts of construction phase

Most respondents were concerned about the potential negative effects of construction on transport-related matters, ‘employee and customer access’ and ‘servicing and deliveries’. This reflects the reliance on transport and related values described in section 5.3.1. Business amenity (28 per cent) was also flagged as an area of concern, discussed further in the next section.

It should be noted that some respondents were still somewhat concerned about the negative effects of construction on their overall viability (ie business revenue). Retail trade (40 per cent) and transport, postal and warehousing (24 per cent), the two largest sectors surveyed in the area, were most concerned about business revenue during the construction of Sydney Gateway.

Susceptibility of businesses to types of construction impacts

Respondents were asked to consider how their businesses were susceptible to different environmental impacts associated with construction. The general impact areas of traffic, air quality, noise and vibration were expanded to determine where businesses were specifically susceptible, with respondents able to select all relevant impact areas. The results for each potential impact resulting from the project’s construction phase are illustrated in Figure 5-2.

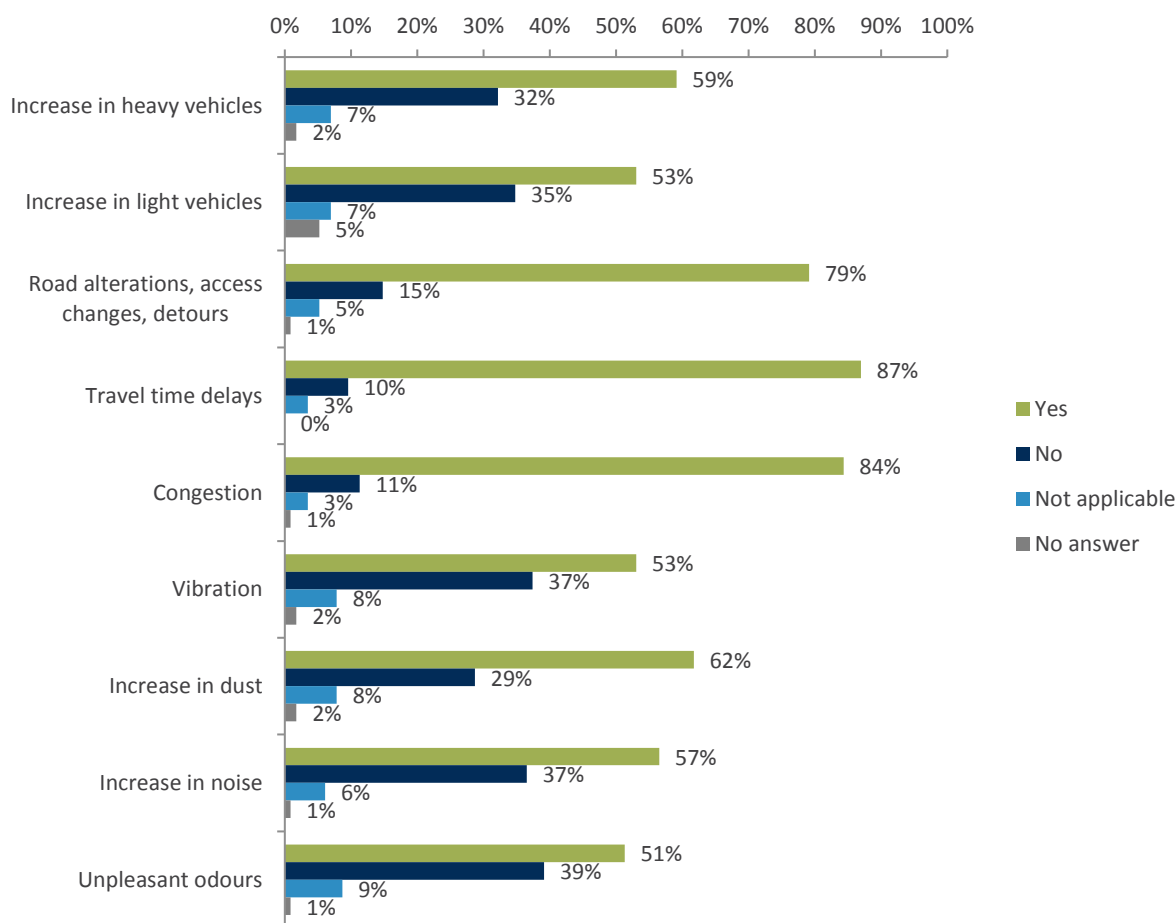


Figure 5-2: Business sensitivities to construction impact areas

About half of respondents (50 per cent) indicated that their businesses were generally susceptible to all impact areas. However, respondents considered that their businesses were most susceptible to impacts related to transport and access, with the following impact types being the highest risks:

- Travel time delays (87 per cent)
- Congestion (84 per cent)
- Road alterations, access changes and detours (79 per cent)

Increased traffic associated with heavy vehicles and light vehicles was also considered as relevant impacts (59 per cent and 53 per cent), in line with non-transport related impact types. Transport, postal and warehousing, retail trade, administrative and 'other' businesses type respondents considered their businesses to be susceptible to increased construction traffic more often than other business types.

As noted in the section above, when considering potential impacts of construction on businesses, 29 per cent of respondents indicated that construction would have a negative effect on business amenity. This question offers four types of environmental impacts that could impact on business amenity: vibration, dust, noise and odour. Over half of respondents indicated that their business would be susceptible to each of the impacts, with dust (62 per cent) and noise (57 per cent) being the more common impacts perceived to affect businesses.

As with transport related impacts, respondents associated with transport, postal and warehousing, retail trade, administrative and 'other' businesses considered their businesses to be susceptible to amenity related impacts more often than other respondents.

5.3.3 Perceptions of operational related issues and impacts

Overall view of the project

Respondents were asked to consider if the project would have positive, neutral or negative impacts on businesses in the area, or if they were unsure of the consequences to their businesses.

Of the respondents, the majority (43 per cent) believed that once operational, the project would have positive consequences for their business. Only two per cent of respondents believed that the project would have negative consequences for their business once operational.

Around 21 per cent of respondents believed that the project would have no consequences for their business once operational and 32 per cent were unsure of the consequences to their business.

Effects of the project on aspects of businesses in the future

Respondents were asked to consider how the project would affect various aspects of their businesses, once the project is complete.

The results for each potential effect on the project's operational phase are illustrated in Figure 5-3.

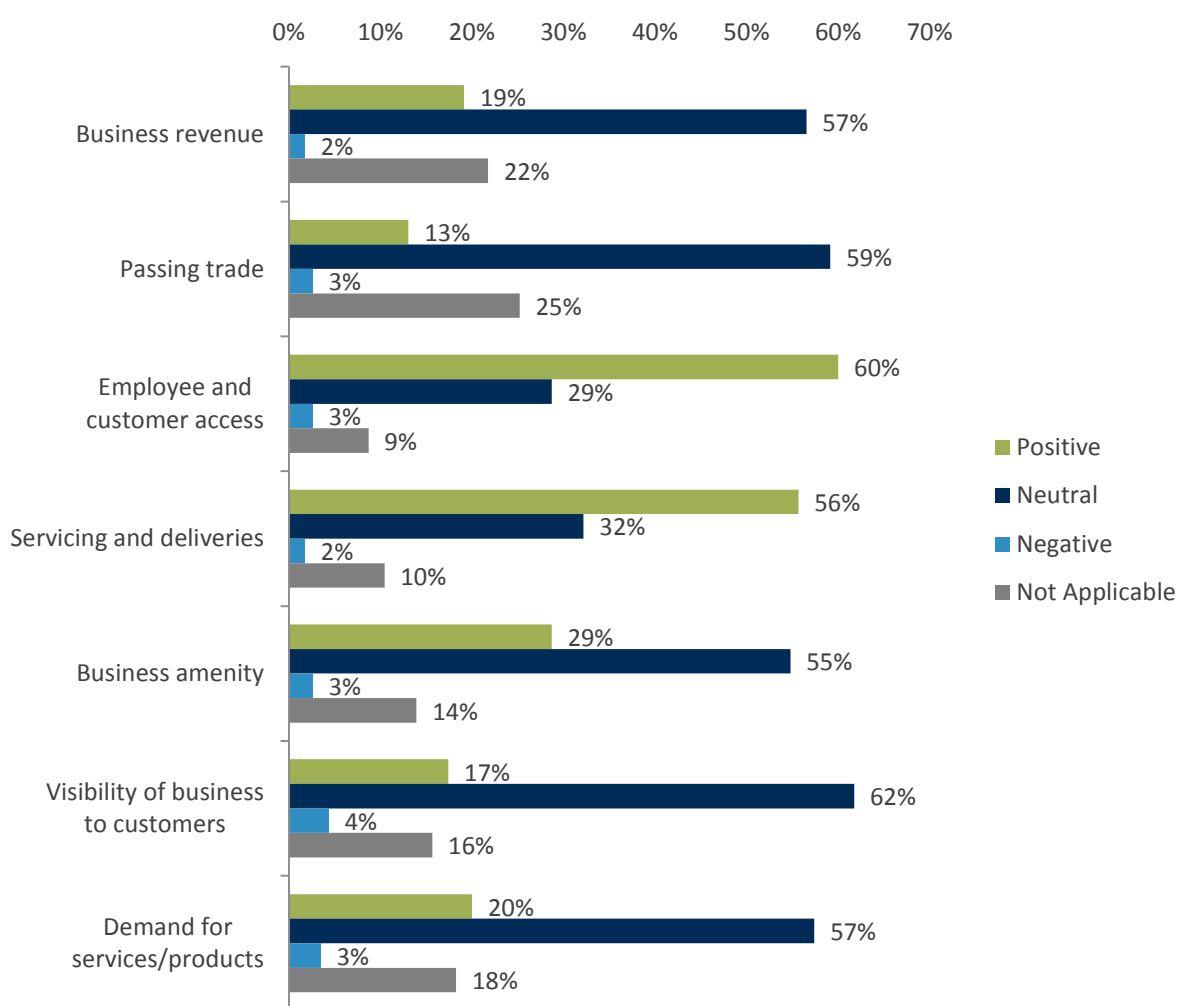


Figure 5-3: Anticipated effects of project operation on businesses

The majority of respondents have indicated that they expect the project to have positive impacts on transport related aspects of their businesses, namely 'employee and customer access' (60 per cent) and 'servicing and deliveries' (56 per cent).

Responses were generally evenly distributed by type of business, indicating a consensus that the project is expected to relieve some of the transport related issues that are currently felt in the area.

Effects of anticipated operational improvements on businesses

Respondents were asked to consider how the project outcomes of the project would affect their businesses. Respondents were given a list of project outcomes and asked if the outcome would have a positive, neutral or negative outcome for their business, or was not applicable to their business.

The results for each of the project outcomes of the operational phase are as illustrated in Figure 5-4.

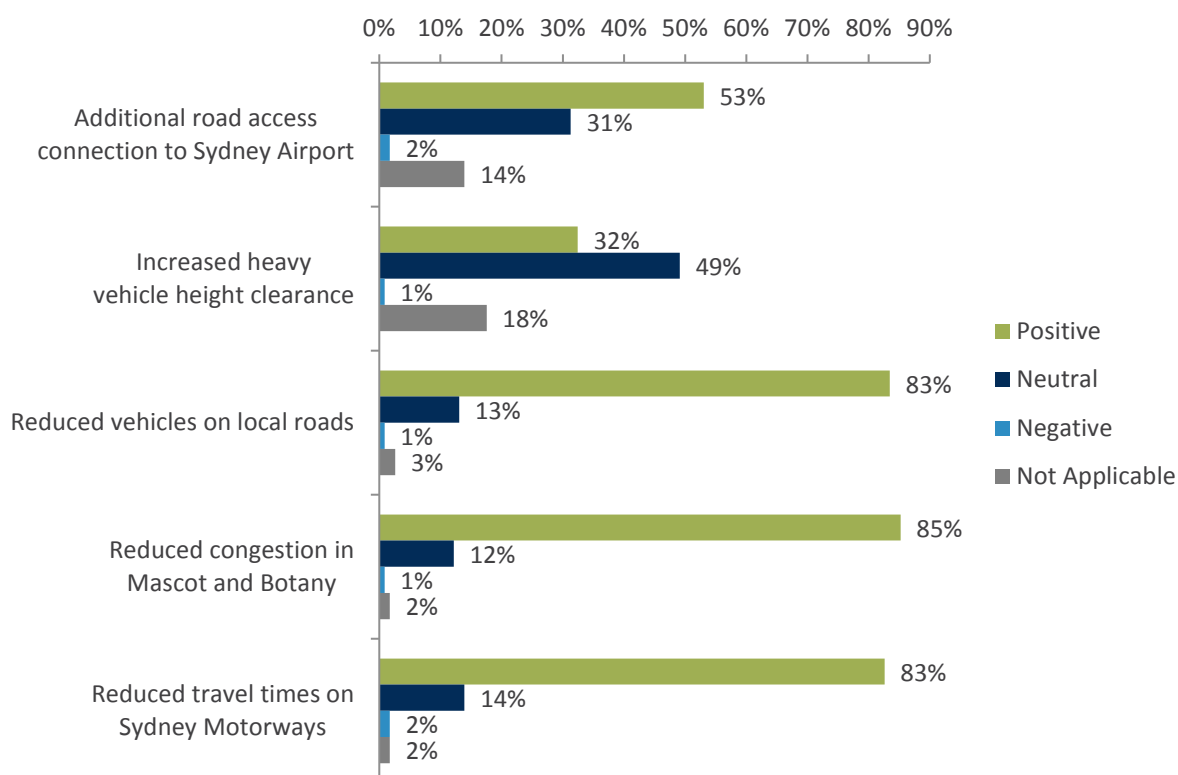


Figure 5-4: Anticipated effects of operational improvements on businesses

When asked to consider the key operational improvements that would be provided by the project, over 80 per cent of respondents indicated that improvements related to local and regional congestion and travel time improvements would be beneficial to their businesses. Additional road access connection to the airport was also considered a benefit by the majority of respondents, with increased height clearances seen as a benefit by about a third of respondents.

Notably, more transport, postal and warehousing businesses viewed the airport road access as a positive (71 per cent), while wholesale trade and construction respondents viewed the increased height clearances as a positive (54 per cent and 57 per cent). All three manufacturing businesses respondents anticipated benefits from these improvements.

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6.0 ASSESSMENT OF CONSTRUCTION IMPACTS

This section discusses the impacts that are likely to be experienced by local businesses due to construction work associated with the project. Construction work has the potential to impact businesses, employees and customers both positively or negatively. The proposed construction activities have been assessed to determine the type and magnitude of the impacts. Measures to avoid, minimise, manage and mitigate the impacts have been identified. Details of the proposed construction activities can be found in section 1.3.3 and Chapter 8 of the combined EIS/preliminary draft MDP. Technical working papers prepared for the combined EIS/preliminary draft MDP have informed the assessment.

6.1 Land requirements

The land requirements for the project involve several properties, including the temporary occupation of land, as detailed in Chapter 18 (Land use and property) of the combined EIS/preliminary draft MDP. Roads and Maritime has sought to minimise land requirements. Some land requirements require alteration to current business operations or the cessation of commercial property leases and relocation of businesses to facilitate construction of the project. Where land is required, the impact on landowners and leaseholders would be subject to the management measures detailed in section 9.0.

In accordance with its Masterplan, Sydney Airport Corporation is in the process of reviewing its property portfolio to support future development and expansion of Sydney Airport. Part of this is the delivery of the Sydney Gateway road project to improve access to Sydney Airport. Roads and Maritime has an agreement with Sydney Airport Corporation to occupy certain licensed areas in order to deliver the project. Sydney Airport Corporation, as the leaseholder of the land, has notified affected tenants of the decision to conclude their sub-lease. Sydney Airport Corporation would be managing the handover of lands to Roads and Maritime and would continue to consult with tenants regarding cessation of sub-leases.

The cessation of leases and relocation of businesses may cause:

- Disruption to business operations
- Loss of revenue
- Stress and anxiety relating to locating and leasing or purchasing a new site
- Relocation and re-establishment costs
- Employee training costs for new employees
- Trade catchment alterations.

In instances where it is not viable for a business to relocate, a business may permanently close. Dependent on the type of business this may have implications for both the business that is closing and the broader industry.

Table 6-1 describes the direct land requirements and lease cessations applicable to businesses and the implications of the property impact. Section 5.2.1 provides further detail regarding the businesses. The location of the businesses can be seen in Figure 6-1.

Table 6-1: Property impact assessment

Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
STATE							
Tyne Container Services Tempe (incorporating Tiger Container Hire Sales and Modification Pty Ltd) Located in Airport industrial precinct accessed off Swamp Road	<ul style="list-style-type: none"> Stores, supplies, modifies and repairs containers Domestic and international customer base Has operated on site for 44 years Generates about 60–70 jobs (contractors). 	<ul style="list-style-type: none"> Full temporary land requirement for construction from Inner West Council Partial permanent land requirement Termination of current lease. 	<ul style="list-style-type: none"> Relocation: The business is seeking to relocate to an alternate site nearby if one becomes available. The business would be subject to relocation and re-establishment costs. About 60–70 employees/contractors could be affected during relocation Closure: If the business does not relocate, the business may choose to close. As indicated in Appendix D, the empty container storage industry is currently at a critical supply level. The loss of Tyne Container Services at Tempe would have broader implications on the industry (see section 6.4.3). Permanent loss of about 60–70 jobs on site. Competing empty container park operators would benefit from reduced competition once they have capacity Heightened stress and anxiety for business owners. 	Reasonable costs incurred as a result of relocation, including professional advice, would form part of the compensation in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> . An alternative site was discussed with the business. It is not known if the business has further investigated this option.	The business indicated that although they own alternative empty container parks in Brisbane, Perth and Melbourne, the Tempe operation is their biggest, and revenue generation may be affected. The present availability of land in proximity to the current location is limited, which may make it more difficult to relocate. A parcel may come available in the future. Due to the above the level of sensitivity is high.	Permanent relocation or closure with an effect on not only the business but the broader industry. If relocated to a nearby location, level of magnitude would be moderate. If the business does not relocate and decides to close, the level of magnitude is high.	High

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Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
Tempe Golf Range and Academy Located in Airport industrial precinct accessed off Holbeach Avenue	<ul style="list-style-type: none"> Golf training facilities and a driving range Local customer base Operated on site for one year Generates about five jobs. 	<ul style="list-style-type: none"> Full temporary use of land for construction from Inner West Council Partial permanent land requirement Termination of current lease. 	The land leased for this business would be required for the project and the business operation on this site would need to close. There are limited existing opportunities for the business to relocate in the surrounding area. Relocation of the business would result in: <ul style="list-style-type: none"> Relocation and re-establishment costs Existing customers and employees may need to find an alternate golf range Heightened stress and anxiety for business owners and employees. Other golf ranges in the surrounding area may benefit from an increase in demand for services. 	Reasonable costs incurred as a result of relocation, including professional advice, would form part of the compensation in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> .	The business has indicated that they are able to relocate. Level of sensitivity: Low	Permanent relocation of the business. Alternative golf ranges are available in the area. Level of magnitude: moderate.	Moderate-low
Boral Concrete St Peters Located in Airport industrial precinct accessed off Burrows Road South	<ul style="list-style-type: none"> Concrete batching plant Eastern Sydney city customer base On freehold land owned by Boral (concrete batching plant) A portion of land leased from Sydney Airport Corporation for the Boral Recycling (see below) is used by Boral Concrete to park agitator trucks. 	<ul style="list-style-type: none"> Part of the land parcel owned by Boral Resources is required permanently for the project. The portion of land utilised to park the Boral Concrete agitator trucks would no longer be available. 	<ul style="list-style-type: none"> Boral Concrete St Peters received approval for a development application to upgrade and expand the concrete batching plant. The development application applies to part of the site required for the project. The development application would need to be modified to reflect the acquisition however the project design has been modified to support expansion and minimise impacts of future operations on the site An alternative location would need to be found to accommodate trucks. 	On land under NSW jurisdiction – compensation in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> Alternative arrangements for the parking of trucks within Sydney Airport land are subject to further negotiation between Sydney Airport Corporation, Roads and Maritime and the business.	The sensitivity of the concrete batching plant to changes would be low as they would be able to adapt operations to address project requirements.	The concrete batching plant would be able to continue operation however, with or without the full scope of the approved development capacity. The magnitude of impact would be moderate.	Moderate-low

Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
STATE AND COMMONWEALTH							
Maritime Container Services (as operators of the Cooks River Intermodal Terminal) Located in Airport Industrial precinct accessed off Canal Road	<ul style="list-style-type: none"> Road and rail container transfer facility to and from Port Botany and regional NSW Logistics, movement of freight, container storage as well as repair, washing and upgrading of containers Domestic and international customer base Dedicated rail connection to port. 	<ul style="list-style-type: none"> Port Botany Lessors Ltd – small section of the Cooks River Intermodal Terminal site is currently required for the project. Sydney Airport land – the lease of the overflow area on the adjoining Sydney Airport land would need to cease Rail siding on RailCorp land, leased from Sydney Airport Corporation. Unable to use storage area to the south of the rail siding to full extent. 	<ul style="list-style-type: none"> Maritime Container Services can continue operating on the Cooks River Intermodal Terminal site with reduced container storage capacity. The design is currently being refined with the aim of minimising the potential impacts on this property. A reduction in capacity may impact on business revenue and the ability for the broader industry to meet demand (see section 6.4.3) Maritime Container Services have plans for expansion to facilitate longer term enhanced operation and increased capacity. The project may affect these plans. The design refinements are aiming to reduce impacts Temporary impact on operation of rail siding within the terminal. 	On land under NSW jurisdiction – compensation in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> . Continued consultation with business in regards to modification to project design. (Sub-lease from Sydney Airport) – subject to negotiations between Sydney Airport Corporation and business. (Rail siding) Part subject to negotiations between Sydney Airport Corporation and business.	The business would be highly sensitive to the changes as it impacts long term expansion plans and operating capacity at a time when demand is high.	The business would be able to continue operation however, at a reduced capacity. Magnitude of change would be moderate.	High-moderate

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Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
COMMONWEALTH							
Boral Recycling St Peters Located in Airport industrial precinct accessed off Burrows Road South	<ul style="list-style-type: none"> Construction materials handling facility Eastern Sydney city customer base A portion of land is currently used by Boral Concrete for the storage of agitator trucks. 	<ul style="list-style-type: none"> Cessation of lease for recycling facility on Sydney Airport land The portion of land utilised to park the Boral Concrete agitator trucks would no longer be available due to the cessation of lease. 	<ul style="list-style-type: none"> Sydney Airport sub-lease with Boral Recycling St Peters would not be renewed The recycling plant would be required to cease operation and relocate or. This affect employment. There are other recycling facilities in the area that may benefit from an increase in demand for services An alternative location would need to be found to accommodate trucks. 	Subject to negotiations between Sydney Airport Corporation and business. Alternative arrangements for the parking of trucks within Sydney Airport land are being negotiated.	The recycling facility could relocate if an appropriate site is available. There is also capacity in the industry to absorb the change if the facility was unable to relocate. The sensitivity would be moderate.	The recycling operation would be required to close to facilitate the project, however the larger business and industry would adapt to the change. The magnitude of impact would be moderate.	Moderate
Swissport Located in Sydney Airport – north-west sector accessed off Link Road	<ul style="list-style-type: none"> International air cargo company, managing and operating Sydney Airport's international livestock transfer facility Manages the transport and quarantine of animals. 	<ul style="list-style-type: none"> An area of about 0.05 hectares in the northernmost part of property accommodating the international livestock transfer facility, adjacent to Airport Drive, would be temporarily occupied to facilitate the project. 	<ul style="list-style-type: none"> Sydney Airport sub-lease with Swissport would be altered The area is currently used for livestock loading/unloading operations. The area temporarily occupied comprises about 35 per cent of the total facility area. The affected area is currently accessible by three gates. One of these gates would be obstructed at the north-eastern end of the facility. Vehicles would be required to use an alternate gate or reverse out of the facility The livestock transfer facility would be able to continue operation with minor changes to daily vehicle movement patterns. While an inconvenience, the changes are unlikely to affect business revenue or ongoing operational viability. The fencing removed during construction would be reinstated post construction. 	Sydney Airport Corporation is reviewing procurement options for the ongoing management of the site.	The sensitivity of the business is low as they would retain a high ability to absorb and adapt to the change.	The business would be able to continue operation with limited discernible negative impacts. The impact would be temporary during construction only. The magnitude of impact is low.	Low

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Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
Qantas Freight Located in Sydney Airport – north-west sector accessed off Link Road	<ul style="list-style-type: none"> Mail handling facility 	<ul style="list-style-type: none"> Around 40 car parking spaces along the northern boundary of the property would be temporarily removed to facilitate the project. About 0.01 hectares of the facility would be permanently occupied affecting about nine parking spaces. The remaining land would be returned as parking areas for the facility post construction. 	<ul style="list-style-type: none"> Sydney Airport sub-lease with Qantas Freight would be altered Parking configuration and the number of car park available may be altered reducing efficiency of employee and customer access An alternate location for parking is being considered. Dependent on the location of the park it may make the business more or less accessible for employees and customers. 	Sydney Airport Corporation is reviewing procurement options for the ongoing management of the site and alternate options for the provision of parking elsewhere on airport land.	The business would retain a high ability to adapt to change with minor inconveniences. The sensitivity would be low.	The business would be able to continue operation with limited discernible negative impacts. The magnitude of impact is low.	Low
Visy Recycling Located in Airport industrial precinct accessed off Burrows Road South	<ul style="list-style-type: none"> Waste transfer facility 	<ul style="list-style-type: none"> Full land requirement Decommissioning of building Cessation of lease for recycling facility on Sydney Airport land. 	<ul style="list-style-type: none"> Sydney Airport sub-lease with Visy Recycling would not be renewed The recycling plant would be required to cease operation and relocate. The business has indicated plans to relocate to 112 Euston Road Alexandria, with the Environmental Impact Statement planned for exhibition at the end of 2019. The business would be subject to relocation and re-establishment costs, if the approval is granted There are other recycling facilities in the area that may benefit from an increase in demand for services if they are consider more accessible. 	Subject to negotiations between Sydney Airport Corporation and business.	The recycling facility has the capacity and opportunity to relocate as an appropriate site is available. There is also capacity in the industry to absorb to the change. The sensitivity would be moderate.	The recycling operation would be required to permanently close at the address to facilitate the project. The change would be clearly noticeable, however would impact on a small proportion of receptors. The magnitude of impact would be moderate.	Moderate

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Business	Business details	Property impact	Implications	Management measure	Sensitivity	Magnitude	Level of significance
Qantas Located in Sydney Airport – north-east sector accessed off Qantas Drive	<ul style="list-style-type: none"> Qantas airlines including, Qantas Flight Training Centre that contains sensitive flight simulators Understood to operate 24 hours a day, 7 days a week. 	<ul style="list-style-type: none"> Part land requirement Decommissioning of buildings Business required to relocate to facilitate the project. 	<ul style="list-style-type: none"> Sydney Airport sub-lease with Qantas would be altered The Qantas Flight Training Facility would continue to operate for a short period, concurrently with project enabling work. The flight simulator within the facility is sensitive to amenity impacts (see section 6.3) A State Significant Development application has been lodged with the Department of Planning, Environment and Industry under Section 4.36(3) of the <i>Environmental Planning and Assessment Act 1979</i>, for a new flight training centre in the Qantas Drive industrial business precinct. The application, if approved, would facilitate the relocation of the Qantas Flight Training Centre Potential effects on training scheduling and inconvenience to business operations due to relocation. This could affect multiple businesses dependent on the facility. Disruptions for employees and business operations during relocation. 	Subject to negotiations between Sydney Airport Corporation and business.	Multiple airlines are dependent on the flight training centre for airline crew training. The sensitivity of the business is high as they would incur multiple vulnerabilities not only to Qantas but to other businesses. There are limited alternate flight training facilities available and the industry would have very little capacity to absorb or adapt to the change.	The business would be able to continue operation for a period of time while enabling work is underway, and, subject to planning approval, continue operations at the proposed new facility. The change would be clearly noticeable and affect a larger number of receptors. The magnitude of impact is moderate.	High-moderate

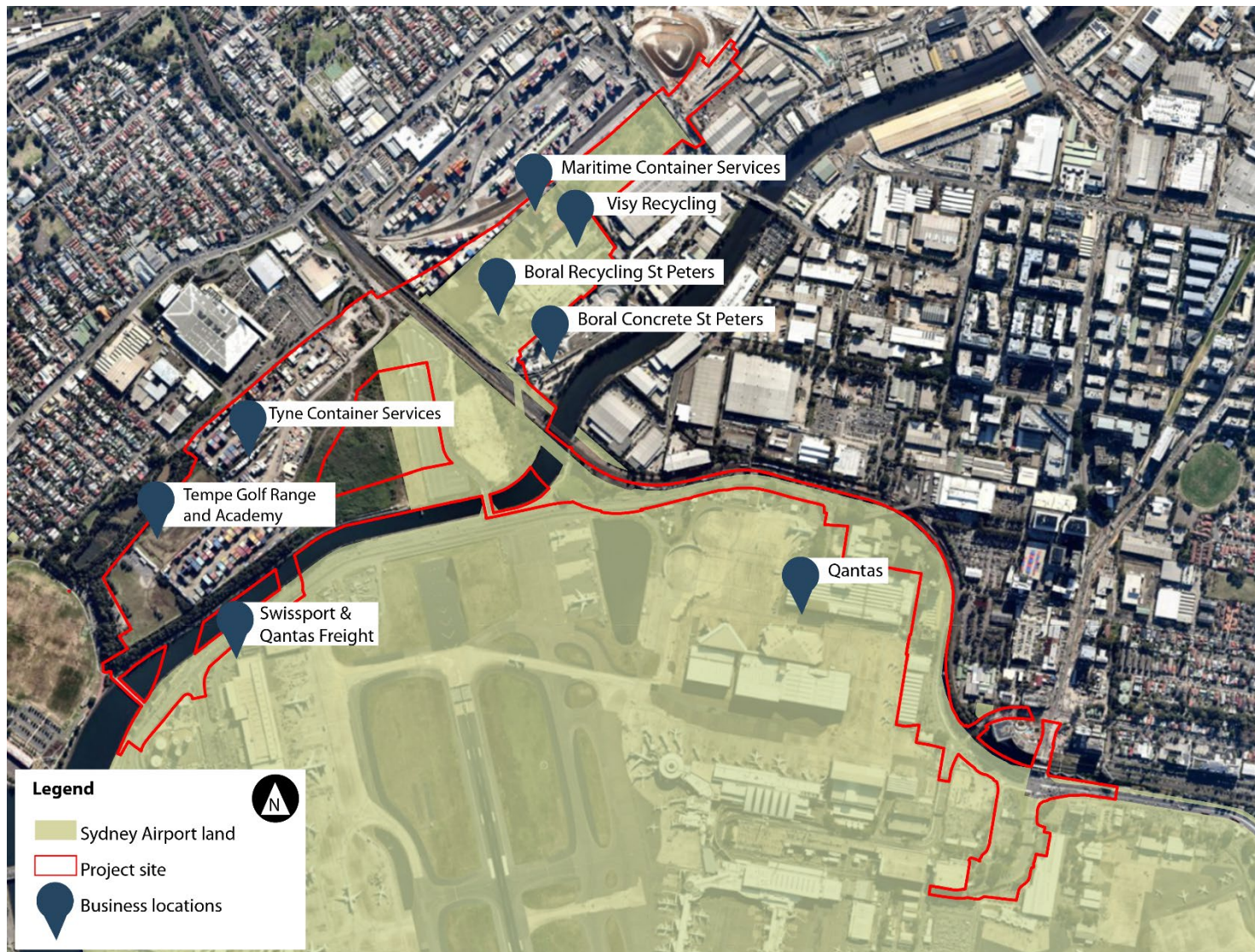


Figure 6-1: Business location associated with land requirements

Source: HillPDA, 2019

6.1.1 Advertising signs

Advertising signage is a prominent feature within the study area with Airport Drive, Joyce Drive, Qantas Drive, Sir Reginald Ansett Drive and O’Riordan Street all displaying prominent billboards. The location is attractive for advertising due to the high volumes of vehicle movements and exposure to domestic and international markets.

There are 30 advertising signs that would be impacted by the project. Twenty-seven advertising signs would need to be permanently removed to facilitate the construction of the road. This includes 10 signs along Airport Drive, 10 signs along Qantas Drive eastbound, three signs along Qantas Drive westbound and four signs along Sir Reginald Ansett Drive. Of these, 18 signs are located on Sydney Airport land and nine signs are located on State land. In addition, three signs along Qantas Drive eastbound would be permanently impacted by construction of the proposed Terminals 2/3 access viaduct and obstruction of views to the signs. .

Both the landowners and the companies that own and operate the signs would experience a permanent loss in revenue due to removal of the signs during construction. The removal of advertising signs may result in a loss of contract opportunities for businesses that lease and manage the signs and contractors or employees that maintain and change the signs due to reduced demand. Companies that advertise on the signs would also experience a reduction in exposure and potential reduction in sales.

The impact on landowners and advertising leaseholders would be somewhat mitigated by the implementation of the acquisition and compensation process in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. This compensation is not applicable to advertising signs on Sydney Airport land, which are instead subject to discussion and agreement by Sydney Airport Corporation.

Considering the above and the recommended mitigation measures outlined in section 9.0, impacts on businesses associated with advertising signs would be clearly noticeable with capacity to affect businesses both within the study area and broader. The magnitude of change would be moderate. Businesses would be highly sensitive to the removal of advertising signage. The level of significance would be **high-moderate**.

6.2 Access and connectivity

Technical Working Paper 1 – Transport and Traffic identifies that construction of the project would result in changes to access and travel times due to an increase in construction vehicles, road closures and alterations, changes to transport network routes and altered property access arrangements. Changed access and travel times for employees, customers and goods movements would have a direct impact on business productivity and overhead costs, requiring businesses to adapt to the changes.

6.2.1 Access arrangements

During construction, business access arrangements for employees, customers and service vehicles in some locations may change due to road alterations, changes in public transport stop locations or increased competition for parking. As identified in section 5.0 and 0, businesses in the study area are highly sensitive to changes in access to their property.

Road and active transport network changes

Construction of the project would require:

- Temporary and intermittent road alterations along Canal Road, Airport Drive, Qantas Drive and Lancastrian Road altering access to businesses in the Airport industrial precinct, Sydney Airport precinct, Qantas Drive precinct and O’Riordan Street business precinct
- Closure of public access (access maintained for local landowners and lessees) to parts of Bellevue Street (at the south-eastern end) altering access to some businesses in the Airport industrial precinct
- Permanent closure of two bus stops at Qantas Drive and Lancastrian Road altering access to businesses in the Qantas Drive industrial precinct, O’Riordan Street business precinct and Sydney Airport precinct
- Permanent removal of pedestrian crossing associated with the bus stop at Lancastrian Road intersection and the pedestrian path on the northern side of Qantas Drive altering access to businesses in the Qantas Drive industrial precinct, O’Riordan Street business precinct and Sydney Airport precinct

- Temporary closure to footpaths on both sides (one at a time) of Canal Road altering access to businesses in the Airport industrial precinct
- Permanent closure of the pedestrian and cycle shared path on Alexandra Canal between the existing footbridge west of Terminal 1 and Nigel Love Bridge. A temporary shared path would be established along the eastern bank and crossing to the western bank, before re-joining the existing path at Nigel Love Bridge maintaining but lengthening access routes to businesses in Sydney Airport precinct
- Temporary closure of shared path east of Nigel Love Bridge altering access to businesses in Sydney Airport precinct.

Although construction would alter access arrangements for businesses, in all instances, properties containing businesses would remain accessible. Changes in access arrangements would temporarily inconvenience employees, customers and contractors and potentially deter customers from travelling to the area. These access changes would generate increased congestion on roads and longer distances of travel that have a direct consequence on travel time, which is assessed in section 6.2.2.

Parking

The estimated peak construction workforce on the project is about 1090 people during the day, 150 people during the evening and 500 people at night. Parking for construction workers has been arranged within the project site, providing capacity for up to 980 vehicles. A shuttle bus service would then transfer workers to nearby construction areas. Construction workers are also encouraged to use public transport and car sharing as a transport and traffic management measure. At times, parking on local streets may be needed to accommodate overflow parking (110 parking space as a worst case scenario), particularly around construction compounds. The implications of this for businesses would be increased competition for local street parking that is used by local workers, customers and service vehicles attempting to access businesses. A lack of convenient parking can deter customers, resulting in a reduction in trade for businesses and potentially changed consumer behaviour. It can reduce the efficiency of servicing and deliveries for businesses. Over 90 per cent of survey respondents indicated that they received deliveries throughout the day.

The project would result in a permanent loss of some off-street parking in the Sydney Airport northern lands. Around 24 parking spaces at the northern end of the car park would be removed. Some additional spaces may also be lost due to the need to reconfigure the internal car park roads. Two car parking areas near Terminals 2/3 that are accessed off Ross Smith Avenue and Sir Reginald Ansett Drive respectively, used by the adjacent DHL business, would also be affected during construction. These car parks have a combined capacity for about 81 vehicles and would become part of the construction footprint. Only one of these car parks would be able to be used for construction at any one time, which would reduce the impact for the users. The loss of the above parking spaces and areas is considered to be manageable with some reconfiguration of parking areas proposed to minimise the loss. The northern lands employee car park has adequate alternative parking spaces available for employee use. Businesses would have limited vulnerability and would retain a high ability to adapt to the change. While the loss of parking would be discernible, the magnitude of change is minor.

As access to businesses would be maintained, the magnitude of impact is low. Businesses in the study area are moderately sensitive to changes in access. Consequently, the level of significance is **moderate-low**.

6.2.2 Travel times

Travel times on selected routes are predicted to change during construction due to the lowering of speed limits, increase in construction vehicle movements and reduction in road space. Increases in travel times are predicted on:

- Airport Drive eastbound and westbound
- O’Riordan Street northbound and southbound
- General Holmes Drive eastbound and westbound.

Intersections predicted to experience increased delays include:

- Robey Street and O’Riordan Street intersection

- Qantas Drive, Robey Street and Seventh Street intersection
- Airport Drive and Link Road intersection
- Joyce Drive and O’Riordan Street intersection.

Travel time delays would also be experienced due to the access alterations outlined in section 6.2.1 including road and active transport network alterations.

Road network

As indicated in section 4.7.1, the majority of people (over 60 per cent) employed in the study area were opting to travel in a private vehicle to work. This indicates that employees in the study area would be highly sensitive to changes in the road network. The business survey also identified that 86 per cent of respondents perceived travel time delays would affect their business and 91 per cent perceived road alterations would affect their business. Considering these results, businesses in the study area would have a high sensitivity to increases in travel time. Airlines and freight forwarders are particularly sensitive to changes in employee and customer access as delays in arrival of passengers and crew can affect efficiency of airline operations and cause people to miss flights. More than 43.3 million passengers travelled through Sydney Airport terminal in 2017, with this number anticipated to increase as the airport operations expand (Deloitte Access Economics, 2018). Taxi, ride sharing and shuttle bus services are particularly prevalent business operations that transfer passengers to and from the airport. Customer satisfaction and repeat services would be somewhat dependent on the efficient and safe movement of these passengers. Reduced network performance can enhance the stress and anxiety levels for both the passengers and drivers and have both emotional and financial implications.

Increased travel times for customers accessing the terminal can reduce the amount of time people have to spend at shops and restaurants, potentially affecting revenue for businesses within the terminal.

Travel time delays would impact on operations at the airport during the construction period due to:

- Increases in travel times and delays at intersections on Link Road, which would affect access to the freight terminal and Terminal 1 for passengers, workers and deliveries during the AM Peak hour and PM Peak hour
- Impacts on the intersection at Robey Street, Qantas Drive and Seventh Street, which would reduce access to the Terminals 2/3 for those travelling to and from the airport including passengers, employees and service providers.

As identified in section 4.4, the study area has a large number of businesses in transport, postal and warehousing industry (10.6 per cent) that represented a significant proportion (30 per cent) of industry value added. Businesses in this industry identified sensitivities to changes in travel time and dependencies on efficient access to motorways during the business survey. Businesses in the Airport industrial precinct, Qantas Drive industrial precinct and Sydney Airport precinct would be particularly susceptible to reduced efficiencies in the road network due to the higher proportion of transport, postal and warehousing businesses in the precinct.

Travel time delays can affect business productivity, increase overhead costs and impact on task scheduling, such as flight scheduling, freight distribution or product deliveries. Delays in the receipt of product or access to services can cause customer dissatisfaction, resulting in negative reviews and a potential change in consumer behaviour. Traffic congestion and extended travel delays can heighten stress and anxiety for workers, service providers and customers. Passengers accessing the airport terminal would be particularly prone to heightened stress and anxiety if delays in travel time are experienced and flights are missed. This can result in both a financial and emotional burden on passengers. Extended travel times can also encroach on an employee’s personal life as they spend more time in transit and less time at work or with family and friends.

Increased traffic congestion in the study area results in customers avoiding the area, with a potential loss in passing trade for retail and hospitality businesses. The extent of impact on businesses in the study area would be limited, as the survey indicated that most businesses in the study area were not dependent on business visibility or passing trade (see 0). The Mascot station precinct, which is the largest commercial centre in the study area, would unlikely be affected by changes in passing trade as alternative access routes to the centre would be maintained and the walking catchment largely unaffected.

Public transport network

Changes to the performance of the road network would have an impact on buses that connect to the Sydney Airport terminals.

The permanent removal of the bus stops at Sydney Airport on Qantas Drive and Lancastrian Road would change access arrangement for commuters on routes 400 and 420. The bus stops are currently used by around 20 people per day. While commuters travelling from Eastgardens would still have alternative options, the commuters travelling from Burwood would no longer have access to a single bus route to Sydney Airport. The commuters would be required to catch multiple buses or take a train. Section 4.7.1 indicated that only three per cent of employees were travelling by bus to work in the study area. A proportion of these would have high sensitivities to changes in the bus network. The rail network would remain unaffected.

Overall, construction of the project would have a clearly noticeable effect on travel time with the potential to impact on many businesses both within and external to the study area and customers and employees accessing the study area. While some alterations and changes would be intermittent and temporary, travel delays are anticipated over the life of project construction. The sensitivity of businesses in the study area to changes in travel time is high. Implementing the recommended mitigation measures outlined in section 9.0, would assist in communicating the anticipated transport delays, however would not alleviate the impact. Considering this, the level of significance would be **high-moderate**.

6.3 Amenity

Changes in amenity as a result of alterations in noise, vibration, air quality, and visual characteristics can affect the enjoyment and desirability of the business environment, influencing how many customers choose businesses located in the study area.

6.3.1 Noise

Technical Working Paper 2 – Noise and Vibration determined that the existing noise levels in the study area as being generally dominated by transportation noise, with road, rail and aircraft noise affecting most locations during the daytime. During the evening and night-time, ambient noise levels typically decrease due to a reduction in road traffic volumes on the surrounding road network and the closing of the commercial passenger flights between 11pm and 6am. Noise from industrial activities is also present at times.

Technical Working Paper 2 – Noise and Vibration assessed the noise level change based on all equipment working during a construction activity (worst case levels). There would be frequent periods when construction noise levels would be lower than the worst case levels assessed. Changes to noise levels are expected along the project alignment from construction activities and the operation of compounds during construction. Businesses fronting the project site in the Qantas Drive industrial precinct, Sydney Airport precinct and O’Riordan Street business precinct would experience an increase in external noise levels.

Businesses adjoining the project site, which are industrial in nature, would not be as susceptible to changes in the noise environment. There are some premises that contain commercial businesses, which can be more sensitive to noise increases. The business survey indicated that 56 per cent of respondents perceived that an increase in noise would negatively affect their business. Forty-four per cent stated they would not be affected or did not think noise impacts were applicable to their business. Although intermittent noise exceedances can be tolerated, higher noise exceedances for ongoing periods can have an impact on the ability to communicate with colleagues and clients, reduce the ability for a worker to concentrate on tasks and can potentially reduce worker productivity and health and wellbeing, potentially affecting business revenue. As existing ambient noise levels are dominated by transportation noise, employees in surrounding businesses would likely have a higher tolerance for elevated noise levels. It is also likely that buildings would have some acoustic treatments to reduce airport noise. Generally, the sensitivity of businesses in the study area would be low.

As identified in section 4.8.1, there are numerous hotels within the study area, which would be highly sensitive to noise exceedances. There would be a noticeable increase in external noise levels at hotels in the study area, specifically at Mantra Hotel, the planned hotel on Seventh Street, Stamford Plaza, Ibis Budget Sydney Airport,

Citadines Connect Sydney Airport, Quest Mascot and Travelodge. These noise exceedances would be experienced both day and night. While hotels close to the airport generally have a high customer throughput generated by their proximity to the airport, they are still dependent on customer satisfaction and positive reviews and ratings to attract repeat and new business. The predicted night-time noise impacts during construction at the Mantra Hotel, the planned hotel on Seventh Street, Stamford Plaza, Ibis Budget Sydney Airport, Citadines Connect Sydney Airport, Quest Mascot and Travelodge may negatively impact on the customer experience and result in reduced customer satisfaction.

Most affected hotels are expected to have high-performance acoustic treatments in place, given their proximity to the airport. Managing noise impacts on hotel uses would be addressed in the Construction Noise and Vibration Management Plan.

The Qantas Flight Training Centre has several areas that are potentially sensitive to noise impacts, including the flight simulator facilities that are highly sensitive. Although the building is proposed to be removed as part of the project, the facility may continue to operate in its current location during the initial phases of construction. The facility would be operational during the enabling works, with the proposed works resulting in noise exceedances. A Development Application has been prepared to construct a new Qantas Flight Training Centre about 150 metres east of the current site. The noise effects from the project on the new facility have not been assessed as the Development Application for the new facility has not yet been approved.

Overall, most businesses in the study area have low sensitivity to noise and the magnitude of change from the existing environment would be negligible. In locations immediately adjoining proposed construction compounds in Sydney Airport – North-east Sector, O’Riordan Street business precinct and Qantas Drive industrial precinct – construction noise would be noticeable, although intermittent and temporary; however, the magnitude of change would be low. Businesses in these precincts are mostly industrial and commercial with low noise sensitivity and would be able to adapt to the change. A small number of receivers, including some of the hotels and the Qantas Flight Training Centre have moderate sensitivity to noise, with some ability to adapt to the change. The level of significance is **moderate-low**.

6.3.2 Vibration

Section 5.9 of Technical Working Paper 2 – Noise and Vibration assesses construction vibration impacts. The assessment determines that vibration from vibratory rollers, rockbreakers, vibratory piling equipment and during dynamic compaction could be experienced at businesses.

For most buildings within the study area, the distance between the source of vibration and commercial premises is generally sufficient for nil or minimal impacts. In locations where vibration may be noticeable, it is likely to be apparent for relatively short durations. Businesses that may be more susceptible to impacts include hotels and the Qantas Flight Training Centre, where people may experience heightened levels of stress and anxiety.

Vibration offset distances have been estimated from the recommended minimum working distances for cosmetic damage and human response. Construction vibration impacts assessment determines that certain commercial buildings would likely be within the minimum working distances for vibration intensive equipment, meaning there is potential for vibration impacts when works are close to these receivers. Commercial premises within the recommended minimum working distances for cosmetic damage and human response include premises in the:

- Airport Industrial precinct, excluding those to the south of Burrows Road
- Southern side of Qantas Drive Industrial precinct, where fronting the rail line
- Northern side of Sydney Airport – north-west sector including the airport freight terminal
- Sydney Airport north-east sector, including hotels, retail, freight, logistic premises and Qantas Flight Training Centre
- O’Riordan Street business precinct between the Qantas Drive and O’Riordan Street intersection and High Street, including hotels.

Recommendations are proposed in Technical Working Paper 2: Noise and Vibration to address the risks to business premises within the minimum working distance and considered likely to exceed cosmetic damage objectives. These include a proposal not to proceed unless a different construction method is used, or more

detailed investigations are undertaken at the individual business premises to determine the risk with associated building condition surveys completed. Where vibration may be noticeable to human response, they are likely to be apparent for relatively short durations when equipment such as rockbreakers or vibratory rollers are nearby. Employees and customers affected by the vibration are expected to be able to easily adapt to the change with minimal vulnerabilities to business, indicating low sensitivity. With the implementation of recommended mitigation measures, the magnitude of change would be low. Considering this, the level of significance is **low**.

6.3.3 Visual

Technical Working Paper 13 – Place Making, Urban Design and Visual Impacts identifies that construction would change the visual amenity of the study area by removing established vegetation and advertising signs and installing construction hoardings, construction buildings and infrastructure, fencing and construction equipment. Precincts that adjoin the project site would experience variance in visual character. The results of the business survey indicated that the majority (78 per cent) of businesses in the study area were neutral or unsure about the effects of changes in business visibility and exposure. Around 19 per cent stated that the impact would be negative and three per cent stated the impact would be positive. This indicates that sensitivity to visual effects would generally be low.

The Sydney Airport precinct north-east sector and north-west sector (see Figure 4-4) and the O’Riordan Street business precinct would be most affected by changes in the visual environment. These precincts are characterised by industrial, commercial and transport uses. These uses generally have a low dependency on the visual environment and low sensitivity to visual change. Businesses such as hotels and retail can be more sensitive to changes in the visual environment and business exposure. Construction works in Sydney Airport north-east sector would reduce exposure of businesses on the corner of Sir Reginald Ansett Drive and Qantas Drive due to the construction of the flyover. This includes the existing AMG car dealership and service centre and the new Sydney Airport hotel. The visual amenity of airport hotel interiors is generally more valued by customers than the exterior characteristics and sensitivity to change would be low. The AMG car dealership and service centre however, has a higher sensitivity to business exposure and visibility. The AMG dealership is currently located at the entrance of Sydney Airport at a high exposure location. This exposure would be reduced due to the construction of a proposed flyover.

Advertising signs are also a prominent feature of the study area. As described in section 6.1.1, three signs along Qantas Drive eastbound would be affected by the construction of a proposed flyover and subsequent obstruction of views to the advertising signs. Advertising signs are highly sensitive to changes in exposure as it can directly affect business sales and revenue.

A small number of businesses, including AMG and the advertising sign operators, would be moderately sensitive to changes in business exposure. A small number of businesses, including AMG and the advertising sign operators, in the project site would experience a moderate magnitude of change.

In most instances, businesses in the study area would be unaffected by visual variances and would have a sensitivity of negligible. The magnitude of change experienced in most areas would be negligible. The overall level of significance would be **negligible**.

6.3.4 Air quality

Technical Working Paper 4 – Air Quality states that dust emissions may occur during site preparation work such as removal of buildings, and during construction. Dust emissions can vary substantially from day to day depending on the level of site activity, the specific operations being undertaken, and prevailing wind and other weather conditions.

Construction dust can result in increased operating costs, reduced hygiene or increased respiratory issues for employees or customers. The businesses surveyed indicated that 62 per cent of respondents stated that an increase in dust would affect their business while 29 per cent stated they would not be affected. Increase in dust can generate higher cleaning costs and affect employees with respiratory health issues. Particular businesses also require sterile and clean environments for the preparation and distribution of goods.

There are several food handling and catering businesses close to the construction footprint in the Qantas Drive industrial precinct and in Sydney Airport along Ross Smith Avenue, which would have higher sensitivity to dust. Vehicle related businesses including vehicle hire services, vehicle sales and the car wash, that require the presentation of clean presentation, would also be sensitive to dust. Without mitigation, excessive dust production can also affect the visibility in the airspace surrounding the airport and impact on airport operations.

Management measures to control and reduce dust are routinely employed as ‘good practice’ on construction sites. The Technical Working Paper 4 – Air Quality identifies the application of these management measures. The application of the management measures would reduce potential business impacts, particularly in relation to airspace visibility. It is unlikely airport operations would be affected.

Based on the assessment of business impacts above and implementation of recommended mitigation measures outlined the Technical Working Paper 4 – Air Quality, air quality impacts would result in a low magnitude of change. In most instances, businesses in the study area would be unaffected by air quality variances and would have a sensitivity of negligible; however, some businesses would have moderate sensitivity. The overall level of significance would be **low**.

6.4 Economic effects

6.4.1 Expenditure and employment related to construction of the project

Construction activity, including utility works, directly benefits the economy by injecting economic stimulus into the local, regional and state economies. The economic benefit of construction is multi-dimensional, including:

- Increased expenditure at local and regional businesses through purchases by construction workers
- Direct employment associated with on-site construction activities
- Direct expenditure associated with on-site construction activities
- Indirect employment and expenditure through the provision of goods and services required for construction.

As identified in section 3.5.4, over 12 per cent of businesses in the study area supply construction services or materials and products used in construction, such as Boral Concrete St Peters. These businesses may benefit from increase in demand. The direct and indirect employment benefits of the construction may be quantified based on the following assumptions:

- A base year of 2020 for the project start-up
- A 3.5 year construction period (from 2020 to 2023)
- The completed project opening to traffic in late 2023.

The number of direct and indirect jobs generated as a result of the proposed 3.5 year construction period has been estimated in this assessment. Direct jobs are defined as those relating to the project’s development throughout construction, commissioning, operating and managing the infrastructure. Direct jobs that would be generated include on-site labour, supervision, professional services and project managers.

Indirect jobs are defined as jobs (within Australia) that support the project through the provision of goods and services such as off-site manufacturing and equipment hire.

Major infrastructure projects may also have flow-on benefits to job generation through the raw material supply chain and jobs created as a result of new infrastructure. These secondary indirect jobs are not, however, included in job generation calculations in this assessment.

It is estimated that, based on a 3.5 year construction period, around 1,015 jobs would be directly created per annum. Around 3,010 indirect jobs would be created per annum. In total, the project would generate around 4,025 direct and indirect jobs per annum over the construction period.

Overall, construction of the project would produce medium-long to long-term job opportunities, skill development and economic benefit to the region. There is a high likelihood of these benefits occurring with

potential major consequence on the social and economic environment. As such, the overall impact upon the social and economic environment would be positive.

Construction workers on-site would also generate additional sources of retail expenditure for nearby businesses. The construction workforce requirements would vary over the construction period in response to the activities underway and the number of active work areas. The workforce is expected to peak at about 1,000 workers for a period of about 13 months, indicatively from the fourth quarter of 2021. Either side of this peak, workforce numbers are expected to reduce by about a third. A smaller start-up/close-out workforce (fewer than 400 workers) would be on site for the initial and final months of the program. Final construction workforce requirements would be confirmed by the construction contractor(s).

Construction workforce retail expenditure would be spent predominately on convenience-related items such as lunches, coffees, snacks and so on. To calculate expenditure for the project, HillPDA has applied a conservative spend of \$10 a day or \$50 a week for 48 working weeks generated by each worker during the construction period. On this basis, it is estimated that workers on-site would each spend an average of \$2400 per annum in the locality.

Assuming an average of 746 on-site jobs created per annum, existing retailers in the local area of the site could capture around \$1.79 million in additional expenditure annually. Over the 3.5 year construction period, this additional expenditure captured by local retailers could total around an additional \$6.27 million. Locations that may benefit from the increase in construction worker expenditure include:

- Mascot station precinct, which contains the largest retail centre in proximity to the project site
- The take-away food retailers along Ross Smith Drive and the Princes Highway Enterprise corridor
- Short term accommodation providers in the O’Riordan Street business precinct and Sydney Airport north-east sector if workers are required to stay overnight
- Restaurants and cafes in the study area.

6.4.2 Flow-on economic benefits related to construction of the project

The construction industry is a significant component of the Australian economy, accounting for 8.3 per cent (Australian Bureau of Statistics, 2019b) of the industry value added generated by industries in 2019 and employing over one million workers across the country (Australian Bureau of Statistics, 2017-18). The industry has strong linkages with other sectors, so its impacts upon the economy go further than the direct contribution of construction.

In calculating the flow-on economic benefits of a particular project, it is common practice to employ economic multipliers. Multipliers refer to the level of additional economic activity generated by a source industry. There are two types of multipliers:

- Production induced, which is made up of:
 - first round effects: all outputs and employment required to produce the inputs for construction
 - an industrial support effect: the induced extra output and employment from all industries to support the production of the first round effect
- Consumption induced, which relates to the demand for additional goods and services due to increased spending by the wage and salary earners across all industries arising from employment.

The consumption effects comprise the increase in output required to satisfy the additional demand generated by increased wages, salaries and supplements resulting from all increased output, ie direct and indirect employment.

Using ABS multiplier tables and a construction cost estimate of \$1.65 billion, the economic multipliers indicate that construction would generate around \$2.2 billion of activity in production induced effects and around \$1.5 billion in consumption induced effects. Total economic activity generated by the construction of the proposed development would be about \$5.3 billion. These multipliers are based on both the building and non-building industries and therefore the effects are an approximation only.

It is important to note, however, when reviewing these estimates that multiplier effects have a national impact and not necessarily a local impact. Care is required in interpreting multiplier effects, which have been applied on a theoretical basis to produce estimates of the potential flow-on effects of construction activity to the rest of the economy.

Overall, construction of the project would have long-term, economic benefit to the region.

6.4.3 Broader industry effects

The construction of the project is unlikely to have a discernible impact on the sustainability of any particular industry sector. Most industries will be able to absorb or adapt to any changes, both positive or negative, incurred as a result of construction and generally the level of significance would be **negligible**.

The empty container industry is the anomaly to this.

Empty container parks broader industry effects

As noted in section Table 6-1, construction of the project would require the closure of the Tyne Container Service's (Tyne) empty container park at Tempe and cessation of Maritime Container Services' empty container storage on Sydney Airport land. The role and functions of empty container parks are discussed in *The Gateway Project: Assessment of the empty container sector in Sydney* report in Appendix D.

In 2018, Port Botany handled about 2.6 million twenty-foot equivalent unit containers, with four million such containers expected to be handled in 2031.

Empty container parks aid in the servicing of containerised trade, with 75 per cent of empty containers processed through an empty container park prior to being reloaded with exported goods or exported directly as empty containers. Essentially, the facilities allow for a centralised point for containers to be transferred between importers of goods, exporters of goods, and shipping lines seeking to export empty containers. Activities associated with empty container parks include:

- Receiving and unloading empty containers associated with importation of goods
- Storage of containers
- Container maintenance, repair and cleaning services
- Delivery of empty containers to exporters
- Delivery of surplus containers to port.

Presently, 11 empty container parks operate in Sydney with a cumulative capacity of about 58,000 twenty-foot equivalent unit containers across 55 hectares of storage. The Tyne facility is about 10 hectares and the Maritime Container Services facility is about 12 hectares, representing about 40 per cent of empty container parks in Sydney. This capacity has remained largely unchanged since 2015.

In recent years, imports have increased, while exports have decreased, further increasing the supply of empty containers requiring temporary storage prior to export. In 2019, the empty container park sector has reached a critical situation where growth in the empty container task has exhausted the available capacity of the existing empty container parks in Sydney. Since 2017, trade imbalances and the drought have caused a substantial build-up of empty containers in Sydney with empty container parks reported to be at 85 to 95 per cent of capacity, with overflow storage of empty containers required at more than 20 transport depots.

This capacity issue would be exacerbated by construction impacts on the Tyne and Maritime Container Services facilities, with an expected capacity loss of about 12,000 twenty-foot equivalent units and an average storage volume of 9000 twenty-foot equivalent units. Future empty container storage capacity at the intermodal terminal developments at Moorebank, Enfield and St Marys, and expansion of the direct delivery of empty containers to Port Botany may assist in offsetting the loss of capacity. This would be dependent on the ramp-up of operations at intermodal terminals between 2019 and 2021 before the site is required for project construction. Further expansion in intermodal terminals and empty container parks capacity after 2023 would support the growth in the port throughput.

However, as noted in Appendix D, there is a preference of the shipping line, as the owner of the containers, for empty container storage parks to be near Port Botany to reduce travel time and associated costs. Conversely, for importers and exporters, moving empty containers to/from an empty container park located at the port, in lieu of an empty container park in western Sydney, may escalate the importer/exporter's overall costs. Road transport presently accounts for around 85 per cent of the containers moved to and from Port Botany, with the balance carried by rail to and from metro and regional intermodal terminals. The increased travel time forecast during construction would create further temporary travel time and cost inefficiencies for the empty container transport industry. Without a suitable nearby alternative for the Tyne facility, local importers, exporters and shipping companies may face additional costs associated with accessing the intermodal terminals and container turnover times may increase. Transport for NSW is carrying out a wider review of the empty container market in Sydney. This will provide guidance for NSW Government and industry on how to address this issue in the short and medium term.

Improving the freight movement (on roads) between the airport, port and Sydney motorway network is a primary objective of the project. In addition, the duplication of the rail lines, creates additional capacity for containerised freight movement between the port and intermodals. While there would be a noticeable impact during construction, the intent is that it would be temporary and help alleviate issues for the industry in the longer term.

The industry would be highly sensitive to changes in capacity as it is operating at critical levels. Assuming the worst case scenario that the additional container storage does not come online prior to Tyne Container Services closure and Maritime Container Services' reduced capacity, the magnitude of impact would be moderate. The level of significance is **high-moderate**.

6.4.4 Employment land supply and economic productivity

The land requirements, as assessed in section 6.1, would limit the supply of industrial and business zoned land (employment land) in and surrounding the trade gateway. Land in this area, that is suitable for industrial development, is scarce and in high demand. The development of the project would result in a permanent loss of over 13.5 hectares of industrial land. The reduced supply of employment land affects the long-term economic productivity of an area and associated current and future employment opportunities. Reduced supply can increase demand for the remaining employment land, driving up rents and potentially displacing less viable businesses. Due to the inner city location of the area and associated difficulty of bringing new employment land on to the market, the sensitivity of this area to changes in the supply of employment land is high. The land requirements would result in a noticeable reduction in the supply of employment land and therefore the magnitude of change is moderate. The level of significance is **high-moderate**.

6.4.5 Delays to major infrastructure operations

The construction activities associated with the project would remain below the obstacle limitation surface (OLS) and Procedures for Air Navigational Services – Aircraft Operations (PANS-OPS) as described in the Technical Working Paper 3 – Aviation Operations, wherever practicable. It would also remain outside the rail corridor.

To facilitate elements of construction, there would be times where construction activities would be required to occur within the OLS, PANS OPS or rail corridor areas. This would require approvals from the relevant authority prior to work and would be undertaken at times when the rail corridor and affected runways are not in operation. For the airport operations, this would occur during the airport curfew period ie 11am to 6am, with works being completed by 5am unless specific exemptions have been granted by Sydney Airport Corporation. For the rail corridor, this would occur during the quarterly rail corridor maintenance closure period.

If construction activities failed to be completed within the mandated closure period, it would have time, cost and scheduling ramifications for Sydney Airport operations and the rail freight network. These are major state infrastructure networks with any delays likely to have broader impacts on freight distribution, airlines, passengers, employees and associated businesses. Level of sensitivity would be moderate as disruption to operators has the capacity to cause a number of vulnerabilities, however they would likely retain some ability to adapt to the change.

Construction method statements would need to adequately consider alternative working proposals to avoid potential intrusion and ensure infrastructure is returned to operational standard within the required timeframes. Necessary approvals would also be sought from relevant parties. Implementing appropriate management measures would reduce the likelihood of impacts. Although unlikely, if delays to major infrastructure operation were to occur, the magnitude of impact would be moderate. The level of significance would be **moderate**.

6.5 Utilities and servicing

Businesses are dependent on utilities, particularly the supply of electricity and water. Any disruption of these services, even for short periods, may inconvenience employees, interrupt business operations and reduce business revenue. Any disruptions would also affect the utility providers, who would be required to handle customer complaints and redirect employees to assist with service alterations or required repairs. Impacts on utilities are likely to be temporary and would be managed in consultation with the relevant utility service providers. While businesses and utility providers would be sensitive to changes in service provision, they would maintain a high ability to adapt to the change. Their sensitivity would be low. The magnitude of impact would generally be short term and limited to a small area. The magnitude of change would be low. The level of significance is **low**.

6.6 Summary of construction effects

A summary of anticipated business impacts during construction are outlined in Table 6-2.

Table 6-2: Construction business impacts summary

Impact	Implications	Sensitivity	Magnitude	Level of significance
Land requirement resulting in the relocation or closure of businesses including Tyne Container Services.	<p>In the event where the business relocates:</p> <ul style="list-style-type: none"> Relocation and re-establishment costs Effect on up to 60–70 contractors and employees Loss of business revenue during relocation period Stress and anxiety for business owners. <p>In the event that the business is unable to relocate due to specific requirements:</p> <ul style="list-style-type: none"> If unable to relocate, the business would close Empty container storage industry at critical supply, having broader implications on the industry Permanent loss of about 60–70 jobs on site Loss of income for employees and business owners Benefit for competing empty container park operators once they have capacity to supply market Stress and anxiety for business owners. 	High	High	High

Impact	Implications	Sensitivity	Magnitude	Level of significance
Land requirement resulting in the relocation of Tempe Golf Range and Academy.	<p>In the event where the business relocates:</p> <ul style="list-style-type: none"> Relocation and re-establishment costs would be incurred. Effect on five workers during relocation Loss of business revenue during relocation period Stress and anxiety for business owners and employees <p>In the event that the business is unable to relocate due to specific requirements:</p> <ul style="list-style-type: none"> If unable to relocate, the business would close Permanent loss of about five jobs on site Loss of income for employees and business owners Stress and anxiety for business owners Customers would need to seek an alternative golf range. Other golf ranges in the surrounding area may benefit from an increase in demand for services. 	Low	Moderate	Moderate-low
Land requirement resulting in alterations to the land available for Maritime Container Services and Cooks River Intermodal Terminal operations.	<ul style="list-style-type: none"> The business would be able to continue operation at reduced capacity Impact on business revenue and the ability for the broader container industry to meet demand Effect on the longer term operation and expansion plan resulting in reduced revenue and employment growth. 	High	Moderate	High-moderate
Land requirement resulting in alterations to the land available for Boral Concrete St Peters.	The concrete batching plant would be able to continue to operate, however, the long-term expansion plans would need to be altered, affecting revenue and employment growth potential. An alternative location would need to be found for the temporary holding of trucks.	Low	Moderate	Moderate-low
Land requirement resulting in alterations to the land available for Boral Recycling St Peters.	<ul style="list-style-type: none"> The recycling facility would be required to cease operation at the site, which, depending on the ability to relocate in the area, could result in a loss of business revenue and employment. Competing recycling facility businesses may benefit from an increase in demand. 	Moderate	Moderate	Moderate
Land requirement resulting in changes to the boundary of Sydney Airport's livestock transfer facility managed by Swissport.	<ul style="list-style-type: none"> An area of about 450 square metres in the northernmost part of property accommodating the livestock transfer facility, adjacent to Airport Drive, would be temporarily required to facilitate the project. 	Low	Low	Low
Temporary land requirement resulting in the loss of parking for Qantas Freight mail handling facility.	<ul style="list-style-type: none"> Loss of 40 off-street parking spaces. Required relocation of parking and reconfiguration of access. 	Low	Low	Low

Impact	Implications	Sensitivity	Magnitude	Level of significance
Land requirement resulting in alterations to the land available for Qantas.	<ul style="list-style-type: none"> Sydney Airport sub-lease with Qantas for its jet base would not be renewed in order to facilitate the Sydney Airport Master Plan, including the project. Some Qantas operation elements would be required to relocate to facilitate the project The Qantas Flight Training Facility would operate for a short period, concurrently to project construction. The flight simulator within the facility is sensitive to amenity impacts (see section 6.3) Qantas has lodged a State Significant Development application with the Department of Planning, Environment and Industry under Section 4.36(3) of the <i>Environmental Planning and Assessment Act 1979</i>, for a new flight training centre in the Qantas Drive industrial business precinct. The application, if approved, would facilitate the relocation of the Qantas Flight Training Centre Potential effects on training scheduling and inconvenience to business operations due to relocation. This could affect multiple businesses dependent on the facility. 	High	Moderate	High - moderate
Land requirement resulting in alterations to the land available for Visy Recycling.	<ul style="list-style-type: none"> The waste transfer facility would be required to cease operation and relocate or close to facilitate the project. This would result in a loss of employment. There are other recycling facilities in the area that may benefit from an increase in demand for services. 	Moderate	Moderate	Moderate
Removal or obstruction of views for 30 advertising signs along Qantas Drive, Airport Drive and Sir Reginald Ansett Drive.	<ul style="list-style-type: none"> Landowners and the companies that own and operate the signs would experience a permanent loss in revenue due to removal of the signs during construction Loss of business opportunities for companies that manage the signs and contractors or employees that maintain and change the signs Companies that advertise on the signs would experience a reduction in exposure and potential reduction in sales. 	High	Moderate	High-moderate
Alterations in active transport, road and parking access arrangements affecting the Airport industrial precinct, Sydney Airport precinct, Qantas Drive precinct and O'Riordan Street business precinct.	<ul style="list-style-type: none"> Access to businesses would be maintained Temporary inconvenience for employees, customers, distributors and servicing and delivery providers due to extended travel distances and times Increased competition for on-street parking due to additional construction workers in the area. 	Moderate	Low	Moderate-low

Impact	Implications	Sensitivity	Magnitude	Level of significance
Around 24 parking spaces in the northern airport lands car park would be permanently removed. Two car parking areas with a combined capacity for about 81 vehicles would be required temporarily.	<ul style="list-style-type: none"> The loss of the parking spaces is considered to be manageable with some reconfiguration of the parking areas. The northern lands car park is infrequently used. There would unlikely be a discernible impact to businesses The two car parks located near Terminals 2/3 are used by the adjacent DHL business. Only one of these car parks would be used for construction at any one time to reduce the impact for the users. 	Low	Low	Low
Travel times on Airport Drive, O’Riordan Street, General Holmes Drive, Robey Street, Seventh Street, Link Road and Joyce Drive are predicted to change due to the lowering of speed limits, increase in construction vehicle movements and reduction in intersection performance. Permanent removal of two bus stops.	<ul style="list-style-type: none"> Changes in employee and customer access affecting business productivity and personal time Reduced arrival reliability affecting airline passengers, staff and the freight and distribution businesses Reduced time for people to spend at shops and restaurants in the airport Heightened anxiety and stress experienced by workers, service providers and customers Potential financial and emotional burden on passengers if they miss flights Loss of passing trade for retail and hospitality businesses. 	High	Moderate	High-moderate
Businesses fronting the project site in the Qantas Drive Industrial precinct, Sydney Airport precinct and O’Riordan Street business precinct would experience an increase in external noise levels.	<ul style="list-style-type: none"> At office spaces along the alignment, workers may have trouble hearing colleagues and clients and find it more difficult to concentrate on tasks. This can have a consequence on worker productivity, employee health and wellbeing and may affect business revenue Noticeable increase in external noise levels at hotels in the study area, specifically at Mantra Hotel, the planned hotel on Seventh Street, Stamford Plaza, Ibis Budget Sydney Airport, Citadines Connect Sydney Airport, Quest Mascot and Travelodge may reduce customer experience and the potential to attract new or repeat customers Noticeable noise increase at the proposed site for the Qantas Flight Training Centre. As the centre would be newly constructed, it is assumed appropriate noise attenuation would be provided. 	Moderate	Low	Moderate-low

Impact	Implications	Sensitivity	Magnitude	Level of significance
Vibration effects with the potential to experience cosmetic damage or be within the human response range.	<ul style="list-style-type: none"> Heightened levels of stress and anxiety for employees in the Airport industrial precinct, Qantas Drive Industrial precinct, and the O’Riordan Street business precinct. 	Low	Low	Low
Changes to the visual amenity of the study area by removing established vegetation and advertising signs and installing construction hoardings, construction buildings and infrastructure, fencing and construction equipment.	<ul style="list-style-type: none"> Generally, changes would have a negligible impact on businesses in the study area 	Negligible	Negligible	Negligible
Changes in business exposure due to construction of the flyover	<ul style="list-style-type: none"> Reduce exposure of businesses on the corner of Sir Reginald Ansett Drive and Qantas Drive due to the construction of the flyover. The interior amenity of airport hotels is generally more valued by customers than the exterior characteristics with minimal impact expected. The AMG car dealership however, has a higher sensitivity to business exposure and visibility. Reduced exposure may result in less sales and revenue Three advertising signs along Qantas Drive eastbound would be affected by the construction of a proposed flyover and subsequent obstruction of views to the advertising signs. The change would have a consequence on advertising sales and business revenue. 	Moderate	Moderate	Moderate
Increase in dust emissions during site preparation work and during construction.	<ul style="list-style-type: none"> Increase in dust can generate higher cleaning costs and affect employees with respiratory health issues Excessive dust production can affect the visibility in the airspace surrounding the airport and impact on airport operations. 	Low	Low	Low
Increased construction expenditure and employment.	<ul style="list-style-type: none"> Existing retailers in the local area of the site could capture \$2.1 million in additional expenditure annually from construction workers on site The project would generate around 14,100 direct and indirect jobs years over the construction period, equivalent to around 3525 jobs per annum. 	N/A	N/A	
Flow-on economic benefits related to construction of the project.	<ul style="list-style-type: none"> Construction would generate around \$2.2 billion of activity in production induced effects and around \$1.5 billion in consumption induced effects Total economic activity generated by the construction of the proposed development would be about \$5.3 billion. 	N/A	N/A	

Impact	Implications	Sensitivity	Magnitude	Level of significance
Broader industry effects as a result of construction	<ul style="list-style-type: none"> While particular industries may experience and increase or decrease in demand for services as a result of construction, the effects would not be noticeable or impact on the ongoing productivity and sustainability of the broader industry. 	Low	Negligible	Negligible
Broader construction effects on the empty container park industry.	<ul style="list-style-type: none"> In 2019, the empty container park sector has reached a critical situation where growth in the empty container task has exhausted the available capacity of the existing empty container parks in Sydney This capacity issue would be exacerbated by construction impacts on the Tyne and Maritime Container Services facilities, with an expected capacity loss of about 12,000 twenty-foot equivalent units and an average storage volume of 9,000 twenty-foot equivalent units Reduced travel time forecast during construction would create further travel time and cost inefficiencies for the empty container transport industry Without a suitable nearby alternative for the Tyne facility, local importers, exporters and shipping companies may face additional costs associated with accessing the intermodal terminals and container turnover times may increase. 	High	Moderate	High-moderate
Employment land supply and economic productivity	<ul style="list-style-type: none"> The development of the project would result in a loss of over 10 hectares of industrial land The reduced supply of employment land affects the long-term economic productivity of an area and associated current and future employment opportunities Reduced supply can increase demand for the remaining employment land, driving up rents and potentially displacing less viable businesses. 	High	Moderate	High-moderate
Delays to major infrastructure operations	If construction activities failed to be completed within the mandated closure period, it would have time, cost and scheduling ramifications on Sydney Airport operations and the rail freight network. These are major state infrastructure networks with any delays likely to have broader impact on freight distribution, airlines, passengers, employees and associated businesses.	Moderate	Moderate	Moderate
Disruption to utilities and services.	<ul style="list-style-type: none"> Disruption may cause inconvenience for employees, interrupt business operations and reduce business revenue. 	Low	Low	Low

6.7 Construction impacts on Commonwealth land

This section outlines adverse business impacts and the effect of the project on employment levels at the airport and the local and regional economy and community as outlined in section 1.1.2. The assessment of impacts on Sydney Airport land has been undertaken in accordance with the *EPBC Act – Significant impact guidelines 1.2* outlined in section 3.5.4.

As discussed in 2.1, *Airports Act 1996* requires an analysis of the local and regional economy and community, including how the proposed developments fit within the local planning schemes for commercial and retail development in the adjacent area. The White Paper determines that this assessment is required where proposed

development is for a commercial or retail purpose and could influence the hierarchy of centres off Commonwealth land. As the project does not propose retail or commercial outcomes it would not conflict with the planning schemes referenced in the *Airports Act 1996*.

6.7.1 Employment levels at the airport

The airport indirectly supports about 57,400 full-time equivalent jobs via economic contributions, with 30,900 jobs directly supporting activities on airport land (Deloitte Access Economics, 2018). While the project would affect access and connectivity of employees using the road system to access the airport, as described in section 6.2, it would unlikely affect existing employment levels on airport land.

As discussed in section 6.4.1, construction of the project would generate about 1015 direct (on-site) jobs per annum and about 4025 jobs cumulative direct and indirect jobs per annum. A proportion of these additional jobs would relate to construction on Sydney Airport land.

Construction of the project would create employment opportunities both on Sydney Airport land and elsewhere. The construction would be over a period of 3.5 years and would positively contribute to employment rates for Greater Sydney.

6.7.2 Local and regional economy

As assessed in section 6.4, the project would affect the local and regional economy. This would be generated through:

- Increased expenditure at local and regional businesses through purchases by construction workers
- Direct employment through on-site construction activities
- Direct expenditure associated with on-site construction activities
- Indirect employment and expenditure through the provision of goods and services required for construction.

Existing retailers in the study area could capture about \$2.4 million in additional expenditure annually from construction workers on the project site. Over the 3.5-year construction period this additional expenditure captured by local retailers could total an additional \$8.5 million. There are several retailers on Sydney Airport land that may benefit from this construction retail expenditure including those along Ross Smith Drive that offer take-away food service. Other businesses on Sydney Airport land that may also benefit from the construction workforce in the area include service providers such as car park operators and car wash operators, airport hotels and airlines.

The economic multipliers (see section 6.4.2) indicates that construction would also generate around \$2.2 billion of activity in production induced effects and around \$1.5 billion in consumption induced effects. Total economic activity generated by the construction of the proposed development would be about \$5.3 billion. This is a large contribution to the economy.

The effect of the project construction on the local and regional economy would be positive and is assessed in section 6.4. Additional economic benefits on Sydney Airport land would be limited to a small number of retailers and service providers in the north-east sector.

6.7.3 Impacts on businesses on Sydney Airport land

The assessment of impacts relating to businesses on Sydney Airport land has considered the severity of impact based on the likely scale, intensity, duration and frequency of impacts collectively. The impacts are also considered in the context of sensitivity and value of the environment. Offsite impacts have been considered in the preceding sections.

More than 43.3 million passengers travelled through Sydney Airport terminal in 2017, with this number anticipated to increase as airport operations expand and demand for flight services increase. Over 30,900 employees are associated with businesses on Sydney Airport land, which require regular access. Considering the number of people employed on Sydney Airport land and the number of passengers that travel from the airport

terminals, the location would be more sensitive to changes in access and connectivity. The Sydney Airport land is in a predominantly industrial area where visual and noise amenity is low. Most businesses would not be sensitive to changes in amenity. The hotels and airline training facilities would have a higher sensitivity to changes in amenity.

Table 6-3 assesses the potential severity of business impacts on Sydney Airport land based on the criteria outlined in section 3.5.4.

Table 6-3: Environmental impacts on businesses on Sydney Airport land

	Impacts	Implications	Assessment
Property	Permanent land requirements requiring reconfiguration of Swissport livestock transfer facility boundary.	<ul style="list-style-type: none"> Reduction in parking and changed access arrangements. 	Minor
	Permanent land requirement to facilitate the project, requiring the relocation of Qantas Flight Training Centre.	<ul style="list-style-type: none"> Potential effects on training scheduling and inconvenience to business operations due to relocation. This could affect multiple businesses dependent on the facility. 	Moderate
	Permanent land requirement to facilitate the project requiring the relocation or closure of Visy Recycling and Boral Recycling.	<ul style="list-style-type: none"> Loss of employment and business revenue from airport land Proposed business relocation and re-establishment of business to alternative site Alexandria There are other recycling facilities in the area that may benefit from an increase in demand for services. 	Minor
	Land requirement resulting in alterations to the land available to lease for Maritime Container Services and Cooks River Intermodal Terminal overflow operations.	<ul style="list-style-type: none"> The business would be able to continue operation at reduced capacity Impact on business revenue and the ability for the broader container industry to meet demand Effect on the longer term operation and expansion plan resulting in reduced revenue and employment growth 	Moderate
	Removal of eighteen advertising signs on airport land.	<ul style="list-style-type: none"> Loss of revenue for advertising sign companies and loss of rent generated on Sydney Airport land Potential marginal impact on employment opportunities due to reduced supply Reduced business exposure for companies that utilise signage. 	Minor

	Impacts	Implications	Assessment
Access	<ul style="list-style-type: none"> Increases in travel times and delay at the Link Road intersections with workers and deliveries needing more time to access the Freight Terminal during the AM peak and PM peak Reduced intersection performance and substantial delays Robey Street/Qantas Drive/Seventh Street access to the T2 and T3 terminals Reduction in parking for some businesses. 	<ul style="list-style-type: none"> Increased travel time for passengers, employees, service providers and deliveries causing stress and anxiety and reduced business productivity. Potential reduction in time people have to spend shopping or dining at businesses in the airport Potential impacts on airline schedules due to delays with a consequence to overhead costs and customer experience Reduced efficiency of freight and product transfer both on and off-site with time and cost impacts Increased stress, travel time and reduced customer satisfaction for ground transport businesses such as taxis, ride share services and shuttle-bus services. 	Moderate
Amenity	Increases in noise at Sydney Airport affecting the Qantas Flight Training Centre, Rydges Sydney Airport, Mantra Hotel, Ibis Budget Sydney Airport and the proposed hotel located near the intersection of Qantas Drive and O'Riordan Street. Noise would be intermittent in nature and mainly when noise intensive construction equipment is utilised.	<ul style="list-style-type: none"> Potential negative customer experience leading to a reduction in repeat clients or reduced customer satisfaction rating Reduced customers due to perceived and actual noise impacts. 	Minor
	Vibration felt by employees and customers in businesses including the proposed hotel on Seventh Street, the AMG car dealership on Sir Reginald Ansett Drive, the hotel and take-away food businesses on Ross Smith Avenue, the businesses on the western side of Eleventh Street, and the Domestic Terminal Car Park 3.	Vibration may cause increased stress and anxiety for employees and customers.	Minor
	Excessive dust production could affect the visibility in the airspace surrounding the airport and impact on airport operations.	It is unlikely that construction dust would reach a level that would affect airspace visibility and operation due to the application of standard management measures identified in the Construction and Environment Management Plan.	Minor
Airport operation	If construction activities encroaching on the OLS failed to be completed within the mandated airport closure period.	<ul style="list-style-type: none"> Time, cost and scheduling ramifications on Sydney Airport operations Alterations to flight paths Delays to airlines and passengers. <p>Impact unlikely to occur if effectively managed in line with the <i>Airport Act and Regulation</i> protocols.</p>	Moderate

Construction works are unlikely to deter many passengers from using the airport. There may be some domestic/ regional passengers who may choose to drive instead of fly to nearby regions if traffic impacts are perceived to or would result in delays, however this is not anticipated to have a substantial impact on trade at the airport. Based on the assessment of business impacts on Sydney Airport land above and implementation of recommended mitigation measures outlined in section 9.0, the level of severity would be moderate.

6.7.4 Assessment of significance – construction

The assessment of significance has been undertaken in Table 6-4 with consideration of the people and community guidance criteria defined in the *Significant Impact Guidelines 1.2*.

Table 6-4: Assessment of construction significance on Sydney Airport land

People and community criteria	Assessment
Substantially increase demand for, or reduce the availability of, community services or infrastructure which have direct or indirect impacts on the environment, including water supply, power supply, roads, waste disposal, and housing.	The project would have direct impact on the functioning capacity of the road network that would reduce access and connectivity for businesses both on and off Sydney Airport land. While travel time is predicted to increase, businesses would remain accessible and demand for services is not anticipated to noticeably change.
Affect the health, safety, welfare or quality of life of the members of a community, through factors such as noise, odours, fumes, smoke, or other pollutants.	The project is unlikely to affect the health, safety, welfare or quality of life of employees or customers.
Cause physical dislocation of individuals or communities.	The project is not expected to cause physical dislocation of individuals or communities as access would be maintained. While some businesses are required to close, the services that these businesses offer would remain available via alternative companies in the broader area.
Substantially change or diminish cultural identity, social organisation or community resources.	The project would not substantially change or diminish the identity or characteristics of the precincts.

Considering the above, construction of the project on Sydney Airport land is not anticipated to have significant impacts on business operation on or off site.

6.8 Consistency with Sydney Airport Master Plan 2039 and Environment Strategy 2019–2024

The objectives of *Sydney Airport Master Plan 2039* and the Environment Strategy, as discussed in section 2.1, relate to the development of Sydney Airport, communicating the development's scope, potential impacts, legislative framework and consultative requirements. Consistency with Master Plan 2039 and the Environment Strategy is required to meet the requirements of MDP assessment, as per Section 89 of the *Airport Act 1996*.

Sydney Airport Master Plan 2039 identifies the need for significant construction works as part of its Ground Transport Plan relating to access to T1 and T2/T3. These works include road widening and other works associated with the Sydney Gateway project that would improve access to Sydney Airport. *Sydney Airport Master Plan 2039* recognises construction of these works, including construction on Sydney Airport land, may have impacts on the business community including employees, customers and service providers. These may include impacts such as construction amenity and access impacts as summarised in section 6.6. *Sydney Airport Master Plan 2039* commits to developing plans in consultation with stakeholders and maintaining communication through construction works.

The Environment Strategy provides additional information regarding obligations and commitments relating to construction works. These include assessment of construction impacts against relevant criteria, preparation of environmental management plans to mitigate impacts, complaint investigation and consultation with the community during preparation of an MDP.

The preparation of the BIA and other assessments have been made in consultation with local businesses. The method and outcomes of consultation for the BIA are detailed in section 0 and 0. Further consideration has been given to the potential construction related business and environmental impacts on the local community and relevant stakeholders in section 6.0. As discussed in section 0, local business concerns regarding construction are primarily related to congestion and access. As outlined in section 6.2, effects on businesses from extended travel time are anticipated to be significant with mitigation and management measures discussed in section 9.0.

By considering the outcomes of consultation and undertaking an assessment of the potential business and environmental impacts of construction, the project has demonstrated consistency with the objectives and commitments of *Sydney Airport Master Plan 2039* and the Environment Strategy.

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7.0 ASSESSMENT OF OPERATION IMPACTS

This section provides an assessment of the potential impacts to businesses as a result of the operation of the project. The operation of the project could affect businesses, employees and customers both positively or negatively. The section draws upon various environmental impact statement and MDP technical working papers to inform the extent of change from the existing environment.

7.1 Access and connectivity

Technical Working Paper 1 – Transport and Traffic identifies operation of the project would result in changes to access and travel times for employees, customers and goods movements. This would have a direct effect on business productivity and overhead costs.

7.1.1 Travel times and access

The project would provide a new high capacity road connection from the Sydney motorway network at St Peters interchange to Sydney Airport terminals, Mascot and Port Botany. This would result in a large shift in traffic volumes from the existing road network to the completed project. The business survey (see 0) indicated that businesses are highly sensitive to changes in access and connectivity.

The shift in volume of traffic to Qantas Drive and the Sydney Gateway road project would see a reduction in localised traffic, including heavy vehicle volumes on local roads. Roads forecast to experience a reduction in traffic and consequent travel time improvements for years 2026 and 2036 include:

- Southern Cross Drive
- Princes Highway
- O’Riordan Street
- Bourke Street
- Gardeners Road
- Botany Road
- M1
- Local roads around Mascot town centre.

Average travel speeds and the performance of intersections are forecast to improve, reducing travel times and improving the overall efficiency of the road network.

The project would provide direct and efficient connection to the cargo and passenger terminals of Sydney Airport. The dedicated flyover of Qantas Drive would make it easier to access T2/T3 for employees and customers and separate airport traffic from heavy vehicles accessing Port Botany. The business survey (see 0) and stakeholder engagement identified that businesses perceived additional road connections to Sydney Airport, reduced congestion in Mascot and Botany, reduced travel times on Sydney motorways and reduced vehicles on local roads as positive outcomes. The enhanced efficiency would also have direct benefits to taxis, ride share and shuttle bus services dropping off and picking up passengers to the airport.

Transport, logistics and urban service industries would benefit from improved road efficiency through direct connections, reduced distribution times and the potential to attract customers from new locations. Road improvements may attract new businesses into the study area, creating additional employment opportunities and economic benefits for the local economy.

Reduced local traffic in Mascot town centre and on Botany Road may improve the amenity of these business centres, creating potential to attract new businesses, more customers and improve centre performance. Retail and customer service businesses would be the most likely to benefit from this change. Conversely, the reduced volume of traffic on local streets may reduce business exposure and passing trade. As described in section 4.3.5, these centres do have a higher dependency on passing trade; however, they service a predominantly local

catchment of residents and workers. The improved amenity and appeal of the centre would likely counter any reduction in passing trade as more people are expected to travel to the centre.

The higher throughput of traffic on Qantas Drive may increase passing trade for take-away food and car services along Ross Smith Avenue in Sydney Airport precinct – north-east sector. It would also enhance the exposure of businesses fronting Joyce Drive and Qantas Drive, including hotels at the intersection of O’Riordan Street and Sir Reginald Ansett Drive.

Improved travel times would benefit employees and customers travelling by car and bus. As indicated in section 4.7.1, commuting via the road network (62 per cent) is the dominant journey to work method for employees travelling to the study area. Connections to the cargo and passenger terminals at Sydney Airport would be more direct and efficient. This can reduce stress and anxiety for people travelling to the airport and provide more time at the airport, which could result in increased spending at shops and restaurants. Travel time efficiencies would also be achieved for servicing and deliveries at businesses in Sydney Airport precinct. This would improve business productivity and reduce overhead costs.

New cycle and pedestrian paths would be built along the northern side of Alexandra Canal. This is expected to maintain the journey-to-work experience for employees walking or cycling.

Overall, the operation of the project would generate an improvement in the connectivity and accessibility of the study area, benefitting employee and customer access, freight and servicing efficiencies and improving amenity on local streets.

7.2 Amenity

Changes in amenity as a result of alterations in noise, vibration, air quality and visual characteristics can affect the enjoyment and desirability of the business environment, influencing how many customers choose businesses located in the study area. The business survey identified that the majority (55 per cent) of respondents stated that the effect of the project operation on amenity would be neutral. Twenty-eight per cent stated the effect would be positive, two per cent stated the effect would be negative and 14 per cent stated that they were unsure/not applicable.

7.2.1 Noise

As identified in section 4.8.1, businesses in the study area are already subject to relatively high existing ambient noise levels due to the surrounding road, rail and aircraft noise and light industry noise impacts. They also generally have a higher ability to tolerate and adapt to noise.

The Technical Working Paper 2 – Noise and Vibration identified that businesses adjoining the new project alignment may experience an increase in noise levels; however, in most instances they would not be at a level that would be noticeable or impact on operation.

Operational noise impacts are predicted to increase at businesses near O’Riordan Street, in Mascot, due to the removal of several airport buildings adjacent to Qantas Drive, which were previously buffering businesses from the ground based aviation noise.

Due to the removal of buildings, marginal increases in noise levels may occur at:

- Ibis Budget Sydney Airport hotel and Travelodge Hotel Sydney Airport on King Street
- Pullman Sydney Airport on O’Riordan Street
- The site identified for the future location of Qantas Flight Training Centre.

An increase in noise levels, particularly at night time, is predicted near the Joyce Drive and O’Riordan Street intersection, on Baxter Road in Mascot. The hotels located on Sydney Airport land are also identified as experiencing increased noise levels. Hotels that do not have high performance facades have the potential to be sensitive to high noise levels, as they are reliant on providing a positive customer experience.

Overall, most businesses in the study area have low sensitivity to noise and the magnitude of change from the existing environment would be negligible. A small number of receivers, including some of the hotels and the

relocated Qantas Flight Training Facility have moderate sensitivity to noise. The magnitude of change from the existing environment would be low as noise increases would be confined to receptors in a limited geographic area in the vicinity of the project. The level of significance is **low**.

7.2.2 Visual

The Technical Working Paper 13 – Place Making, Urban Design and Visual Impacts identifies that new road infrastructure including bridges, noise attenuation structures, retaining walls, ramps and viaducts would result in an identifiable change to the environment. The area is characterised by industrial, commercial and transport uses. These uses generally have a low dependency on the desirability of the visual environment.

There are several advertising signs in the study area that are dependent on exposure. Advertising businesses prefer a high volume traffic environment to increase exposure to advertising signs. The increase in traffic volumes predicted along Qantas Drive and the new project alignment, compared to the current volumes, would increase exposure for existing signs. This may enable advertising companies to increase rent and potentially generate higher revenue due to the increase in exposure. Views to three advertising signs along Qantas Drive eastbound would also be obscured by the elevated viaduct, resulting in reduced rent return and exposure for businesses advertising.

The proposed elevated viaduct would reduce exposure to the corner of Ninth Street and Sir Reginald Ansett Drive, currently occupied by the AMG car dealership. This business currently benefits from high exposure. As a retail premises, the business would be moderately sensitive to reductions in business visibility.

The project would create the opportunity to deliver an entry statement design feature that enhances the arrival and departure experience for visitors to Sydney. The project would also incorporate opportunity for structures to be included in the design, which could support advertising signage in the future. The exact location and extent of these structures would be subject to detailed design. The establishment of advertising signs would be subject to a separate approval process.

The AMG car dealership would be moderately sensitive to reductions in business visibility. The construction of the flyover would result in a clearly noticeable and long term change from the current environment. The magnitude of change would be moderate. The level of significance moderate.

The wider study area has low sensitivity to changes in the visual environment. The predicted impacts are confined to a small geographic area, with a low magnitude of change. The level of significance is **low**.

7.2.3 Air quality

Technical Working Paper 4 – Air Quality identifies that the project would result in an improvement in air quality on Botany Road, the M5, Canal Road and Southern Cross Drive. Improved air quality may have a positive effect on the health and wellbeing of employees and customers within the local area, particularly in the Ricketty Street business park and Mascot station precinct. The Technical Working Paper 15 – Human Health assessed that, where improvement was identified, there would be a small (ie unmeasurable) benefit to health.

A reduction in air quality may be experienced on the Terminal 1 connection, St Peters interchange connection, Qantas Drive, Joyce Drive, General Holmes Drive and Airport Drive from the increase in vehicle volumes. While employees and customers travel along these corridors, they are in transit and not lingering for extended periods in areas of marginally reduced air quality. The Technical Working Paper 15 – Human Health assessed that where there were predicted increases in pollutant concentrations, they were low and were not considered to be of significance or of concern in relation to community health. Changes would not have a discernible impact on business operation.

Businesses in the study area have a low sensitivity to changes in air quality. The magnitude of changes in air quality were negligible as they were not considered to have discernible positive or negative impacts to business operations. The level of significance is **negligible**.

7.3 Operational economic effects

7.3.1 Local and regional operational economic effects

Sydney Airport is central to Australia's commercial aviation industry and economic prosperity. The airport is Australia's largest and busiest, moving more domestic and international passengers than any other airport in Australia (Deloitte Access Economics, 2018). The airport generates and facilitates (directly and indirectly) over \$38 billion in economic activity, with over 44 million passengers serviced per year. The airport indirectly supports about 57,400 full-time equivalent jobs via economic contributions, with 30,900 jobs directly supporting activities on airport land. When considering larger economic impacts associated with tourism, the airport supported 159,900 full-time equivalent tourism jobs in Australia (Deloitte Access Economics, 2018). Further, the airport facilitates the export of about \$17.6 billion in freight annually (Sydney Airport Corporation Limited 2018b).

The project would create direct high capacity road access to the T1 and T2/T3 terminals. The entrance to the T2/T3 terminal would be enhanced with a dedicated elevated viaduct from Qantas Drive, making it easier to access for employees and customers. The *Sydney Airport Master Plan 2039* identifies that with the delivery of the project, the land north of Alexandra Canal would be able to be unlocked for airside aviation support activities including freight, catering, storage and maintenance, truck staging and vehicle storage. The increased road capacity would also provide opportunity to expand airport operations including additional commercial development and growth in passenger and freight airline movements. This would indirectly support the economy through increased employment opportunity and increased business and tourism expenditure.

As discussed in section 7.1, the project would result in reduced travel times and increased traffic volume capacity across the road network, including providing a direct connection to Sydney Airport and the broader Sydney motorway network. The local businesses within the study area are estimated to generate \$10 billion of industry value added per year (section 4.6), representing significant economic contributions locally and regionally. The transport, postal and warehousing sector is the largest contributor to the annual IVA within the study area, at about 30 per cent, or about \$3 billion, with manufacturing contributing 8.2 per cent (\$820 million) and wholesale trade contributing at 7.8 per cent (\$783 million). As discussed in section 4.7.2 and section 6.2, these industry sectors are highly sensitive to costs associated with road freight, access and connectivity. The improved transport connectivity may also attract new businesses to establish in the area, increasing local economic productivity and employment.

The project would result in lower costs associated with transport and increase opportunities associated with access to Sydney Airport, Port Botany and businesses in the study area, enabling the expansion of businesses local and regionally. This expansion is likely to result in increased job opportunities within and external to the study area, producing economic benefits associated with increased trade and employment.

The introduction project would also provide other benefits for the local and regional economies, including:

- Broadening trade catchments (see section 7.3.2)
- Enhancing freight network efficiency (see section 7.3.3)
- Enhancing employment connectivity (see section 7.3.4).

The benefits would be long-term and positive for broader Sydney.

7.3.2 Altered trade catchments

A business trade area (or catchment) is defined as the geographic area from which a business draws its customers from or provides services to. At its simplest, the extent of a business trade area varies depending on the type of product or service provided, the relative location of competitors and the degree of mobility of customers or service providers. Other factors such as social and economic status of clientele, geographic barriers, efficiency of transport networks, perceived and actual distance and time travel and appeal of a business centre also contribute to the definition of a trade area.

The introduction of an additional transport connection, which increases the efficiency of a network and connectivity across a broader geographic area, can lead to expanded trade catchment opportunities. Improvements in travel time savings (see section 7.1) mean that business catchment areas based on travel time

would expand, as customers further afield would now be able to bypass inner city pinch points and access these businesses. This can benefit business and the economy by:

- Increasing efficiency and appeal for customers to access businesses
- Increasing distribution capability and delivery times for businesses
- Reducing transport costs and improved reliability for businesses, employees and customers
- Linking regional importers, exporters and services to the trade gateways of Sydney Airport and Port Botany via enhanced connections to the Sydney motorway network and St Peters interchange.

The benefits would be long-term and positive for broader Sydney.

7.3.3 Freight and efficiency costs

The freight industry is an important part of the NSW economy as an enabler of economic activity. Numerous industries are dependent upon efficient transport to service operational requirements by moving goods and products around the State and further afield. In 2019, the transport, postal and warehousing industry contributed \$22.6 billion in industry value added to the national economy, representing 5.1 per cent of the total industry value added generated by all industries (ABS, 2019b).

A large proportion of goods are imported and exported to and from Port Botany. In addition, in 2017 Sydney Airport handled 643,000 tonnes of air freight, which is forecast to increase to just over 1 million tonnes by 2039. Sydney Airport Corporation in 2018 estimated that it contributed around \$38 billion annually to the NSW economy, representing 6.8 per cent of its economy (Sydney Airport Corporation, 2018).

As noted in the Technical Working Paper 1 – Transport and Traffic, the local study area road network is currently experiencing poor performance at major intersections. This is expected to limit the potential for servicing future freight demands in the study area. These impacts extend to through traffic not associated with the study area. Current and future delays would directly affect the operations of businesses within the study area and those that rely on access to the study area. This is evident in business survey responses (section 5.0) and supported by the former NSW Long Term Transport Master Plan that estimates Sydney's congestion costs at around \$5 billion per year. Without action, these costs are forecast to rise to \$14.8 billion per year by 2031 (Infrastructure Australia, 2015).

The project seeks to address these impacts by improving access and connectivity and increase vehicle height clearance with operational benefits related to traffic movements discussed in section 7.1 and Technical Working Paper 1 – Transport and Traffic. The project would result in a reduction in cumulative traffic volumes, improvement of intersection performance during peak periods and reduction in travel times.

As discussed in Technical Working Paper 1 – Transport and Traffic, the project is expected to result in 2036 travel time savings along local roads in AM and PM peak hours. The travel time benefits associated with the project would be more prevalent in the AM peak, with decreases of around 40 to 60 per cent forecast across most of the routes, including routes incorporating Marsh Street, Canal Road, Coward Street, Botany Road, O'Riordan Street and Unwins Road. Combined with the effects of other programmed road works (F6 extension and Western Harbour Tunnel and Beaches Link) these time savings are expected to increase by around 35 seconds during the AM peak and around 1 minute and 40 seconds during the PM peak.

Travel time reduction would result in several benefits. These would include reduction in operating costs (eg wear and tear associated with extended periods of slow movement), reliability benefits (eg reduction in variance in travel time allowing for efficient scheduling) and direct travel time savings (eg reduction in real or opportunity costs associated with transit times). Given the expected reduction in travel times noted above, the project would increase the efficiency and reliability of freight movements on the local and regional road network. This would increase capacity for product distribution, reduce overhead costs for businesses and enhance transport and logistics scheduling and productivity.

The Greater Sydney Regional Plan suggests that *efficient trade gateways and freight and logistics networks are required for the region to be more internationally competitive* (Greater Sydney Commission, 2018a). The delivery of the project would assist in enhancing the efficiency of the trade gateway by increasing road capacity and motorway connectivity. The benefits would be long-term and positive for broader Sydney.

7.3.4 Employment connectivity

Over 500,000 of Sydney's jobs are located in the Eastern Economic Corridor, which presently extends from Macquarie Park in the north via the Harbour CBD to the trade gateway of Port Botany and Sydney Airport (Greater Sydney Commission, 2018a). As identified in section 4.5, the study area accommodates about a fifth of these jobs (ABS 2016). As discussed in section 5.0, businesses surveyed have identified that congestion is a significant factor in attracting and retaining employees. Therefore, congestion represents a barrier between the businesses in the study area and potential employees. This is likely to extend to residents of Mascot and surrounding areas that have reduced employment catchments because of the effects of congestion on commute times.

With the expected job growth across the Eastern Economic Corridor, businesses within the study area would face further competition for skilled workers. With congestion in the study area expected to increase in the future without the project, local businesses may face significant disadvantage in relation to staff retention, presenting challenges for long term sustainability.

As discussed in section 7.1 and Technical Working Paper 1 – Transport and Traffic, the project would address this issue by reducing travel times associated with light vehicles and buses. These long term improvements would assist in connecting Sydney Airport and local businesses with potential employees, while also increasing the employment catchments of local and regional residents affected by local congestion. This may also assist in reducing unemployment rates by expanding access to jobs.

For commuters, the operational project would lead to a more reliable road network, reducing commuting time and lowering vehicle operating costs. Effects would be long term, and benefit the Greater Sydney Region, particularly residents and businesses in Western Sydney who would have enhanced, direct motorway access to the study area and Port Botany.

In addition, the reduction of traffic on surface roads would improve the road network and allow for enhanced bus services, with Technical Working Paper 1 – Transport and Traffic predicting that the project would result in 2036 travel time savings for buses both in the AM and PM peak hours. These time savings are estimated at about 13.2 (project) and 14.4 (cumulative) minutes during the AM peak and 11.4 (project) and 14.6 (cumulative) minutes during the PM peak. Cumulative time savings (with other approved projects) would be about 50 per cent during AM and PM peaks, representing significant time savings that may increase the attractiveness of bus services for local workers, further reducing costs associated with transit.

The benefits would be long-term and positive for broader Sydney.

7.4 Summary of operational effects

A summary of anticipated business impacts during operation are outlined in Table 7-1.

Table 7-1: Summary of operational effects

Impact	Implications	Sensitivity	Magnitude	Level of significance
The project would provide a new high capacity road connection from the Sydney motorway network at St Peters interchange to Sydney Airport terminals, Mascot and Port Botany.	<ul style="list-style-type: none"> The shift in volume of traffic to Qantas Drive and the new Sydney Gateway road would see a reduction in localised traffic, including heavy vehicle volumes on local roads having benefits to the amenity of the business environment Average travel speeds and the performance of intersections are forecast to improve, reducing travel times and improving the overall efficiency of the road network for employees, customers and distribution, delivery and servicing businesses Road improvements may attract new businesses into the area, creating additional employment opportunities and economic benefits for the local economy Dedicated elevated viaduct making it easier to access T2/T3 for employees and customers. 	N/A	N/A	N/A
Operational noise impacts are predicted to increase at businesses near the project alignment.	<ul style="list-style-type: none"> Marginal increases in noise levels may occur at: <ul style="list-style-type: none"> the hotels close to the alignment the site identified for the future location of Qantas Flight Training Centre. <p>This may affect the way the businesses operate and potential customer satisfaction.</p>	Low	Low	Low
Increased exposure to advertising signs	<ul style="list-style-type: none"> Increase in traffic volumes predicted along Qantas Drive and the new project alignment increasing exposure for existing signs enabling advertising companies to increase rents and potentially generate higher revenue due to the increase in exposure. 	N/A	N/A	N/A
Changes to visual amenity due to new road infrastructure including bridges, noise attenuation structures, retaining walls, ramps and viaducts.	<ul style="list-style-type: none"> Views to three advertising signs along Qantas Drive eastbound would be obscured by the elevated viaduct, resulting in reduced rent return and exposure for businesses advertising Altered visual outlook for businesses overlooking the study area. 	Low	Low	Low
Changes in business exposure due to viaduct	<ul style="list-style-type: none"> Reduction in exposure to the corner of Ninth Street and Sir Reginald Ansett Drive, currently occupied by the AMG car dealership. Possible effect on passing trade and revenue patterns as less people may see the dealership or customers may have difficulty locating the premise. 	Moderate	Moderate	Moderate
Changes in pollutant concentration	<ul style="list-style-type: none"> Changes in air quality were not considered to be of significance or of concern in relation to community health. 	Low	Negligible	Negligible

Impact	Implications	Sensitivity	Magnitude	Level of significance
Local and regional operational economic effects	<ul style="list-style-type: none"> New road infrastructure unlocks the capacity to implement <i>Sydney Airport Master Plan 2039</i> including expanding passenger and freight operation capacity, delivering additional aviation support services and commercial premises Improved access attracting new businesses to establish in the area, increasing local economic productivity and employment Lower costs and improved reliability of the freight and logistics network with improved access and travel times to Sydney Airport, Port Botany and businesses in the study area. 	N/A	N/A	N/A
Expanded business trade catchments due to strengthened connections to the Sydney motorway network	<ul style="list-style-type: none"> Increased efficiency and appeal for customers to access businesses in the study area Increased distribution capability and reduced delivery times for businesses Reduced transport costs and improved reliability for businesses, employees and customers Improved linkages between regional importers, exporters and services in and to the trade gateways. 	N/A	N/A	N/A
Improved freight and distribution network connection and efficiency with higher height clearances and direct connections to the motorway network.	<ul style="list-style-type: none"> Time travel savings of about nine minutes on local roads benefitting local freight distribution and servicing Increased efficiency and reliability of freight movements on the local and regional road network Increased capacity for product distribution, reduced overhead costs for businesses and enhanced transport and logistics scheduling and productivity. 	N/A	N/A	N/A
Employment connectivity enhanced through new road connection.	<ul style="list-style-type: none"> An improvement in reliability and reduction in time employees spend commuting Expanded employment catchment associated with improved journey to work accessibility to the trade gateway Potential reduction in the regional unemployment rate due to increased job opportunities associated with improved journey to work time. 	N/A	N/A	N/A

7.5 Operational impacts on Commonwealth land

This section outlines the effect of the project on the employment levels at the airport, the local and regional economy and community, as outlined in section 1.1.2. As discussed in 6.6, an assessment of impacts in relation to planning schemes is not required. This section outlines the potential impacts to businesses on Sydney Airport land from operation of the project. It also considers the broader off-site impacts that may result for development on Sydney Airport land. The assessment has been undertaken in accordance with the methodology outlined in section 3.5.4.

7.5.1 Employment levels at the airport

As discussed in section 7.3.1, the project would help facilitate the delivery of *Sydney Airport Master Plan 2039* by delivering additional road capacity. This would enable the growth of airline services, aviation support facilities, freight and commercial services on airport land. The current master plan indicates that an additional 3,500 full time equivalent jobs could be created between 2019 and 2024 while the project is under construction. It is

anticipated that this number would increase further once the project is operational and the additional road capacity created.

The benefits would be long-term and positive for employment on Sydney Airport land.

7.5.2 Local and regional economy

The project would deliver direct access to the Sydney motorway network for businesses on Sydney Airport land. As assessed in section 7.3.1, this would have a benefit to the local and regional economy, generated through:

- Facilitating the achievement of *Sydney Airport Master Plan 2039*
- Broadening of trade catchments
- Enhancing the efficiency of the freight network
- Enhancing employment connectivity
- Enhancing customer connectivity
- Attracting new business investment in the trade gateway due to enhanced motorway connectivity.

The project creates the capacity to enhance the economic productivity and efficiency of the trade gateway, including the productivity of businesses on Sydney Airport land. The enhanced connections can improve the appeal of the trade gateway, enhancing Greater Sydney's international competitiveness.

The benefits would be long-term and positive for Greater Sydney.

7.5.3 Other operational effects on businesses

Other potential operational impacts on businesses on Sydney Airport land relate to access and connectivity and amenity. The criteria outlined in section 6.7.3 have been applied.

Access and connectivity

Considering the changes to the road, public transport and active transport environment identified in the Technical Working Paper 1 – Transport and Traffic and section 7.1, the Sydney Gateway road project would:

- Enhance connectivity and productivity of cargo and freight servicing and distributing from Sydney Airport
- Improve connectivity and travel times for customers and employees of airlines and businesses on Sydney Airport lands
- Increase the economic productivity and employment opportunity of Sydney Airport due to improved road connections to the broader transport network
- Enhance time for passengers to shop and dine at airport businesses due to reduced traffic congestion.

The access and connectivity benefits experienced on Sydney Airport land would be long-term and positive for broader Sydney.

There would be a minor reduction in the amount of parking spaces available at the Sydney Airport northern lands employee car park, with the loss of 24 spaces. This change would not be discernible to businesses and would unlikely affect operations. Due to the small number of spaces affected and the infrequent use of this car park, this is considered to be a minor impact.

Amenity

Considering the changes to the amenity of the environment as outlined in section 7.2, the operation of the Sydney Gateway road project would produce benefits including:

- Increasing the volume of traffic passing advertising signs improving their exposure and capacity to generate additional revenue and sales
- Increasing the volume of traffic passing service and take-away food premises on Ross Smith Drive, potentially enhancing opportunity for passing trade
- Creating opportunities for a new gateway entry statement to welcome domestic and international visitors.

Some local adverse amenity impacts would be experienced on Sydney Airport land including:

- Increased road traffic noise levels at the hotels on Sydney Airport land
- Reduced exposure to some existing advertising signs due to the elevated viaduct
- Impeded exposure of the AMG car dealership on the corner of Ninth Street and Sir Reginald Ansett Drive due to the elevation of the viaduct.

Create opportunities for a new gateway entry statement for welcome domestic and national visitors. The hotels, retail premises and advertising signs are moderately sensitive to changes in amenity. The severity of change would be minor, however, as it would be confined to a small number of businesses.

7.5.4 Assessment of operational significance

The assessment of significance has been undertaken in Table 7-2 with consideration of the people and community guidance criteria defined in the *Significant Impact Guidelines 1.2*.

Table 7-2: Assessment of operational significance on Sydney Airport land

People and community criteria	Assessment
Substantially increase demand for, or reduce the availability of, community services or infrastructure which have direct or indirect impacts on the environment, including water supply, power supply, roads, waste disposal and housing	The project would have a direct impact on the capacity of the road network that would positively affect access and connectivity for businesses both on and off Sydney Airport land. Travel time is predicted to improve increasing accessibility for businesses and enabling the expansion of services at the airport.
Affect the health, safety, welfare or quality of life of the members of a community, through factors such as noise, odours, fumes, smoke, or other pollutants	The project is unlikely to affect the health, safety, welfare or quality of life of employees or customers.
Cause physical dislocation of individuals or communities	The project is not expected to cause physical dislocation of businesses as access to businesses would be improved.
Substantially change or diminish cultural identity, social organisation or community resources	The project would not substantially change or diminish the identity or characteristics of the precincts.

Considering the above, the operational effects of the project on Sydney Airport land is not anticipated to have significant impacts on business operation on or off site.

7.6 Consistency with Sydney Airport Master Plan 2039 and Environment Strategy 2019–2024

As detailed in section 0, *Sydney Airport Master Plan 2039* outlines the vision of Sydney Airport, with objectives for the future 20 years of its development. According to the *Sydney Airport Master Plan 2039* vision statement, development is to, in part, “drive productivity, jobs and economic growth, and improve environmental outcomes, while being a good neighbour and making a positive contribution to our community.”

Further, key objectives of Master Plan 2039 relating to the project are:

- Planning, development and operation of projects support the NSW and local economies in which the airport operates
- Improving ground access to, from and past the airport by:
 - partnering with the Australian, NSW and local governments
 - supporting increased public and active transport use
- Stimulating leisure and business travel to generate benefit and value for the economy by:
 - facilitating the activities of business operating at the airport
 - contributing to the growth of tourism, trade and jobs in the NSW and Australian economies.

The project is identified by *Sydney Airport Master Plan 2039* as a key transport solution in the ground transport plans. The *Sydney Airport Master Plan 2039* also forecasts significant commercial development and employment increases on Sydney Airport land, requiring enhanced ground transport connectivity, with the project critical to supporting that job growth.

The *Sydney Airport Master Plan 2039* identifies several operational benefits of the project relating to easier, faster and safer travel to and within Sydney Airport, with these benefits extending to the surrounding community. As discussed in section 7.1, these benefits are considered likely, with an expected reduction in congestion resulting in the following benefits:

- Increased capacity of the road network, supporting growth in passenger and freight movements and their positive impacts for tourism and industry
- Reduced private and public transport travel time to Sydney Airport and the surrounding area, reducing costs associated with travel and supporting future growth locally and regionally
- Increased employment opportunities in Sydney Airport, the surrounding area and within regional businesses supporting or utilising Sydney Airport for trade.

The project is therefore consistent with *Sydney Airport Master Plan 2039*, as it aligns with its vision and objectives, is identified as a key project and is likely to deliver the benefits forecast.

As discussed in section 0, the Environmental Strategy considers the environmental management framework of Sydney Airport, including the environmental impacts of development within Sydney Airport. It requires consultation with the community regarding the potential environmental impacts of development, including operational impacts. This consultation has been undertaken, as outlined in section 5.0.

Business impacts associated with the operation of the project and their mitigation measures are detailed in section 7.0 and section 9.0 respectively. As noted in that section, business impacts are likely to be low to beneficial, apart from amenity impacts for existing hotels, the future Qantas development, existing advertising signs and the AMG car dealership.

The Environmental Strategy notes that the main contributors of ground-based noise include, among others, road traffic to the airport. However, the Environmental Strategy focuses primarily on the impacts of noise associated with aircraft and aircraft related activities. The Environmental Strategy recommends ongoing management and mitigation measures that, where relevant, have been incorporated into Technical Working Paper 2 – Noise and Vibration, including regular monitoring of ground-based noise sources and management of ground-based noise associated with development proposals, like the project.

As the environmental assessments required by the Environmental Strategy have been undertaken with consultation undertaken with business stakeholders regarding those impacts and management measures incorporated as required, the project is consistent with the Environmental Strategy.

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8.0 CUMULATIVE IMPACTS

This section provides an overview of the potential cumulative impacts to businesses as a result of the concurrent construction and operation of Sydney Gateway with Botany Rail Duplication and other proposed major development.

There are several major transport projects that are proposed or under construction (see Table 8-1) in proximity to the study area. These projects are considered as part of the cumulative impact assessment in section 8.0.

Table 8-1: Other major transport infrastructure projects

Major transport infrastructure project in surrounding area	Description
Botany Rail Duplication	<ul style="list-style-type: none"> Australian Rail Track Corporation (ARTC) is delivering the Botany Rail Duplication along the existing freight rail corridor in Botany, Pagewood and Mascot. This project alignment is directly adjacent to Sydney Gateway to the east of Alexandra Canal Botany Rail Duplication is proposed to improve freight rail efficiency and prevent the worsening traffic congestion in the area caused by the high volume of heavy vehicles transporting cargo to and from the port Sydney Gateway will be constructed concurrently with the Botany Rail Duplication, which is expected to be in operation by 2024.
F6 Extension	<ul style="list-style-type: none"> F6 Extension is a new motorway from Arncliffe to President Avenue at Kogarah. The target date for opening is 2024, meaning that construction of the F6 Extension will likely coincide with construction of the project.
M4–M5 Link	<ul style="list-style-type: none"> M4–M5 Link is an underground, multi-lane tunnel project that will connect the M4 East component of WestConnex at Haberfield and the New M5 component of WestConnex at St Peters interchange. Construction is currently underway and expected to be completed in early 2023 A proportion of this project will be located at St Peters interchange, and therefore construction of the M4–M5 Link may occur concurrently with construction of the project.
New M5	<ul style="list-style-type: none"> New M5 project is part of WestConnex and includes new multi-lane twin motorway tunnels between the M5 East Motorway and St Peters interchange, a new road interchange, and upgrade of local roads at St Peters to Mascot. St Peters interchange will provide motorists with connections to Alexandria and Mascot. It also includes connections to M4–M5 Link, and underground connection points for the M4–M5 Link and the proposed F6 Extension. Parts of the New M5 project are located in St Peters and Tempe New M5 would directly connect to the project at St Peters interchange. Upon completion, the interchange would provide motorists and freight with motorway connections directly from Sydney Airport to the western suburbs of Sydney.
Western Harbour Tunnel	<ul style="list-style-type: none"> Western Harbour Tunnel is a proposed new tunnel from Rozelle interchange, connecting to the new Warringah Freeway upgrade. This project aims to take the pressure off Sydney Harbour Bridge and Tunnel, as well as streamline traffic and improve public transport through inner west and northern suburbs of Sydney. The project is currently in the planning and reference design phase. If the project is approved and constructed it would provide an additional motorway transport connection from Sydney Airport and Port Botany via Sydney Gateway, St Peters interchange, M4–M5 Link and the Western Harbour Tunnel to Sydney's northern suburbs.

Major transport infrastructure project in surrounding area	Description
Sydney Metro City and South West	<ul style="list-style-type: none"> Sydney Metro City and South West is a 30 kilometre extension of metro rail from the end of Sydney Metro Northwest at Chatswood under Sydney Harbour, through new CBD stations, travelling south-west to Bankstown. It is due to open in 2024 with seven new metro stations and 11 upgraded stations The new metro line will run through the suburbs of St Peters and Sydenham and will service the residents and employees living and working in St Peters and Tempe. There is currently a stabling yard for the Sydney Metro Trains which is located adjacent to the St Peters WestConnex construction Concurrent construction of the project and Sydney Metro is expected to occur, with the Metro planning to be operational by 2024.

8.1 Nature of cumulative impact

Cumulative impacts result from the successive, incremental or combined effects of a project when added to other existing, planned or reasonably anticipated future projects. The cumulative effect of multiple projects may decrease or intensify the benefits or negative impacts on a business or business centre. Cumulative impacts associated with the above transport and infrastructure projects include:

- Extended periods of construction impacting local amenity and altering the character and identity of a local centre, potentially resulting in construction fatigue
- Extended periods of traffic disruptions affecting customers, employees, visitors, suppliers and commercial vehicle movements
- Economic effects including changes to business operation and revenues
- Construction traffic from multiple projects placing additional pressure on road networks and parking capacity, resulting in potential customers avoiding the area during construction
- Consultation and construction fatigue for local communities and businesses due to the concurrent or sequential planning and construction nature of the project
- Cumulative benefits associated with improved connections across a network of infrastructure enhancing accessibility for business and industry, including freight.

8.2 Botany Rail Duplication

The Botany Rail Duplication would duplicate the remaining 2.9 kilometre section of single line track of the Port Botany Rail Line (PBRL) between Mascot and Botany.

8.2.1 Construction

The construction of Sydney Gateway road project and Botany Rail Duplication would lead to cumulative impacts as a consequence of the close geographic proximity and timeframes of the two projects. The construction of the project and Botany Rail Duplication concurrently would potentially increase the severity of transport and amenity impacts, however, would reduce the overall duration of construction effects compared with a consecutive construction period.

The concurrent construction of the projects would lead to an increase in the number of construction workers in the area and the movement of construction vehicles. This would affect the overall efficiency of the road network with a further reduction in travel times and increased competition for parking. As a result of this, customer and employee access may become more difficult as there would be more vehicles on the roads and competing for car spaces.

Businesses within the O’Riordan Street business precinct, Sydney Airport precinct and Qantas Drive industrial precinct would be particularly exposed to increased amenity impacts due to further minimal increases in noise as a result of concurrent construction (refer to Technical Working Paper 2 – Noise and Vibration for more detail).

Businesses close to construction compounds and those offering construction related services may experience a marginal additional increase in demand for local goods and services with the projects running concurrently. Where construction works for the two projects occur consecutively, businesses may be susceptible to construction fatigue from the extended periods of construction affecting traffic and local amenity particularly for businesses along Baxter Street, Qantas Drive and Burrows Road South. Employees may experience heightened stress levels, feelings of annoyance and inconvenience associated with increased travel time and reduced workplace amenity. Businesses exposed to ongoing construction activities may feel they are at a greater disadvantage than before the projects commenced. They may also have greater difficulty attracting and retaining employees and customers due to the longer term reduction in access and amenity.

8.2.2 Operation

The concurrent operation of the Sydney Gateway road project and the Botany Rail Duplication would lead to an increase in freight efficiency for businesses in the trade gateway, including Sydney Airport and Port Botany. This would reduce the operating costs of businesses and enhance business distribution capacity and economic productivity.

The concurrent operation of the projects would increase the capacity of the freight and distribution network, with increased options for distributing goods across Greater Sydney. The introduction of direct connections to major arterial roads and the enhanced capacity of the freight rail system would reduce the number of heavy vehicles on local roads. This would benefit both the amenity of the environment, enhance the efficiency of servicing and delivery to local businesses and improve travel times for employees and customers. This would have a direct benefit to business overhead costs, revenue and productivity. It may also produce amenity, safety and liveability benefits for residents and workers in the Mascot station precinct.

8.3 Other major transport developments

The potential cumulative business impacts of the Sydney Gateway road project, Botany Rail Duplication and other major transport projects (under construction or proposed) are assessed in this section. The projects considered in this assessment are overviewed in section Table 8-1.

8.3.1 Construction

The construction of Sydney Gateway road project and Botany Rail Duplication may occur concurrently or consecutively with other projects in the surrounding area. Considering the location of Sydney Gateway road project and Botany Rail Duplication in proximity to other major transport projects, the areas more likely to experience cumulative construction effects are in the Airport industrial precinct and the Princes Highway enterprise corridor precinct.

The WestConnex New M5 and M4–M5 Link are both using St Peters interchange as a construction site, which is located in the Airport industrial precinct. Businesses in the Airport industrial precinct and along the Princes Highway enterprise corridor precinct would be particularly susceptible to construction fatigue from the ongoing exposure to local amenity impacts and access alterations. Amenity impacts include elevated noise levels, vibration, construction dust and visual alterations that can affect employee productivity and elevate levels of stress and anxiety. It can also create longer term revenue loss for businesses associated with increased cleaning and reduced business exposure. The ability to attract and retain staff may also reduce as the environment would no longer be pleasant to work in and tolerance would be reduced. Ongoing access alterations and traffic congestion in the area would increase travel time and reduce the efficiency of employee and customer access, product distribution and business servicing. This can have a direct impact on business revenue and can also reduce the appeal of a location for employment and business investment.

The cumulative construction of projects would generate an increase in demand for skilled construction workers and businesses supplying construction materials and support services. There are several businesses in the study area involved in construction that may benefit from the cumulative increase in demand. Considering the proximity of the Boral Concrete St Peters facility to these major projects, there is potential the business would experience direct economic benefits as a result of the multiple major projects.

The Technical Working Paper 1 – Traffic and Transport also identified that the increased traffic demand generated by the opening of the WestConnex program of works may generate additional vehicles in the study area and adversely further reduce the performance of the road network. This could further increase travel times for employees and customers and adversely affect the efficiency of the freight, servicing and delivery network.

8.3.2 Potential cumulative operational impacts

Once operational, the Sydney Gateway road project and Botany Rail Duplication, alongside the other major transport projects, is predicted to deliver cumulative impacts for businesses.

Technical Working Paper 1 – Transport and Traffic predicted that the cumulative road network would carry more traffic and record a higher average trip speed for vehicles. The inclusion of the F6 Extension and Western Harbour Tunnel would reduce the daily traffic volumes predicted on the A1, M1 and Southern Cross Drive. Within the study area, additional traffic reductions are also predicted in both directions in Mascot along O’Riordan Street, the Princes Highway and on Botany Road.

The delivery of all major transport projects would provide cumulative benefits including:

- Supporting Sydney’s long-term economic and employment growth through improved transport connectivity to key employment areas across the city
- Supporting the long-term NSW Government goal for the effective movement of freight from western Sydney to the two important trade gateways to be realised
- Alleviating congestion and contributing to improved connectivity, speeds, reliability and safety of the broader road network, which is of particular importance to the contribution and efficiencies of the freight industry
- Generating economic effects and benefits to businesses through reduced operational expenses and opportunity for increased revenues from expanded trade catchments
- Improving business viability and centre regeneration opportunity as a result of new connections
- Improving connections across the network, enhancing accessibility for customers and employees and creating greater opportunity for business synergies
- Attracting new business investment in the trade gateway, enhancing agglomeration effects for existing businesses and local economic productivity.

While the project would generally be beneficial, it would increase the volume of vehicles travelling through areas to access the motorway network. There would be an increase in the volume of vehicles on the main connector roads including Qantas Drive. The increase in vehicles concentrated on the project would reduce the amenity of the environment associated with the increasing in traffic noise and reduction in air quality. This would be unlikely to have a noticeable effect on businesses.

9.0 RECOMMENDED MITIGATION MEASURES

A range of mitigation and management measures developed in various technical studies and chapters in the combined EIS/preliminary draft MDP together would assist in avoiding or managing business impacts identified and described in sections 6.0, 7.0 and 8.0. These include measures to address potential impacts on:

- Access and connectivity can be found in Technical Working Paper 1 – Transport and Traffic
- Noise and vibration can be found in Technical Working Paper 2 – Noise and Vibration
- Airport operations can be found in Technical Working Paper 3 – Aviation Operations
- Construction dust and air quality can be found in Technical Working Paper 4 – Air Quality
- Visual amenity can be found in Technical Working Paper 13 – Place Making, Urban Design and Visual Impacts
- Employee, customer and business owner health and wellbeing can be found in Technical Working Paper 15 – Human Health
- Land use and property can be found in Chapter 19 – Land use and property.

9.1 Project specific mitigation measures

Specific mitigation measures have been identified to address potential business impacts identified. These have been outlined in Table 9-1.

Table 9-1: Project specific mitigation measures

Plan	Specific mitigation measures	Timing
Stakeholder engagement and communication plan	Incorporate specific measures in the Stakeholder engagement and communication plan relating to: <ul style="list-style-type: none"> • Communicating any road closures or predicted delays to the road network during construction to business in the study area and the freight industry in advance to ensure that businesses can inform contractors, employees and passengers of changes, to allow additional travel time • Regular communication collateral should encourage airline passengers to catch public transport to the airport during construction. 	Prior to construction
Business management plan	Prepare a Business Management Plan that defines location specific measures to minimise impacts of businesses during construction. The plan would include: <ul style="list-style-type: none"> • Details of businesses which are sensitive to construction activities and likely to experience impacts • Protocols for identifying, in consultation with each affected business, specific feasible and reasonable measures to maintain access, visibility and parking and address other potential impacts as they arise during the construction process • Maintaining a phone hotline that enables businesses to find out about the project or register any issues. 	Prior to construction

Plan	Specific mitigation measures	Timing
Business support program	<p>For businesses on land subject to NSW jurisdiction:</p> <ul style="list-style-type: none"> Where businesses are affected by property acquisition, or lease cessation implement the acquisition and compensation process in line with the <i>Determination of compensation following the acquisition of a business</i> guideline. Determine compensation for a business conducted on land that is acquired in accordance with the <i>Land Acquisition (Just Terms Compensation) Act 1991</i> (NSW) as relevant Implement an ongoing business support program to support businesses through the property acquisition and business relocation process. <p>For business on Sydney Airport land:</p> <ul style="list-style-type: none"> Sydney Airport, as the leaseholder of the land, notifies tenants that their sub-lease agreements would be concluded The conclusion of leases is undertaken in accordance with the contract terms with Sydney Airport Corporation and the tenant Sydney Airport provides support to manage the return of lands and handover to Roads and Maritime. 	Prior to construction

9.2 General environmental management measures

Several business impacts can be managed or mitigated through the recommended mitigation measures outlined in the specific technical working papers.

In terms of operational impacts, the Sydney Gateway road project has been designed to improve the link between the Sydney motorway network, Sydney Airport terminals and Port Botany, enhancing benefits for businesses in the area. Other technical working papers for the combined EIS/preliminary draft MDP have identified potential measures to enhance the project benefits.

10.0 CONCLUSION

This report has provided an assessment of the potential impacts to businesses resulting from the construction and operation of the Sydney Gateway road project, as well as cumulative impacts from the concurrent construction and operation with other major transport projects in the surrounding area. It has considered the consistency of the project with *Sydney Airport Master Plan 2039* and *Environment Strategy 2039*. The potential business impacts have been assessed in accordance with the *Environmental Impact Assessment Practice Note: Socio-economic assessment* (Roads and Maritime Services, 2013), *EPBC Act – Significant impact guidelines 1.2* and recommended mitigation measures have been described.

During construction, the project would generate some positive effects on businesses relating to increased demand for services or expenditure at businesses within the study area. The project would also produce potential negative effects as a result of changes in amenity, access and connectivity, potential utility disruptions and property impacts. In most instances, the potential effects on businesses would be temporary to short-term and confined to businesses in immediate proximity to the construction activities or employees and customers passing through the study area.

The study area contains a high number of businesses that are reliant on servicing, deliveries and distribution with businesses sensitive to changes in access and connectivity. The project is located in Sydney's major trade gateway, with changes in access and connectivity likely to adversely affect the freight and logistics industry. Furthermore, as identified in Appendix D, the empty container park industry has reached a critical situation where the growth of the empty container tasks has exhausted the available capacity of the existing empty container parks in Sydney. The project would impact the operation and capacity of Tyne Container Services and Maritime Container Services with the potential to have a broader consequence on the sustainability of the industry. This pressure would be somewhat alleviated if the intermodal terminals are brought online prior to construction. Improving the freight movement (on roads) between the airport, port and Sydney motorway network is a primary objective of the project. In addition, the duplication of the rail lines, creates additional capacity for containerised freight movement between the port and intermodals. While there would be a noticeable impact during construction, the intent is that it would be temporary and help alleviate issues for the industry in the longer term.

Most businesses in the study area were not considered as sensitive to changes in amenity, excluding hotels, advertising signs and the Qantas Flight Training Centre which indicated higher sensitivities.

While construction effects would cause disruption for businesses, the implementation of recommended mitigation measures as identified in section 9.0 and other technical working papers for the EIS/draft MDP would assist in alleviating potential effects. This would include ongoing consultation and engagement with the freight, logistics and distribution industry.

Operation of the project would generate some localised amenity changes including increased noise and visual alterations. These would mainly affect businesses around the Qantas Drive, O'Riordan Street and Sir Reginald Ansett Drive intersection and hotels in the O'Riordan Street business precinct. Although a minor nuisance, these changes would unlikely affect the long term function and viability of businesses. The overall benefits of Sydney Gateway road project, in conjunction with other major transport projects, would unlock the capacity of Sydney's trade gateway and provide long term benefits to businesses across Greater Sydney.

Once open, the project would provide a new high capacity and continuous road connection between the Sydney motorway network via St Peters interchange to Sydney Airport terminals, Mascot and Port Botany. It would generate an increase in the volume of traffic in the study area as more vehicles seek to access the new road infrastructure. The operation of the project would result in long term benefits for businesses in the local area and Greater Sydney.

Potential benefits include:

- Enhanced road network capacity and connectivity, improving the efficiency of freight and commercial vehicle movements between major economic regions of Sydney, increasing trade catchments and business productivity and reducing overhead costs
- Improved road network travel speeds, improving travel times for existing employees and customers and the potential attraction of new employees and customers due to more direct and efficient connections
- Additional employment opportunities and economic benefits for the local economy due to businesses relocating to the area attracted to enhanced connections
- Greater connectivity to Sydney Airport and Port Botany for businesses across Greater Sydney, expanding the economic supply chains and attracting new investment
- Unlocking the capacity for Sydney Airport and surrounding industrial land to expand operations and increase employment densities and economic output
- Redistribution of traffic volumes (including heavy vehicles) off local roads, improving the amenity and safety of the business environment and enhancing access and connectivity
- Improvements in the reliability, connectivity and safety of the active transport and public transport network.

The concurrent or consecutive construction of Sydney Gateway road project with the Botany Rail Duplication and other major transport projects in the surrounding area would increase the severity and duration of construction effects potentially leading to construction fatigue, reduced business viability, feelings of disadvantage, reduced ability to attract and retain employees and long term changed customer behaviour. Businesses in the Airport industrial precinct, Qantas Drive industrial precinct, Sydney Airport precinct and O’Riordan Street business precinct may be most exposed to cumulative construction effects.

Specific mitigation measures for businesses have been identified to support those businesses more sensitive to construction effects or affected by direct property impacts. These include the development and implementation of a Stakeholder Engagement and Communication Plan with specific measures targeted to businesses and a Business Management Plan to identify, and where possible, manage and mitigate potential impacts on businesses. A Business Support Program would be implemented by Roads and Maritime with a personal manager appointed to support businesses through any property acquisition process.

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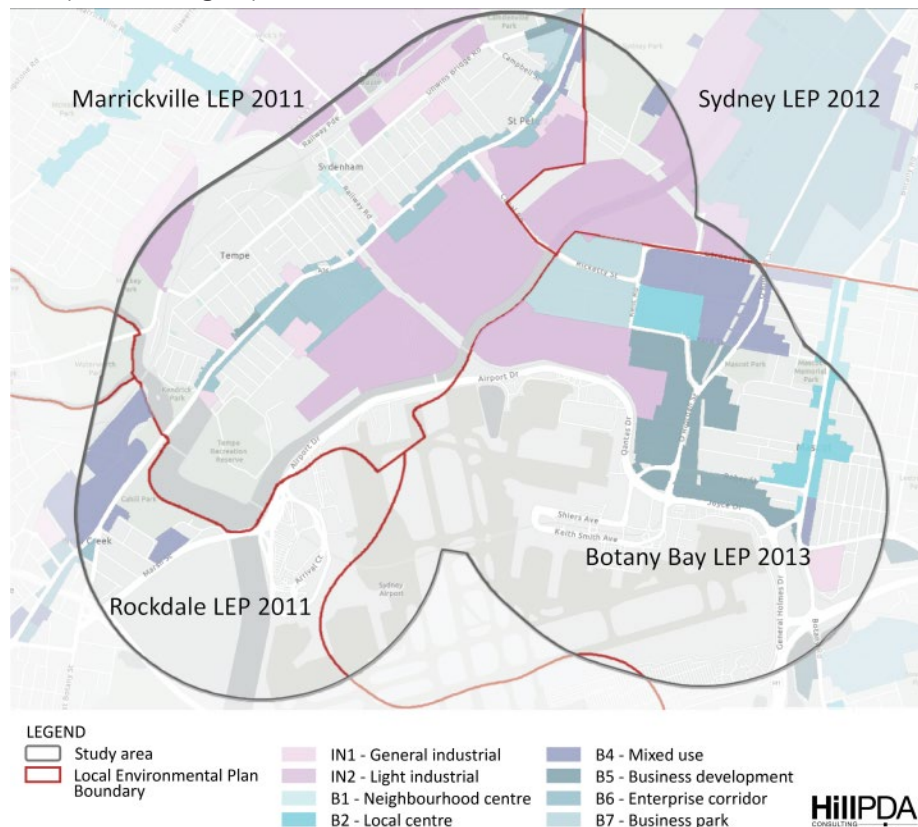
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APPENDIX A | LITERATURE REVIEW

A.1 Relevant local environmental plans

The study area sits within three local government areas, with four Local Environmental Plans applying across the area (see below figure).



Relevant local environmental plans

The Local Environmental Plans for each business-related zone are as follows:

Marrickville Local Environmental Plan 2011

Zone IN1 General Industrial

Zone objectives:

- To provide a wide range of industrial and warehouse land uses
- To encourage employment opportunities
- To minimise any adverse effect of industry on other land uses
- To support and protect industrial land for industrial uses
- To protect industrial land in proximity to Sydney Airport and Port Botany
- To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house.

Permissible uses:

Home occupation, Agricultural produce industries, Depots, Dwelling houses, Freight transport facilities, Garden centres, General industries, Hardware and building supplies, Industrial training facilities, Intensive plant agriculture, Kiosks, Light industries, Markets, Neighbourhood shops, Places of public worship, Roads, Take away food and drink premises, Timber yards, Warehouse or distribution centres.

Zone IN2 Light Industrial

Zone objectives:

- To provide a wide range of light industrial, warehouse and related land uses
- To encourage employment opportunities and to support the viability of centres
- To minimise any adverse effect of industry on other land uses
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area
- To support and protect industrial land for industrial uses
- To provide business and office premises for the purposes of certain art, technology, production and design sectors
- To enable a purpose-built dwelling house to be used in certain circumstances as a dwelling house.

Permissible uses:

Home occupation, Depots, Dwelling houses, Garden centres, Hardware and building supplies, Hospitals, Industrial training facilities, Intensive plant agriculture, Kiosks, Landscaping material supplies, Light industries, Markets, Neighbourhood shops, Places of public worship, Plant nurseries, Roads, Sewage reticulation systems, Take away food and drink premises, Vehicle sales or hire premises, Warehouse or distribution centres.

Zone B1 Neighbourhood Centre

Zone objectives:

- To provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood
- To provide for housing attached to permissible non-residential uses in development of a type and scale compatible with the surrounding neighbourhood
- To provide for spaces, at street level, which are of a size and configuration suitable for land uses which generate active street-fronts
- To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house.

Permissible uses:

Home occupations, Bed and breakfast accommodation, Boarding houses, Business premises, Car parks, Centre-based child care facilities, Community facilities, Dwelling houses, Food and drink premises, Garden centres, Health services facilities, Hostels, Kiosks, Markets, Medical centres, Neighbourhood shops, Neighbourhood supermarkets, Respite day care centres, Roads, Shop top housing, Shops.

Zone B4 Mixed Use

Zone objectives:

- To provide a mixture of compatible land uses
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling
- To support the renewal of specific areas by providing for a broad range of services and employment uses in development which display good design
- To promote commercial uses by limiting housing
- To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house
- To constrain parking and restrict car use.

Permissible uses:

Boarding houses, Centre-based child care facilities, Commercial premises, Community facilities, Dwelling houses, Educational establishments, Entertainment facilities, Function centres, Group homes, Hostels, Hotel or motel accommodation, Information and education facilities, Light industries, Medical centres, Passenger transport facilities, Recreation facilities (indoor), Registered clubs, Respite day care centres, Restricted premises, Roads, Seniors housing, Shop top housing.

Zone B5 Business Development

Zone objectives:

- To enable a mix of business and warehouse uses, and specialised retail premises that require a large floor area, in locations that are close to, and that support the viability of, centres
- To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house
- To support urban renewal and a pattern of land use and density that reflects the existing and future capacity of the transport network.

Permissible uses:

Centre-based child care facilities, Dwelling houses, Food and drink premises, Garden centres, Hardware and building supplies, Hotel or motel accommodation, Landscaping material supplies, Light industries, Markets, Passenger transport facilities, Respite day care centres, Roads, Serviced apartments, Specialised retail premises, Vehicle sales or hire premises, Warehouse or distribution centres.

Zone B6 Enterprise Corridor

Zone objectives:

- To promote businesses along main roads and to encourage a mix of compatible uses
- To provide a range of employment uses (including business, office, retail and light industrial uses)
- To maintain the economic strength of centres by limiting retailing activity
- To provide for residential uses, but only as part of a mixed development
- To enable a purpose built dwelling house to be used in certain circumstances as a dwelling house.

Permissible uses:

Business premises, Community facilities, Dwelling houses, Food and drink premises, Garden centres, Hardware and building supplies, Hotel or motel accommodation, Landscaping material supplies, Light industries, Markets, Neighbourhood shops, Office premises, Passenger transport facilities, Plant nurseries, Roads, Self-storage units, Serviced apartments, Vehicle sales or hire premises, Warehouse or distribution centres.

Zone B7 Business Park

Zone objectives:

- To provide a range of office and light industrial uses
- To encourage employment opportunities
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area
- To provide for limited residential development in conjunction with permissible active ground floor uses
- To provide business and office premises for the purposes of certain art, technology, production and design sectors
- To enable a purpose-built dwelling house to be used in certain circumstances as a dwelling house.

Permissible uses:

Centre-based child care facilities, Dwelling houses, Garden centres, Hardware and building supplies, Intensive plant agriculture, Kiosks, Landscaping and material supplies, Light industries, Markets, Neighbourhood shops, Office premises, Passenger transport facilities, Plant nurseries, Residential flat buildings, Respite day care centres, Roads, Take away food and drink premises, Vehicle sales or hire premises, Warehouse or distribution centres.

Sydney Local Environmental Plan 2012

Zone IN1 General Industrial

Zone objectives:

- To provide a wide range of industrial and warehouse land uses
- To encourage employment opportunities
- To minimise any adverse effect of industry on other land uses
- To support and protect industrial land for industrial uses

- To ensure uses support the viability of nearby centres.

Permissible uses:

Agricultural produce industries, Boat building and repair facilities, Depots, Food and drink premises, Freight transport facilities, Garden centres, General industries, Hardware and building supplies, Horticulture, Industrial training facilities, Kiosks, Light industries, Neighbourhood shops, Places of public worship, Roads, Roadside stalls, Timber yards, Warehouse or distribution centres.

Zone B4 Mixed Use

Zone objectives:

- To provide a mixture of compatible land uses
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling
- To ensure uses support the viability of centres.

Permissible uses:

Boarding houses, Centre-based child care facilities, Commercial premises, Community facilities, Educational establishments, Entertainment facilities, Function centres, Hotel or motel accommodation, Information and education facilities, Medical centres, Passenger transport facilities, Recreation facilities (indoor), Registered clubs, Respite day care centres, Restricted premises, Roads, Seniors housing, Shop top housing.

Rockdale Local Environmental Plan 2011

Zone B6 Enterprise Corridor

Zone objectives:

- To promote businesses along main roads and to encourage a mix of compatible uses
- To provide a range of employment uses (including business, office, retail and light industrial uses)
- To maintain the economic strength of centres by limiting retailing activity
- To promote redevelopment that will contribute to the locality, including by improving the visual character of the locality, improving access and parking, reducing land use conflicts and increasing amenity for nearby residential development.

Permissible uses:

Animal boarding or training establishments, Business premises, Community facilities, Garden centres, Hardware and building supplies, Hotel or motel accommodation, Industrial training facilities, Kiosks, Landscaping material supplies, Light industries, Neighbourhood shops, Passenger transport facilities, Plant nurseries, Pubs, Specialised retail premises, Storage premises, Take away food and drink premises, Timber yards, Vehicle sales or hire premises, Warehouse or distribution centres.

Botany Bay Local Environmental Plan 2013

Zone IN1 General Industrial

Zone objectives:

- To provide a wide range of industrial and warehouse land uses
- To encourage employment opportunities
- To minimise any adverse effect of industry on other land uses
- To support and protect industrial land for industrial uses.

Permissible uses:

Depots, Freight transport facilities, Garden centres, General industries, Hardware and building supplies, Industrial training facilities, Light industries, Neighbourhood shops, Places of public worship, Restaurants or cafes, Roads, Take away food and drink premises, Timber yards, Warehouse or distribution centres.

Zone IN2 Light Industrial

Zone objectives:

- To provide a wide range of light industrial, warehouse and related land uses
- To encourage employment opportunities and to support the viability of centres
- To minimise any adverse effect of industry on other land uses
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area
- To support and protect industrial land for industrial uses.

Permissible uses:

Depots, Garden centres, Hardware and building supplies, Industrial training facilities, Light industries, Neighbourhood shops, Places of public worship, Roads, Timber yards, Warehouse or distribution centres.

Zone B2 Local Centre

Zone objectives:

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area
- To encourage employment opportunities in accessible locations
- To maximise public transport patronage and encourage walking and cycling.

Permissible uses:

Boarding houses, Centre-based child care facilities, Commercial premises, Community facilities, Dwelling houses, Educational establishments, Entertainment facilities, Function centres, Home industries, Information and education facilities, Medical centres, Passenger transport facilities, Recreation facilities (indoor), Registered clubs, Residential flat buildings, Respite day care centres, Restricted premises, Roads, Service stations, Shop top housing, Tourist and visitor accommodation.

Zone B4 Mixed Use

Zone objectives:

- To provide a mixture of compatible land uses
- To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.

Permissible uses:

Boarding houses, Centre-based child care facilities, Commercial premises, Community facilities, Dwelling houses, Educational establishments, Entertainment facilities, Function centres, Hotel or motel accommodation, Information and education facilities, Light industries, Medical centres, Passenger transport facilities, Recreation facilities (indoor), Registered clubs, Residential flat buildings, Respite day care centres, Restricted premises, Roads, Seniors housing, Shop top housing.

Zone B5 Business Development

Zone objectives:

- To enable a mix of business and warehouse uses, and specialised retail premises that require a large floor area, in locations that are close to, and that support the viability of, centres.

Permissible uses:

Centre-based child care facilities, Food and drink premises, Garden centres, Hardware and building supplies, High technology industries, Landscaping material supplies, Neighbourhood shops, Passenger transport facilities, Respite day care centres, Roads, Specialised retail premises, Vehicle sales or hire premises, Warehouse or distribution centres.

Zone B7 Business Park

Zone objectives:

- To provide a range of office and light industrial uses
- To encourage employment opportunities
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area
- To encourage uses in the arts, technology, production and design sectors.

Permissible uses:

Centre-based child care facilities, Dwelling houses, Food and drink premises, Garden centres, Hardware and building supplies, Home industries, Light industries, Neighbourhood shops, Office premises, Passenger transport facilities, Respite day care centres, Roads, Vehicle sales or hire premises, Warehouse or distribution centres.

A.2 Other relevant documents

The following document outlines additional documents that have been considered in determining the potential local business impacts relevant to the project.

Overview of other relevant documents

Document	Relevance to study
Department of Infrastructure, Regional Development and Cities, 2018, Statistical Report – Domestic aviation activity 2017-18	<p>Australia's airline passenger traffic is increasing, while capacity is decreasing. Sydney remained Australia's busiest airport for domestic passengers with 27.65 million passenger movements.</p> <p>Total cargo movements at Australian airports on domestic RPT flights were 43.3 thousand tonnes in October 2018, an increase of 9.4 per cent compared with October 2017.</p> <p>These figures highlight the importance of the project, and the scale of cargo movement growth.</p>
Deloitte Access Economics, 2018, Economic contribution of Sydney Airport, 2018	<p>In 2017 the Sydney Airport precinct directly generated \$6.2 billion in value added, employing around 30,900 FTE employees. The indirect contribution to the economy was \$4.5 billion national value, and about 26,500 FTE jobs.</p> <p>Most of the growth is caused by increased facilitated tourism. Airfreight export revenue has grown 21 per cent since 2014, and will continue to grow. FTE employees will grow in proportion to airline movements.</p> <p>Forecast:</p> <ul style="list-style-type: none"> ● Facilitated international tourism expenditure is expected to grow in proportion to projected international passenger movements ● Freight is expected to grow in line with projected airfreight movements ● Passenger travel offers a very large contribution to the economy. Freight has a nominally large contribution to the economy, and thus should be bolstered through transport infrastructure.

Document	Relevance to study
Ernst & Young, 2011, Port Botany – Sydney Airport Precinct Scoping Study, prepared for Infrastructure NSW, 2011	<p>The Sydney airport precinct faces a growing transport challenge that, if unmet, will have serious economic consequences for NSW and Australia.</p> <p>Recommendations include:</p> <p>The Government must take an integrated approach to solving the airport and Port Botany’s access problems, rather than modally siloed approaches, factoring in local, Federal and private-sector assets also. Also, it must also take an approach that prioritises efficient use of existing assets rather than simply focusing on large scale capacity enhancements to the transport network.</p> <p>Large scale road and rail capacity enhancements are likely to be key parts of a long term solution in the airport precinct. However, in the short and medium terms the Government has an opportunity to implement quickly a series of coordinated actions that will complement these major works and support the productivity of the airport before these longer term projects are able to come online.</p> <p>Sydney Gateway road project delivers on the following recommendations made by EY:</p> <ul style="list-style-type: none"> • Actions to relieve road congestion by relieving pinch points and better managing road space • Actions to improve the reliability and efficiency of the rail freight network.
Employment Centres Analysis, SGS for Department of Planning 2016	<p>The Sydney Harbour CBD subregion is faced with considerable traffic congestion. Port Botany is key for freight movements while Sydney Airport’s role is more focused on passenger movements many of which are in the financial, media and professional services industries.</p> <p>Sydney airport precinct challenges and opportunities:</p> <ul style="list-style-type: none"> • Provision of office floor space in a centre which is surrounded by transport and industrial uses the impact of development of the Second Sydney Airport. • Prevailing trends on office floor space and the Western Sydney Airport may have impacts on surrounding businesses.
Mapping Australia’s Economy, The Grattan Institute 2014	<p>Affordable land and good links to freeways, ports and airports are typically important for freight businesses. Nonetheless, all these kinds of work are becoming increasingly skilled and specialised, with greater use of technology. As this occurs, the imperative for employers to have the best possible choice of employees will continue to become more intense across the economy.</p> <p>Businesses would have to adapt to changing commercial and residential market resulting from the Sydney Gateway road project. This could have long-term micro-economic effects on the Mascot area.</p>

A.3 Assessment guidelines – Environmental Impact Assessment Practice Note – Socio-economic assessment (EIA-N05)

Roads and Maritime Practice Note EIA-N05 applies when assessing the social and economic impacts of medium to large road projects. The practice note provides guidance on the steps to be undertaken when completing a social and economic impact assessment, including the relevant reporting requirements. As BIAs are a subset of the social and economic environment, consideration has been given to this practice note. This includes identification of the level of assessment appropriate for a particular project.

For a project at the scale of the project, the practice note requires a comprehensive assessment. The table below outlines the rationale for the level of assessment (scale and magnitude of impact) and the expectations around a comprehensive social and economic impact assessment.

Triggers to undertake a comprehensive level of assessment

Scale of impacts	Magnitude of impacts	Information expectations	Socio-economic baseline content
<ul style="list-style-type: none"> Many impacts Impacts affecting a broad section of the community Impacts likely to cause broad community concern. 	<ul style="list-style-type: none"> Impacts of a major nature Impacts of long duration Impacts that require specific mitigation measures Impacts that may have residual affect after mitigation 	<ul style="list-style-type: none"> Desktop research Quantitative information from secondary sources Extensive primary research required Community and stakeholder consultation to define community values, impacts and mitigation measures. 	<ul style="list-style-type: none"> ABS Census data, fully describing population and demographic characteristics Community structure and patterns Community values Economic environment Outcomes of consultation with community and government.

Source: Roads and Maritime Services, 2012 'Environmental Impact Assessment Practice Note: Socio-economic assessment – EIA-N05 – Table 1', Transport for NSW

The practice note outlines the requirements for establishing the baseline. A comprehensive assessment is required to consider the full range of qualitative and quantitative aspects. This BIA has been prepared in accordance with the practice note.

APPENDIX B | SURVEY REPORT – SYDNEY GATEWAY

A.4 Introduction

This Business Impact Survey Report details and presents the findings of a survey undertaken between November 2018 and the March 2019. The survey was undertaken to understand the potential impacts to local businesses resulting from the construction and operation of the Sydney Gateway road project (the project).

The project is one of the two components aimed at increasing capacity and improving connections to the port to assist growth in passengers, freight and commuter movements across the region. The project encompasses the road component, which proposes a new alternative route to the Sydney Airport terminals from the Sydney motorway network at St Peters interchange. Sydney Gateway road project includes a new dedicated elevated viaduct from Qantas Drive to the front door of the domestic airport.

A.4.1 Purpose

HillPDA was commissioned to undertake a business impact survey and subsequent report outlining business perceptions of the Sydney Gateway road project. The survey was designed to understand the perception of potential impacts to business in relation to:

- The construction of the project (and business susceptibilities during)
- The operation of the project.

Businesses were asked general questions regarding business operations, and where relevant, in regards to logistics, synergies and practices that rely on the existing transport network or could be improved by the project.

A.4.2 Survey extent

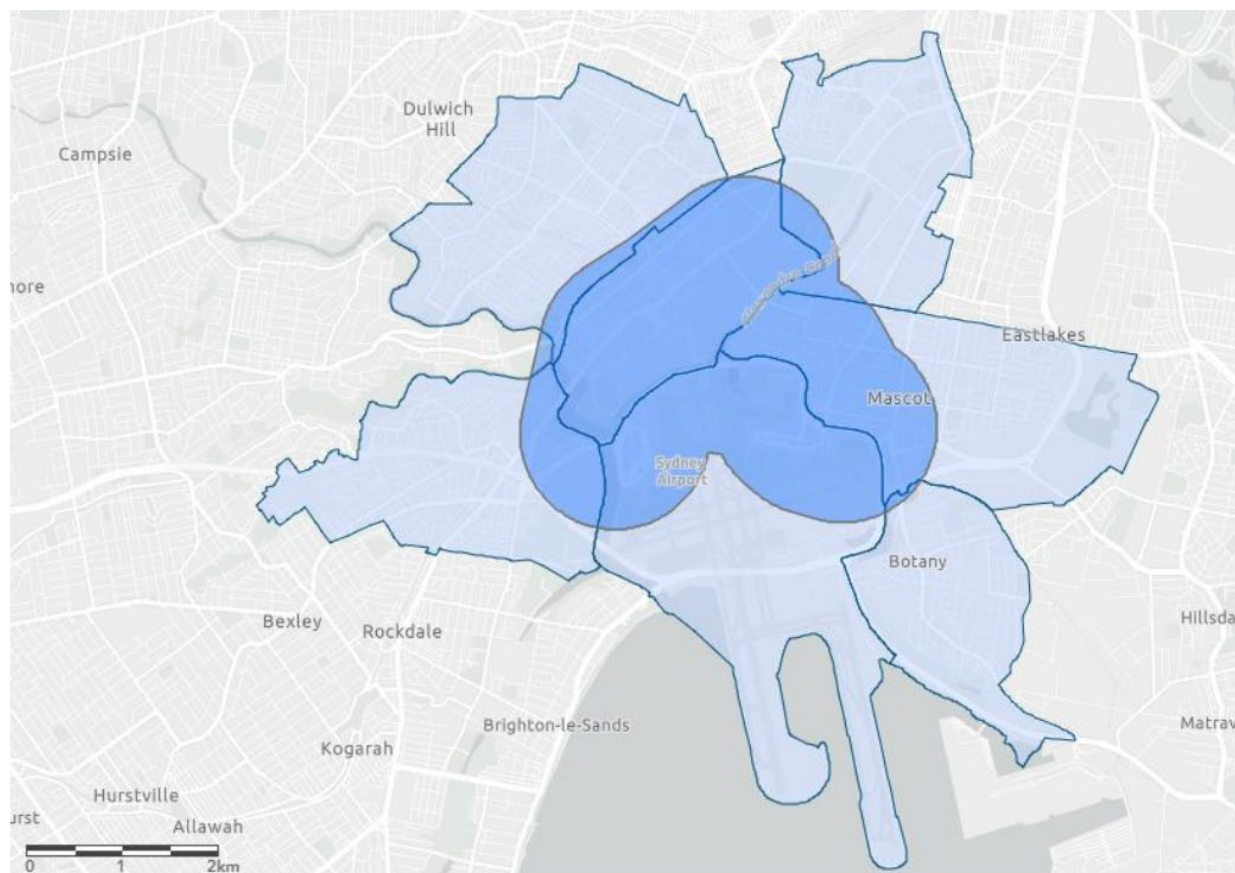
Over the surveying period, around 115 face to face or phone surveys were completed giving insight into the potential impacts, resulting from the project, across a broad cross-section of businesses within the study area.

Businesses surveyed were in locations anticipated to experience direct or indirect effects as a result of the project, during construction or upon operation. This area related primarily to a one kilometre buffer around the project alignment and construction footprint. In determining the extent of the buffer/survey area, HillPDA considered:

- Roads and Maritime Construction Noise and Vibration Guideline (Worst case scenario for urban/industrial environment)
- Noise catchment areas defined by project consultant
- Business and industrial zones as applicable to the current relevant Local Environmental Plans.

The surveys were directed towards local retailers, commercial operators, freight and logistics and other businesses that could be affected directly or indirectly by the project.

Having completed the surveys, the results were collated using the online survey tool, Survey Monkey, with the data later consolidated and analysed.



Sydney Gateway road project BIA study area

A.5 Survey findings

The following section provides a summary for each question in the survey. Please note that although 115 businesses participated in the survey response rates varied across each question.

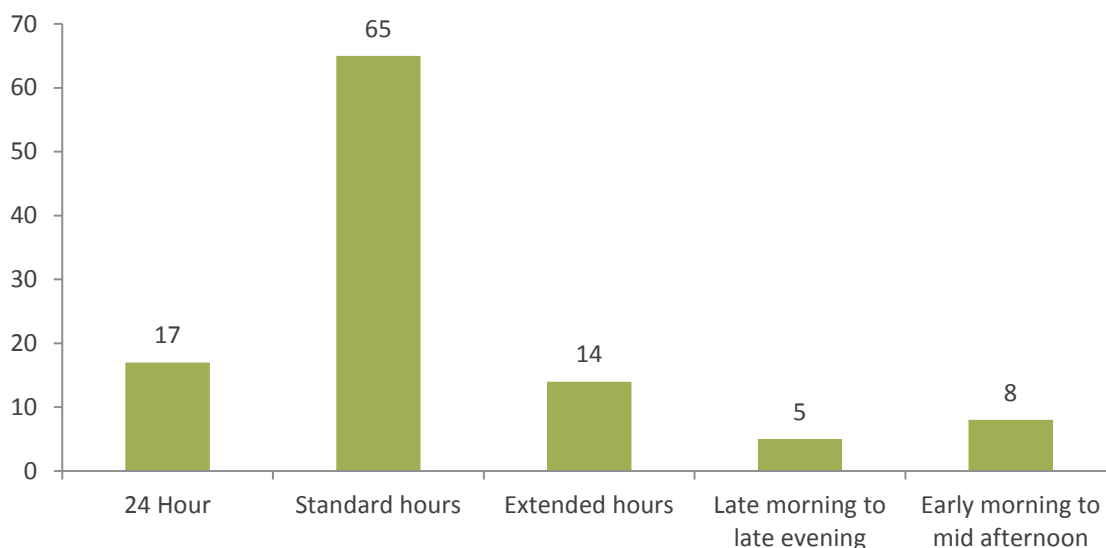
Business details

In this section of the survey, respondents were asked specific questions in relation to their business's operation.

What are your trading hours?

Of the participants, 115 or 100 per cent responded to this question, the majority (59 per cent) indicated that their business operates within the standard hours of work, being 8:00 am till 5:30 pm.

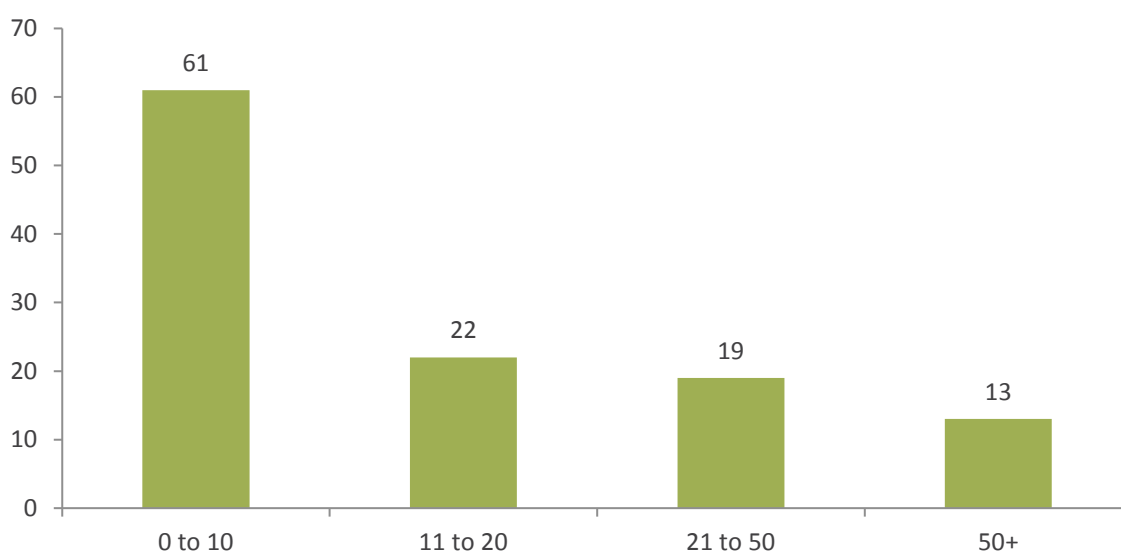
Around 15 per cent of businesses stated they operate around the clock (24 hours), 12 per cent operate extended hours (outside of the standard hours of work), seven per cent operate from the early morning to mid-afternoon and four per cent operate from late morning to late evening.



Typical trading hours of business within the study area.

Number of staff

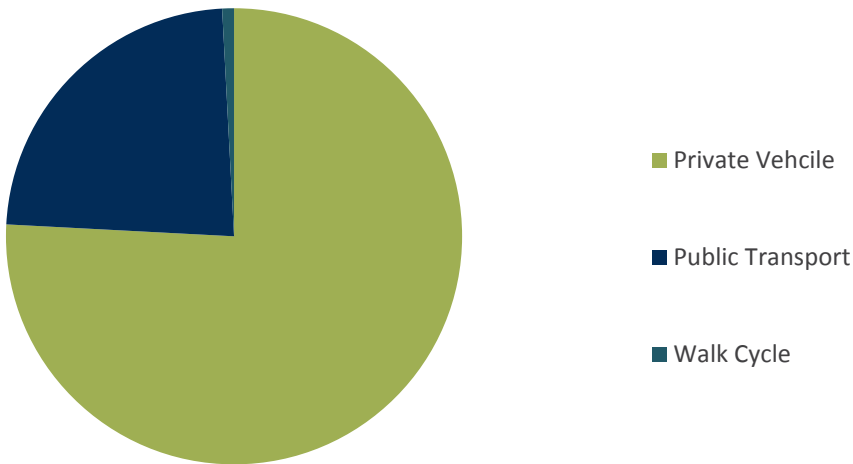
Of the participants, 115 or 100per cent responded to this question. The majority (53 per cent) of business employed between one and 10 personnel, around 19 per cent employed between 11 and 20 personnel, 16 per cent employed between 21 and 50 personnel and the remaining 11 per cent employed over 50 personnel.



Number of employees per business within the study area.

How does your staff usually travel to your business?

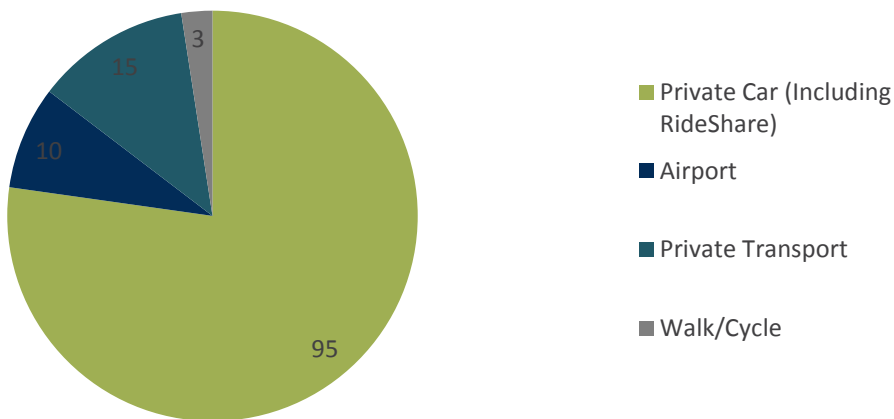
Of the participants, 115 or 100 per cent responded to this question. The majority (74 per cent) of respondents stated that their staff usually travelled to work using a private vehicle, 18 per cent stated that public transport was the usual travel method to work for staff and only one business stated that their staff walked or cycled.



Methods of transport for employees to their place of business

How do your clients/customers usually travel to your business?

Of the participants, 115 or 100 per cent responded to this question. The majority (77 per cent) of respondents stated that their customers typically travelled to their business via private vehicle. This included ridesharing services. Around 17 per cent of respondents stated that customers arrived at their business through a combination of private vehicles, public transport, air travel and active transport, 13 per cent stated that public transport, eight per cent stated that customers arrived via air and two per cent arrived via walking and cycling.



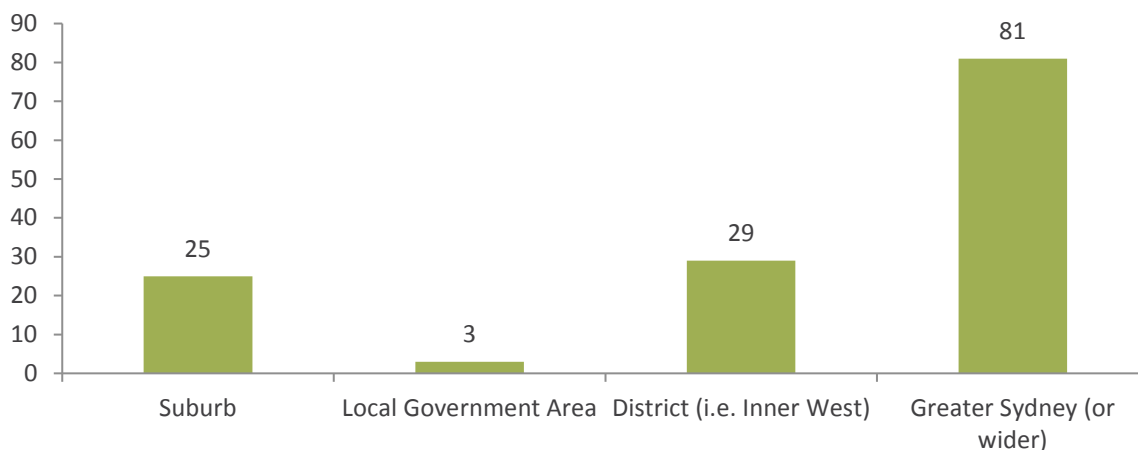
Method of transport for customers to business

Where do the majority of your clients/customers travel from or does your business service?

This question asked respondents to identify where their customers travelled from (local suburb to Greater Sydney or wider) in order to gauge how far customers travelled to access the business.

Of the 115 participants, 113 or 98 per cent responded to this question. The majority (72 per cent) of respondents stated that customers and clients travelled from the greater Sydney region or wider.

Around 25 per cent of customers and clients travelled from a district scale, 21 per cent from the suburb area and two per cent from the local government area.

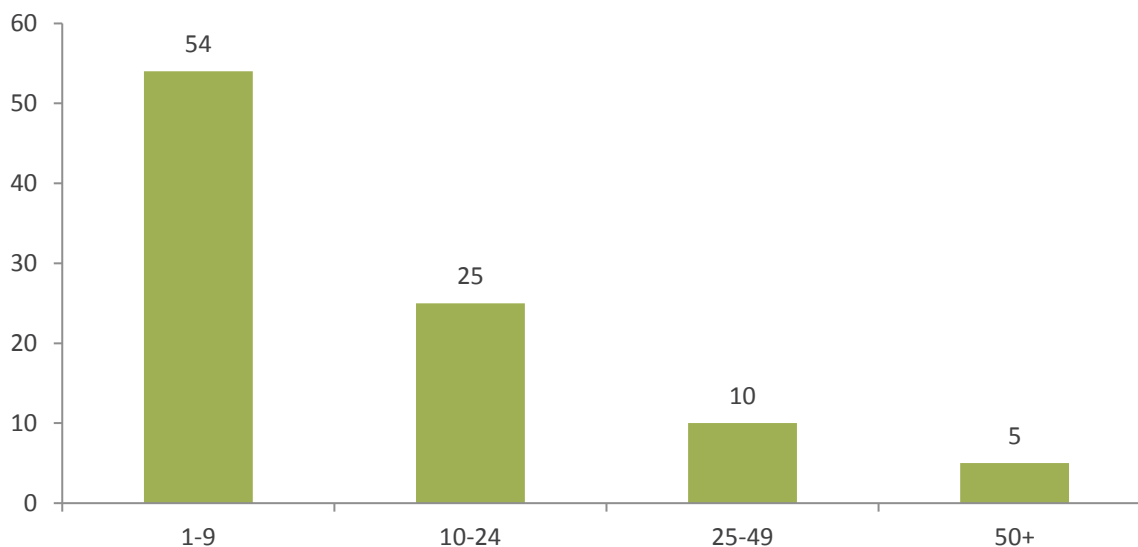


Location of the majority of clients/customers in relation to business activity

Do you have parking, if so, how many spaces?

Of the 115 participants, 110 or 96 per cent responded to this question. Of the respondents, the 110 respondents, 94 or 85 per cent stated that they did provide car parking.

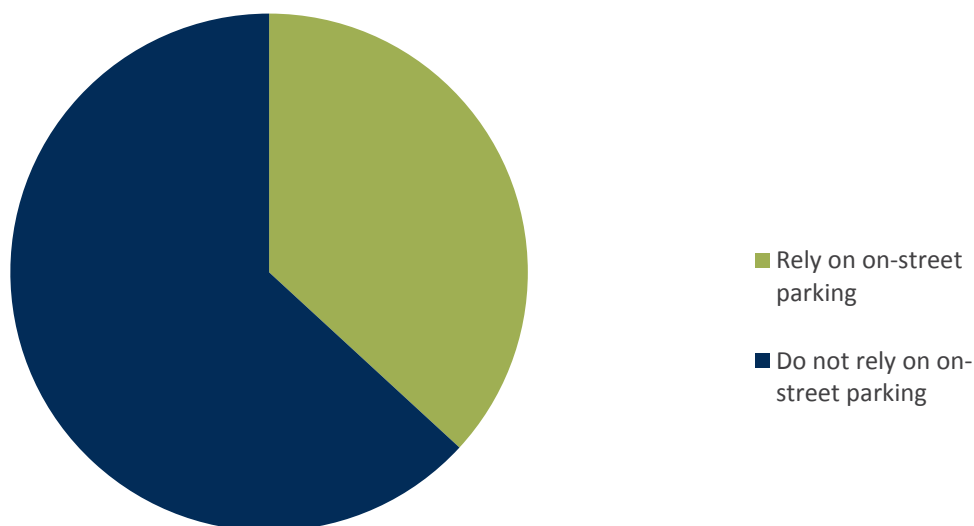
Of the respondents who stated that car parking was provided, 57 per cent of business have access to between one to nine car parks, 26 per cent have access to between 10-24 car parks, 10 per cent have access to 25-49 car parks and five per cent have access to 50+ car parks.



Number of business parking spaces within the study area

Does your business rely on on-street parking?

Of the 115 participants, 114 or 99 per cent responded to this question. Of the respondents, 37 per cent relied on on-street parking for an aspect of their business while the remaining 63 per cent did not.

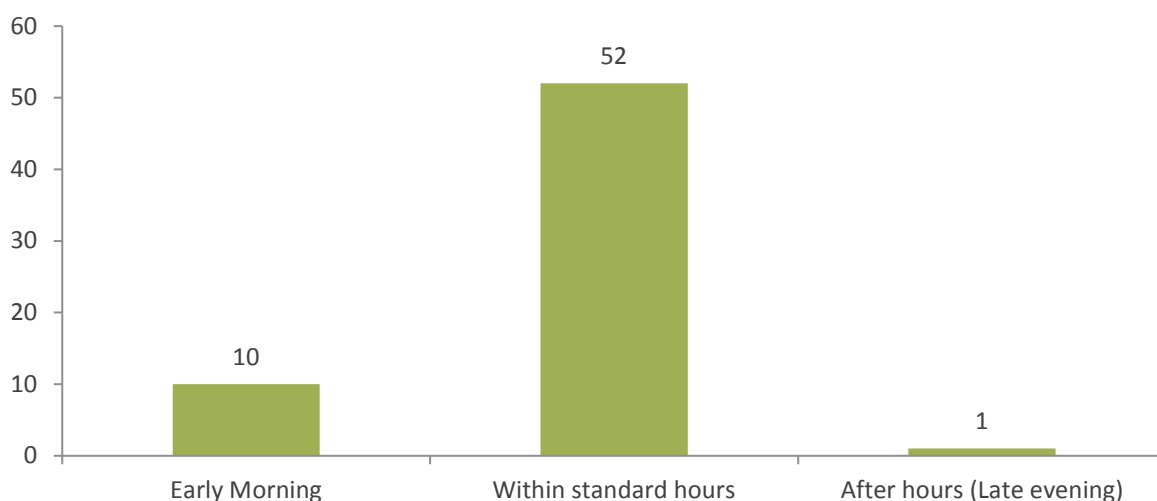


Number of business that rely on on-street parking within the study area

Do you get deliveries?

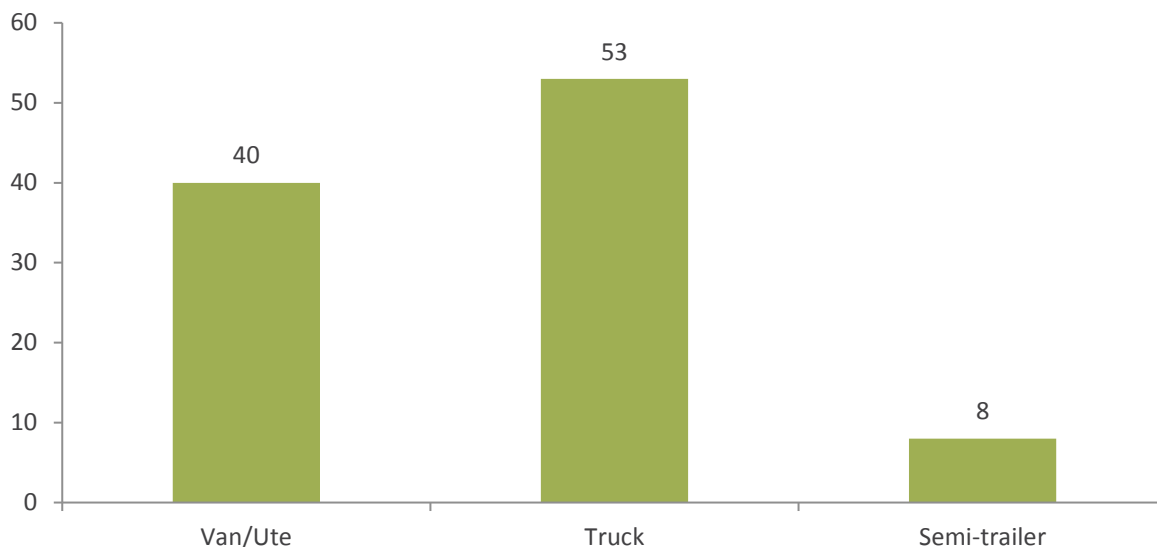
Of the 115 participants, 110 or 96 per cent responded to this question. Of the respondents, 93 per cent stated they received deliveries throughout the day.

Of the businesses that stated they received deliveries throughout the day 47 per cent received deliveries within standard working hours (8:00am – 5:30pm) while 9 per cent received deliveries between 5:00am and 8:30am and only one business received deliveries outside of standard hours in the late evening.



Times for deliveries for business within the study area

Of the business that received deliveries, the primary method of delivery was through the use of trucks (51 per cent), vans/utes (39 per cent) followed by semi-trailers (seven per cent). Three percent of participants reframed from responding to this question



Method for delivery for business within the study area

Is your business dependent on any of the following?

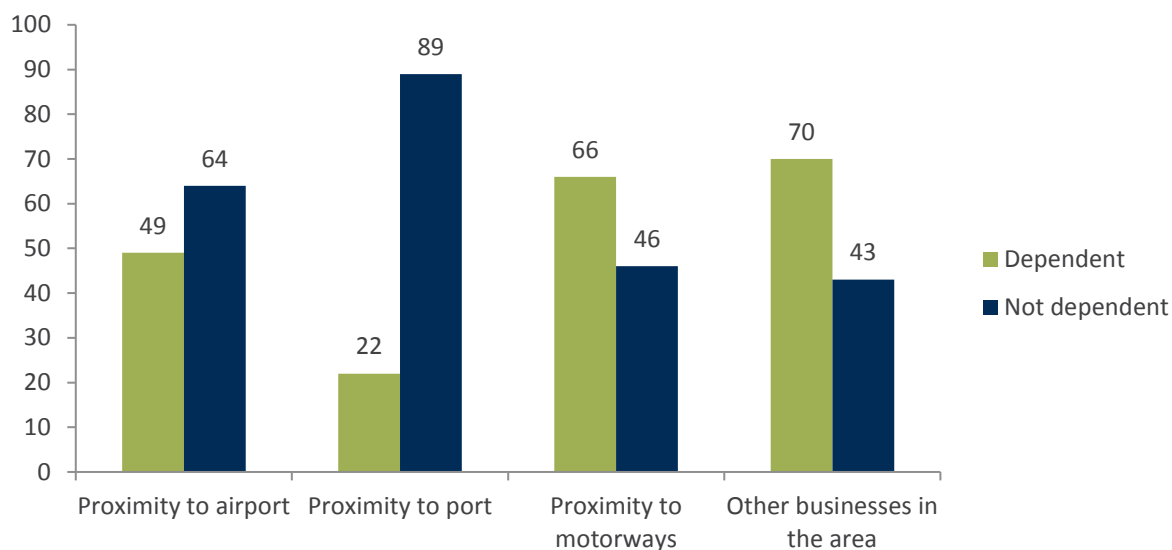
Of the 115 participants, 113 or 98 per cent responded to this question. Of the 113 respondents, there was a varying degree of dependency on State infrastructure and business synergies. Specifically, businesses were asked the importance that proximity to the airport, port, motorways or other businesses was to the operation of their business.

Regarding the importance of the airport, 43 per cent of the respondents stated that the proximity to the airport was a dependent factor to ongoing business activity, while 56 per cent stated that they were not dependant on the airport.

Regarding the importance of the port, 19 per cent of the respondents stated that the proximity to the port was a dependent factor to ongoing business activity while 80 per cent of respondents stated the port was not dependent.

Fifty-eight per cent of the respondents stated that the proximity to motorways was a dependent factor to ongoing business activity while 41 per cent of respondents stated motorways are not dependent.

While 61 per cent of respondents stated that the proximity to other businesses in the area was a dependent factor to ongoing business activity while 38 per cent of respondents stated other businesses in the area was not a dependent factor.



Dependent factors to business activity and operations

Sydney Gateway road project specific questions

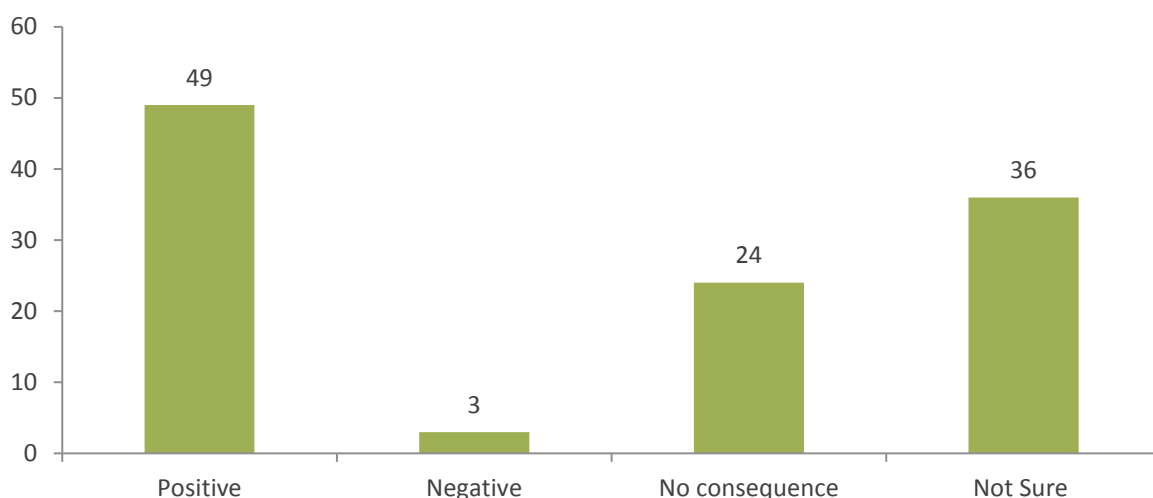
In this section of the survey respondents were asked specific questions in relation to how the project would or could affect their business during construction and/or operation

Do you believe that once complete, Sydney gateway would be a positive, negative or have no consequence for your business?

Of the 115 participants, 112 or 97 per cent responded to this question. Of the respondents the majority (43 per cent) believed that once operational the Sydney Gateway road project would have positive consequences on their business.

Only two per cent of respondents believed that the project would have negative consequences on their business once operational.

Around 21 per cent of respondents believed that project would have no consequences on their business once operational and 32 per cent were unsure of the consequences to their business.



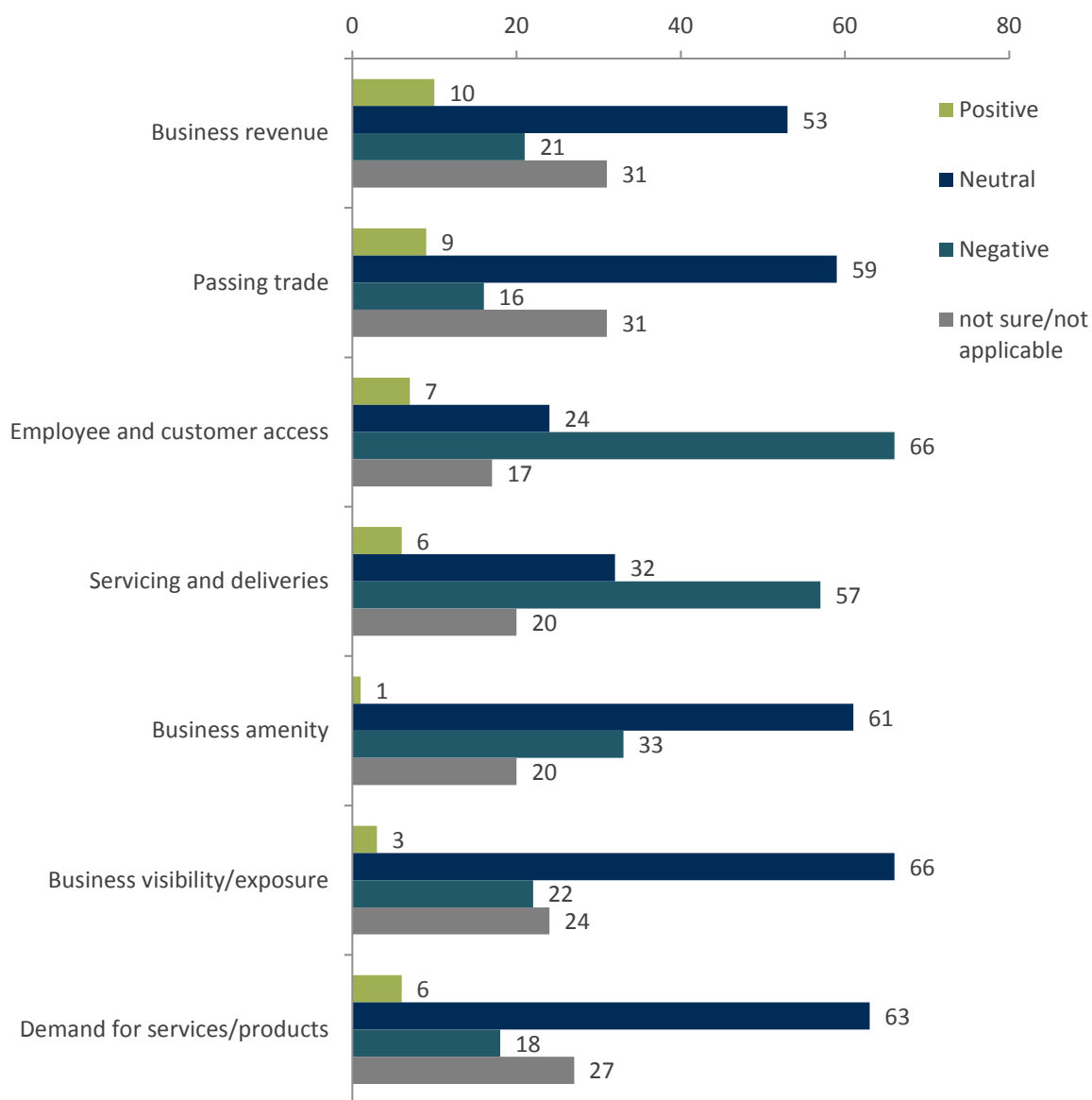
Consequence to business operation once the Sydney Gateway road projects is completed

During the construction phase, what effect could Sydney Gateway road project have on the following?

Of the 115 participants, 115 or 100 per cent responded to this question. The question related to potential effects of the project to a particular aspect of a business during construction.

The results for each identified aspect are as follows:

1. Business revenue – the majority (46 per cent) of respondents stated that the impact would be neutral. 18 per cent stated that the impact would be negative, eight per cent stated the impact would be positive and 26 per cent stated that they were unsure/not applicable
2. Passing trade – the majority (51 per cent) of respondents stated that the impact would be neutral, 13 per cent stated that the impact would be negative, seven per cent stated the impact would be positive and 26 per cent stated that they were unsure/not applicable
3. Employee and customer access – the majority (56 per cent) stated that the impact would be negative. Twenty per cent stated that the impact would be neutral, six per cent stated the impact would be positive and 14 per cent stated that they were unsure/not applicable
4. Servicing and deliveries – the majority (49 per cent) stated that the impact would be negative. Twenty-seven per cent stated that the impact would be neutral, five per cent stated the impact would be positive and 17 per cent stated that they were unsure/not applicable
5. Business amenity – the majority (53 per cent) of respondents stated that the impact would be neutral. Twenty-eight per cent stated that the impact would be negative, less than one per cent stated the impact would be positive and 17 per cent stated that they were unsure/not applicable
6. For business visibility and exposure, the majority (57 per cent) of respondents stated that the impact would be neutral. Nineteen per cent stated that the impact would be negative, two per cent stated the impact would be positive and 20 per cent stated that they were unsure/not applicable
7. Demand for service/products – the majority (54 per cent) of respondents stated that the impact would be neutral. Fifteen per cent stated that the impact would be negative, five per cent stated the impact would be positive and 23 per cent stated that they were unsure/not applicable.



Effects of the project (during construction)

Is your business susceptible to any of the following construction specific potential effects?

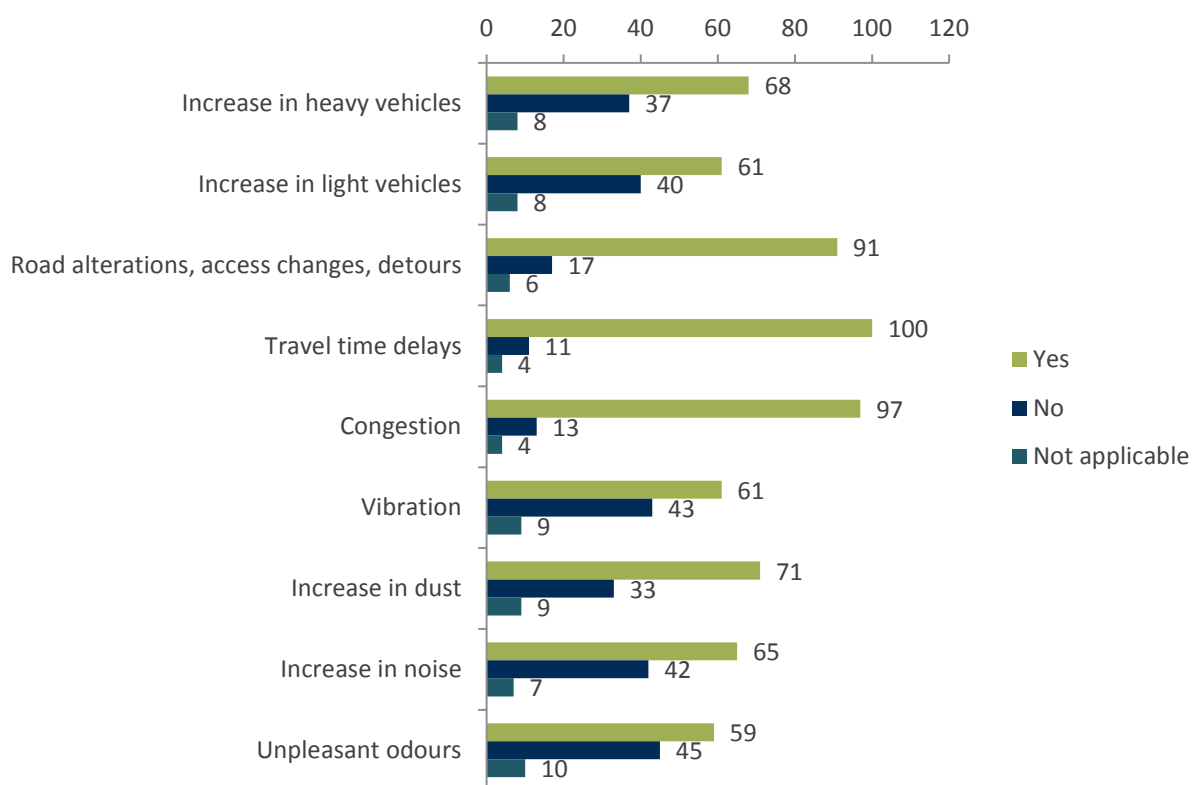
Of the 115 participants, 114 or 99 per cent responded to this question. The question related to the perceived potential impacts to a business during the construction phase of the project. Particular potential negative aspects of the construction phase to a business were explored.

It is of note that two respondents chose not to respond to specific questions, because they did not apply to their business activity.

The results for each of potential impacts resulting from the projects construction phase are as follows:

1. Increased in heavy vehicle traffic – 59 per cent of respondents stated this would affect their business while 32 per cent stated they would not be affected. Six per cent of respondents found the question not applicable to their business
2. Increases in light vehicle traffic – 53 per cent of respondents stated this would affect their business while 34 per cent stated they would be affected. Six per cent of respondents found the question not applicable to their business

3. Road alterations, access changes and detours – 91 per cent of respondents stated they would be affected while 14 per cent stated they would not be affected. Five per cent of respondents found the question not applicable to their business
4. Travel time delays – 86 per cent of respondents stated this would affect their business while 9 per cent stated they would not be affected. Three per cent respondents found the question not applicable to their business
5. Congestion – 84 per cent of respondents stated this would affect their business while 11 per cent stated they would not be affected. Three per cent respondents found the question not applicable to their business
6. Vibration – 53 per cent of respondents stated this would affect their business while 37 per cent stated they would not be affected. Seven per cent respondents found the question not applicable to their business
7. Increases in dust – 61 per cent of respondents stated this would affect their business while 33 per cent stated they would not be affected. Seven per cent respondents found the question not applicable to their business
8. Increase noise – 56 per cent of respondents stated this would affect their business while 36 per cent stated they would not be affected. Six per cent respondents found the question not applicable to their business
9. Unpleasant odours – 51 per cent of respondents stated this would affect their business while 39 per cent stated they would not be affected. Eight per cent respondents found the question not applicable to their business



Business susceptibilities to construction externalities

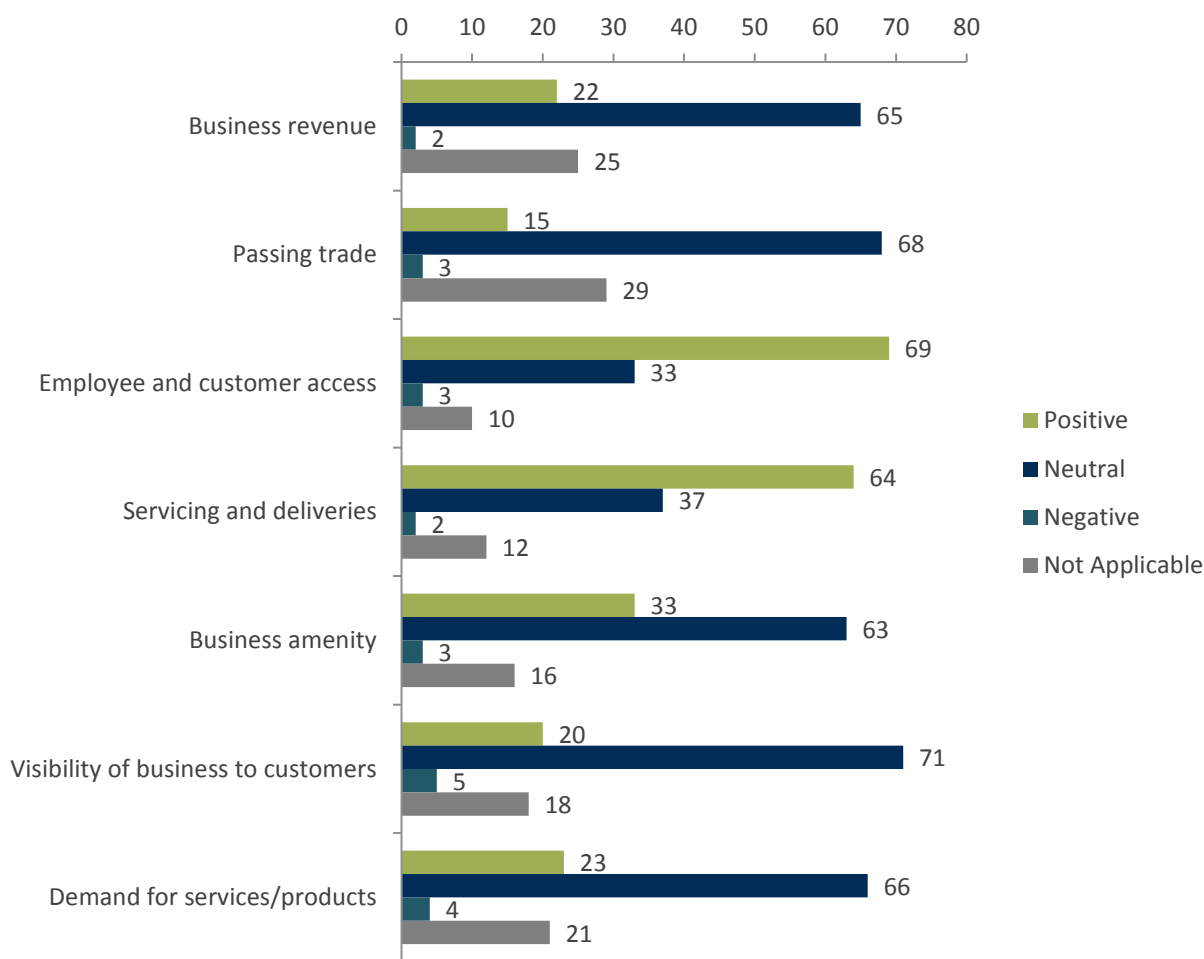
During the operation phase, what effect could Sydney Gateway road project have on the following?

Of the 115 participants, 115 or 100 per cent responded to this question. The question related to perceived potential effects to a business resulting the operational phase of the project.

It is of note that one respondent chose not to respond to specific questions, because they did not apply to their business activity.

The results for each of potential effects of the projects operational phase are as follows:

1. Business revenue – the majority (57 per cent) of respondents stated that the effect would be neutral upon operation of the project. Nineteen per cent stated that the effect would be positive, one per cent stated the effect would be negative and 21 per cent stated that they were unsure/not applicable
2. Passing trade – the majority (59 per cent) of respondents stated that the effect would be neutral upon operation of the project. Thirteen per cent stated that the effect would be positive, two per cent stated the effect would be negative and 25 per cent stated that they were unsure/not applicable
3. Employee and customer access – the majority (60 per cent) of respondents stated that the effect would be positive upon operation of the project. Two per cent stated the effect would be negative, 28 per cent stated the effect would be neutral and eight per cent stated that they were unsure/not applicable.
4. Servicing and deliveries – the majority (56 per cent) of respondents stated that the effect would be positive upon operation of the project. One per cent stated the effect would be negative, 32 per cent stated the effect would be neutral and 10 per cent stated that they were unsure/not applicable.
5. Business amenity – the majority (55 per cent) of respondents stated that the effect would be neutral upon operation of the project. Twenty-eight per cent stated the effect would be positive, 2 per cent stated the effect would be negative and 14 per cent stated that they were unsure/not applicable.
6. Visibility of business to customers – the majority (62 per cent) of respondents stated that the effect would be neutral upon operation of the project. Seventeen per cent stated the effect would be positive, four per cent stated the effect would be negative and 15 per cent stated that they were unsure/not applicable.
7. Demand for services/products – the majority (57 per cent) of respondents stated that the effect would be neutral upon operation of the project. Twenty per cent stated the effect would be positive, three per cent stated the effect would be negative and 18 per cent stated that they were unsure/not applicable.



Effects of the project (during operation)

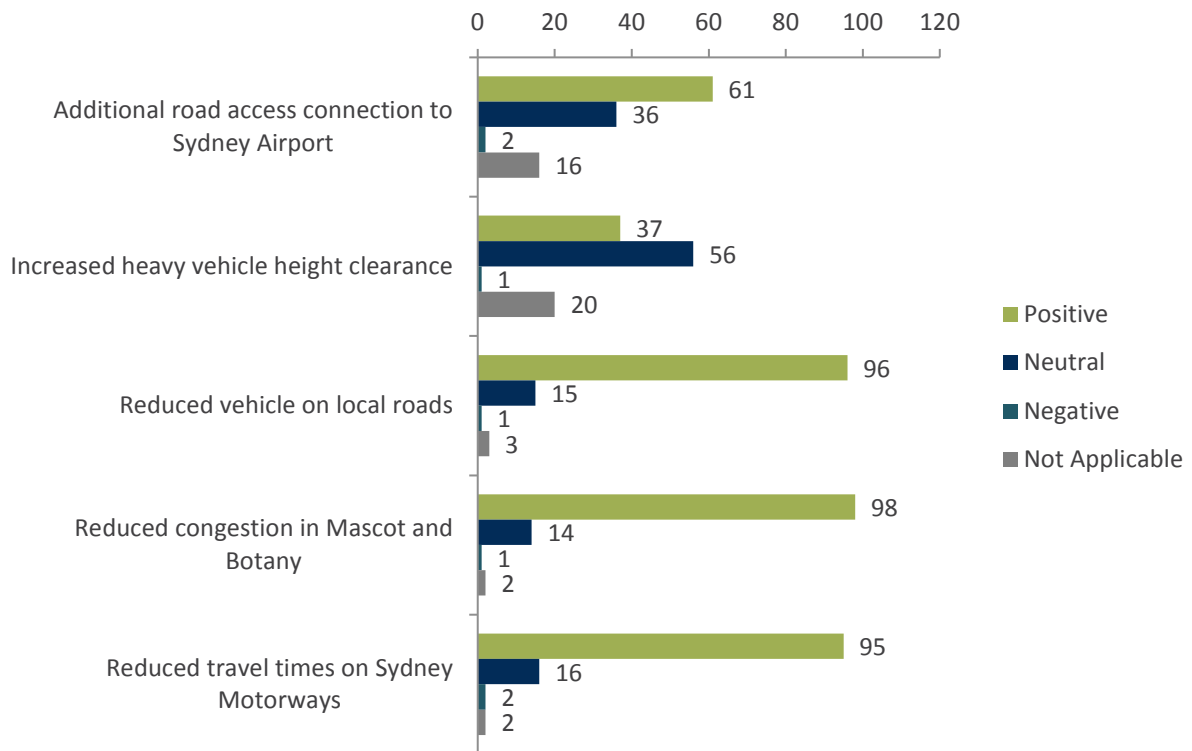
What effect would the following operational impacts have on your business?

Of the 115 participants, 115 or 100 per cent responded to this question. The question related to perceived potential impacts to a business resulting the operational phase of the project.

The results for each of potential impacts of the projects operational phase are as follows:

1. Additional road access connection to Sydney airport – 53 per cent of respondents stated that this impact of the project would be positive while one per cent stated it would be negative. Thirty-one per cent of respondents saw additional road access connections to Sydney airport having a neutral impact and 13 per cent of respondents found the question not applicable to their business.
2. Increased heavy vehicle height clearance – 32 per cent of respondents stated that this impact of the project would be positive while with less than one per cent stated it would be negative. With this in mind, 48 per cent of respondents saw increased heavy vehicle height clearance as having a neutral impact and 17 per cent of respondents found the question not applicable to their business.
3. Reduced vehicles on local roads – 83 per cent of respondents stated that this impact of the project would be positive while with less than one per cent stated it would be negative. Thirteen per cent of respondents saw reduced vehicles on local roads having a neutral impact and two per cent of respondents found the question not applicable to their business.
4. Reduced congestion in Mascot and Botany – 85 per cent of respondents stated that this impact of the project would be positive while with less than one per cent stating it would be negative. Twelve per cent of respondents saw reduced congestion in Mascot and Botany having a neutral impact and one per cent respondents found the question not applicable to their business.

5. Reduced travel times on Sydney motorways – 82 per cent of respondents stated that this impact of the project would be positive while with one per cent stated it would be negative. Thirteen per cent of respondents saw reduced travel times on Sydney motorways having a neutral impact and one per cent respondents found the question not applicable to their business.



APPENDIX C | DETAILED BREAKDOWN OF STUDY AREA STATISTICS

A.6 Total number of businesses

The estimated number of businesses within each SA2 is identified in the table below. The size and scale of centres within the SA2s vary, with Erskineville–Alexandria, containing the greatest number of businesses closely followed by Marrickville and Mascot – Eastlakes.

Study area SA2 business count by industry sector

Description	Botany	Mascot–Eastlakes	Sydney Airport	Marrickville	Sydenham–Tempe–St Peters	Erskineville–Alexandria	Arncliffe–Bardwell Valley	Total study area business count	Study area proportional distributions
Agriculture, forestry and fishing	3	8	0	11	3	9	6	40	0.3%
Mining	0	0	0	3	0	0	3	6	0.0%
Manufacturing	123	90	3	302	92	146	59	815	6.3%
Electricity, gas, water and waste services	11	5	0	10	4	7	5	42	0.3%
Construction	255	321	0	340	135	233	286	1570	12.1%
Wholesale trade	88	136	0	188	86	328	77	903	7.0%
Retail trade	50	166	0	238	78	249	119	900	6.9%
Accommodation and food services	53	124	0	145	43	133	78	576	4.4%
Transport, postal and warehousing	122	457	4	230	79	146	331	1369	10.6%
Information media and telecommunications	21	46	0	79	26	106	21	299	2.3%
Financial and insurance services	85	169	0	186	65	192	85	782	6.0%
Rental, hiring and real estate services	123	349	3	384	124	501	235	1719	13.3%
Professional, scientific and technical services	139	302	0	405	155	594	201	1796	13.9%
Administrative and support services	66	114	0	145	43	127	88	583	4.5%
Public administration and safety	4	17	0	12	9	22	10	74	0.6%
Education and training	13	31	0	30	23	46	23	166	1.3%
Health Care and social assistance	40	81	0	155	26	113	68	483	3.7%
Arts and recreation services	18	22	0	88	31	115	16	290	2.2%
Other services	68	104	0	137	58	102	75	544	4.2%
Total	1282	2542	*10	3088	1080	3169	1786	12,957	100.0%
SA2 proportional contribution	9.9%	19.6%	0.1%	23.8%	8.3%	24.5%	13.8%	100.0%	

Source: ABS, 8165.0 - Counts of Australian Businesses, including Entries and Exits (2017) *Information for the Sydney Airport SA2 is not a true reflection for the number of businesses on the land

Sydney Gateway road project – Road Technical Advisory and Environmental Advisory Services

Sydney Gateway Road Project: Technical Working Paper 12 – Business Impact Assessment

A.7 Employment by industry

The below table identifies that around 86,305 people were employed within the study area based on ABS Place of Work 2016. The top three industries of employment were transport, postal and warehousing, retail trade and manufacturing and the top three SA2s contributing to employment were Erskineville–Alexandria, Mascot–Eastlakes and Sydney Airport.

Study area employment by industry sector

Description	Botany	Mascot–Eastlakes	Sydney Airport	Marrickville	Sydenham–Tempe–St Peters	Erskineville–Alexandria	Arncliffe–Bardwell Valley	Total study area employment numbers	Study area proportional distributions (%)
Agriculture, forestry and fishing	35	40	16	35	8	23	-	157	0.2%
Mining	4	4	3	-	18	11	4	44	0.1%
Manufacturing	895	876	224	2,311	659	1,977	340	7,282	8.4%
Electricity, gas, water and waste services	70	134	6	41	40	116	11	418	0.5%
Construction	1,187	1,142	259	896	531	1,584	596	6,195	7.2%
Wholesale trade	411	1,025	57	959	296	2,643	120	5,511	6.4%
Retail trade	392	1,603	1,010	1,329	1,035	3,577	685	9,631	11.2%
Accommodation and food services	181	1,339	1,498	982	290	1,021	307	5,618	6.5%
Transport, postal and warehousing	1,312	934	8,633	666	785	3,385	343	24,472	28.4%
Information media and telecommunications	214	231	41	281	62	562	30	1,421	1.6%
Financial and insurance services	70	307	94	336	80	361	39	1,287	1.5%
Rental, hiring and real estate services	133	572	257	135	59	382	60	1,598	1.9%
Professional, scientific and technical services	335	1,236	116	593	261	1,896	168	4,605	5.3%
Administrative and support services	305	1,305	617	433	102	588	125	3,475	4.0%
Public administration and safety	197	645	1,939	341	370	677	61	4,230	4.9%
Education and training	169	327	22	665	203	427	284	2,097	2.4%
Health Care and social assistance	319	738	87	1,150	159	1,157	336	3,946	4.6%
Arts and recreation services	116	100	8	287	121	400	46	1,078	1.2%
Other services	284	471	142	697	330	1,147	169	3,240	3.8%
Total	6,629	21,443	15,029	12,137	5,409	21,934	3,724	86,305	
SA2 proportional contribution	8%	25%	17%	14%	6%	25%	4%		

Source: ABS Census 2016 – Place of Work – Counting Employed Persons (1 Digit Level by SA2)

A.8 Industry value added

The below table summarises HillPDA's estimates of IVA by industry sector for each of the SA2s within the study area. The values in the table exclude the categories of inadequately described, not stated and not applicable.

Annual industry value added by industry sector (\$million per year, rounded (year 17/18))

Description	Botany	Mascot–Eastlakes	Sydney Airport	Marrickville	Sydenham–Tempe–St Peters	Ersleville–Alexandria	Arnccliffe–Bardwell Valley	Total study area industry contribution	Study area industry distribution (%)
Agriculture, forestry and fishing	\$3.1	\$3.5	\$1.4	\$3.1	\$0.7	\$2.0	\$0.0	\$13.7	0.1%
Mining	\$0.8	\$0.8	\$0.6	\$0.0	\$3.6	\$2.2	\$0.8	\$8.9	0.1%
Manufacturing	\$100.7	\$98.6	\$25.2	\$260.0	\$74.1	\$222.4	\$38.3	\$819.2	8.2%
Electricity, gas, water and waste services	\$20.5	\$39.2	\$1.8	\$12.0	\$11.7	\$34.0	\$3.2	\$122.4	1.2%
Construction	\$138.2	\$133.0	\$30.2	\$104.3	\$61.8	\$184.5	\$69.4	\$721.5	7.2%
Wholesale trade	\$58.3	\$145.5	\$8.1	\$136.1	\$42.0	\$375.0	\$17.0	\$782.0	7.8%
Retail trade	\$24.9	\$101.8	\$64.1	\$84.4	\$65.7	\$227.1	\$43.5	\$611.5	6.1%
Accommodation and food services	\$10.7	\$79.2	\$88.6	\$58.1	\$17.1	\$60.4	\$18.1	\$332.1	3.3%
Transport, postal and warehousing	\$161.7	\$1152.2	\$1064.0	\$82.1	\$96.8	\$417.2	\$42.3	\$3016.2	30.0%
Information media and telecommunications	\$50.3	\$54.3	\$9.6	\$66.0	\$14.6	\$132.0	\$7.0	\$333.7	3.3%
Financial and insurance services	\$24.1	\$105.5	\$32.3	\$115.5	\$27.5	\$124.1	\$13.4	\$442.4	4.4%
Rental, hiring and real estate services	\$39.7	\$170.8	\$76.7	\$40.3	\$17.6	\$114.0	\$17.9	\$477.0	4.8%
Professional, scientific and technical services	\$41.6	\$153.5	\$14.4	\$73.6	\$32.4	\$235.4	\$20.9	\$571.8	5.7%
Administrative and support services	\$41.3	\$176.5	\$83.5	\$58.6	\$13.8	\$79.5	\$16.9	\$470.1	4.7%
Public administration and safety	\$22.8	\$74.6	\$224.1	\$39.4	\$42.8	\$78.3	\$7.1	\$489.0	4.9%
Education and training	\$14.0	\$27.2	\$1.8	\$55.2	\$16.9	\$35.5	\$23.6	\$174.2	1.7%
Health care and social assistance	\$25.7	\$59.4	\$7.0	\$92.5	\$12.8	\$93.1	\$27.0	\$317.5	3.2%
Arts and recreation services	\$10.7	\$9.2	\$0.7	\$26.4	\$11.1	\$36.9	\$4.2	\$99.3	1.0%
Other services	\$21.1	\$34.9	\$10.5	\$51.7	\$24.5	\$85.0	\$12.5	\$240.2	2.4%
Total	\$810.0	\$2619.4	\$1744.7	\$1359.3	\$587.6	\$2538.6	\$383.2	\$10042.9	
SA2 proportional contribution (%)	8.1%	26.1%	17.4%	13.5%	5.9%	25.3%	3.8%		

Source: ABS place of work and Economy ID – adapted by HillPDA 2018

Note: A combination of Bayside and Inner West Worker Productivity were utilised based on Economy Id.

A.9 Employee method to travel to work

The below table summarises the journey to work method of employees working in the study area. This has been defined across the 15 travel modes and eight SA2 locations that make up the study area.

Employee method to travel to work (15 travel modes) by SA2

	Botany	Mascot–Eastlakes	Sydney Airport	Marrickville	Sydenham–Tempe–St Peters	Petersham–Stanmore	Erskineville–Alexandria	Arncliffe–Bardwell Valley	Total
Train	484	4684	2127	2320	954	776	4470	620	16,426
Bus	268	619	619	520	111	212	879	33	3,256
Ferry	4	7	10	4	0	0	12	0	30
Tram	3	5	3	10	0	0	9	3	35
Taxi	18	290	97	40	16	18	125	19	616
Car, as driver	5113	11,930	9186	7206	3525	2485	13,549	2355	55,342
Car, as passenger	254	693	468	568	219	149	702	170	3224
Truck	120	85	31	118	92	27	177	56	706
Motorbike/scooter	63	166	202	88	59	40	265	17	904
Bicycle	42	223	95	168	75	75	424	18	1111
Walked only	146	625	89	647	181	330	895	168	3086
Other Mode	38	162	72	70	25	28	122	30	546
Worked at home	169	365	51	450	173	408	495	236	2344
Did not go to work	328	2358	2254	847	353	420	1314	251	8124
Not stated	75	209	149	152	61	54	192	37	918
Total	7125	22,421	15,453	13,208	5844	5022	23,630	4013	96,668

Source: Census of Population and Housing, 2016, TableBuilder

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APPENDIX D | ASSESSMENT OF THE EMPTY CONTAINER SECTOR IN SYDNEY

Roads and Maritime
Services of NSW

The Gateway Road
Project:
Assessment of the empty
container sector in
Sydney

6 November 2019

NMC

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Glossary

CAGR	Compounded average growth rate
DRE	Direct return of empties (containers to port)
ECP	Empty container park
IMEX	Import and export
IMT	Intermodal terminal, incorporating rail terminal and container storage services
MT	Empty (container)
Qtr	Quarter (3 months)
RMS	Roads and Maritime Services of NSW
TEU or TEUs	Twenty-foot equivalents
TfNSW	Transport for NSW

Description of supply chain roles

Shipping line	Operator of maritime shipping and owner of IMEX containers
Stevedore	Port terminal operators responsible for loading/unloading ships
Carrier (road)	Road transport operator moving containers between port, customer, ECP and IMT locations
Rail operator	Train operator moving containers between port, IMT and regional locations
ECP operator	Operator of 1 or more empty container park

1 Introduction

1.1 Overview

Sydney Gateway and the project

Sydney Kingsford Smith Airport (Sydney Airport) and Port Botany are two of Australia's most important infrastructure assets, providing essential domestic and international connectivity for people and goods. Together they form a strategic centre, which is set to grow significantly over the next 20 years. To support this growth, employees, residents, visitors and businesses need reliable access to the airport and port, and efficient connections to Sydney's strategic hubs.

The NSW and Australian governments are making major investments in the transport network to achieve this vision. New road and freight rail options are being investigated to cater for the forecast growth in passengers and freight through Sydney Airport and Port Botany. Part of this solution is Sydney Gateway, which comprises the following road and rail components:

- Sydney Gateway road project
- Botany Rail Duplication.

Sydney Gateway will expand and improve the road and freight rail networks to Sydney Airport and Port Botany to keep Sydney moving and growing. Sydney Gateway forms part of the NSW Government's long-term strategy to invest in an integrated transport network and make journeys easier, safer and faster. The Botany Rail Duplication forms part of the Australian Government's commitment to invest in transport infrastructure across Australia.

As part of Sydney Gateway, NSW Roads and Maritime Services (Roads and Maritime) and Sydney Airport Corporation Limited (SACL) propose to build the Sydney Gateway road project (the project). The project comprises new direct high capacity road connections linking the Sydney motorway network at St Peters interchange with Sydney Airport's terminals and beyond.

Approval requirements

The project is declared State significant infrastructure under Division 5.2 of the NSW *Environmental Planning & Assessment Act 1979* (EP&A Act), and needs approval from the NSW Minister for Planning. The project is also a major airport development under the Commonwealth *Airports Act 1996* (Airports Act) and needs approval from the Australian Minister for Infrastructure, Transport and Regional Development. A combined environmental impact statement (EIS) and preliminary draft major development plan (MDP) will be prepared to support the application for approval under the EP&A Act and the Airports Act, respectively.

This report has been prepared by Neil Matthews Consulting Pty Ltd for the NSW Roads and Maritime Services, as part of the EIS/preliminary draft MDP for the project. The EIS/preliminary draft MDP has been prepared to support the application for approval of the project and address the environmental assessment requirements of the Secretary of the Department of Planning and Environment (the SEARs), issued on 15 February 2019. It also addresses the MDP requirements defined by section 91 of the Airports Act.

1.2 The project

Key features

The project involves constructing and operating new and upgraded sections of road connecting to the airport terminals, new bridges over Alexandra Canal, and other ancillary infrastructure and road connections. The key features of the project include:

- Terminal 1 connection – a new grade-separated section of road connecting Sydney Airport Terminal 1 (Terminal 1) and the Sydney motorway network via St Peters interchange, including a new bridge over Alexandra Canal
- Qantas Drive upgrade and extension – widening and upgrading Qantas Drive and providing a new grade-separated section of road connecting the Sydney motorway network and Sydney Airport Terminals 2 and 3 (Terminals 2/3) via a new high-level bridge over Alexandra Canal
- St Peters interchange connection – a new grade-separated section of road connecting Qantas Drive and the Terminal 1 connection with St Peters interchange
- Terminal links – two new grade separated sections of road linking Terminal 1 and Terminals 2/3, including a new bridge over Alexandra Canal
- Terminals 2/3 access – a new grade-separated road connection to Terminals 2/3 from the upgraded Qantas Drive
- Active transport facilities – realigning the existing shared path.

The key features of the project are shown in Figure 1.

Ancillary work would include new sections of road to provide access to Sydney Airport land, new drainage infrastructure, signage and lighting, and protecting/relocating utilities. The project would also require temporary facilities during construction, including compounds, work areas and site access.

Further information on the project is provided in the EIS/preliminary draft MDP.

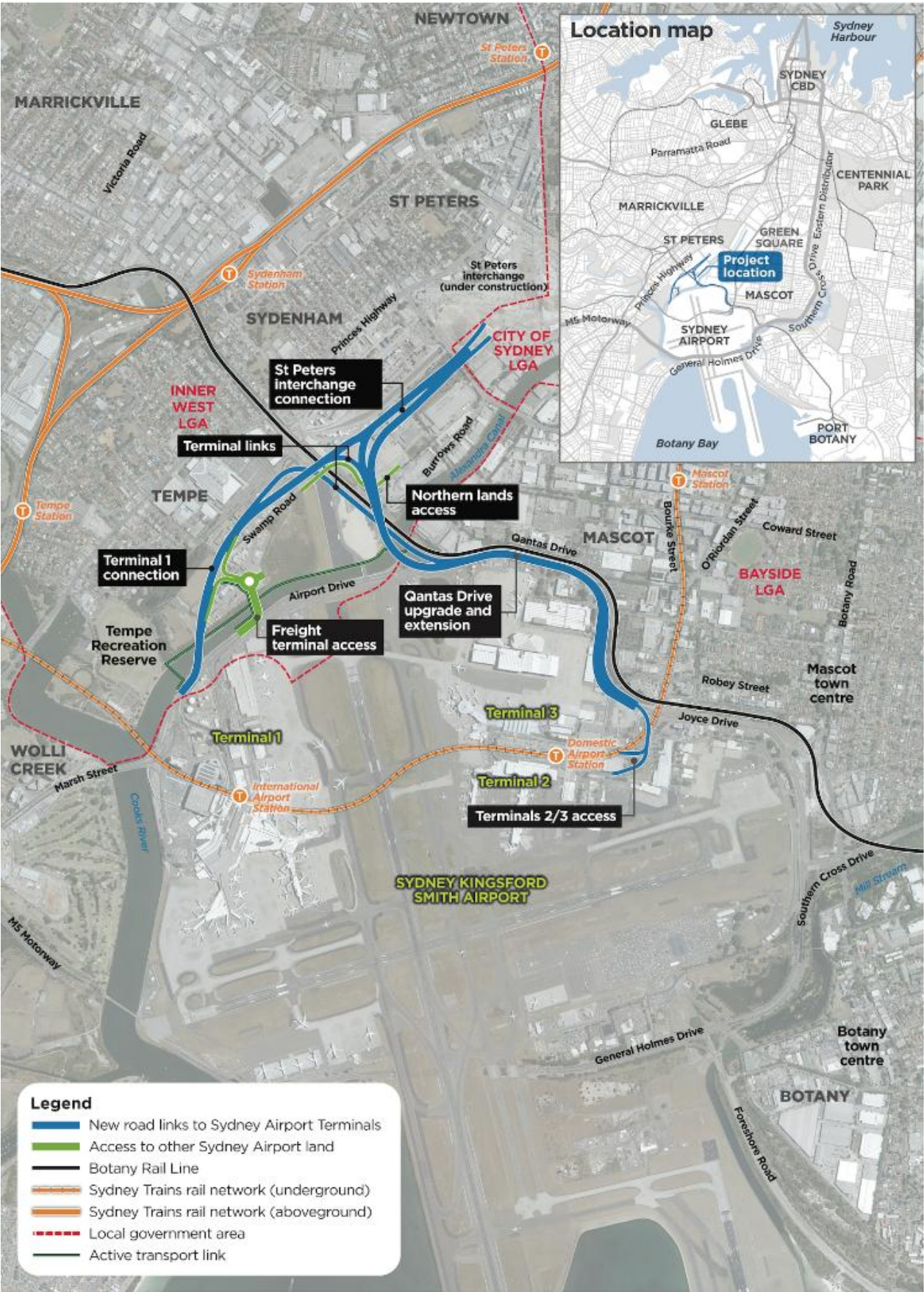
Location

The project is located about eight kilometres south of Sydney's central business district and to the north of Sydney Airport on both sides of Alexandra Canal. The northern extent of the project is located at St Peters interchange, which is currently being constructed to the north of Canal Road in St Peters. The western extent of the project is located near the entrance to Terminal 1 on Airport Drive, to the north of the Giovanni Brunetti Bridge and south-west of Link Road. The eastern extent of the project is located near the intersection of Joyce Drive, Qantas Drive, O'Riordan Street and Sir Reginald Ansett Drive.

The project is located mainly on publicly owned land in the suburbs of Tempe, St Peters and Mascot, in the Inner West, City of Sydney and Bayside local government areas.

The location of the project is shown in Figure 1 over page.

Figure 1 - Location of the Gateway project



1.3 Purpose and scope of this report

The purpose of this report is to assess the potential freight management impacts from constructing and operating the project. The report:

- Establishes the context of empty container parks (ECP) to the freight industry including the:
 - Emerging changes in freight infrastructure and operations that affect the movement and storage of containerised freight through Port Botany.
 - Current challenges facing the ECP sector.
 - Broader ECP capacity across Sydney.
- Assesses the potential impacts to the ECP sector from constructing and operating the project.
- Identified market responses for expanding ECP capacity and addressing current issues across the sector

This assessment addresses the relevant SEARs and the MDP requirements according to the Airports Act as outlined in Table 1 to Table 2 below.

Table 1 - SEARs relevant to this assessment

Requirements	Where addressed in this report
Key Issue Standard SEARS 6. Socio-economic, Land Use and Property	
The Proponent must assess the social and economic impacts from construction and operation on potentially affected properties, infrastructure, utility services, businesses (including impacts to freight management associated with the reduction of container storage, and consequent impacts to the broader industry), recreational users and land and water users	Section 5

Table 2 - MDP requirements relevant to this assessment

MDP Requirements	Section where addressed in this report
Airports Act 1996, Part 5, Division 4, Section 91 (1) (Contents of major development plan)	
(1) A major development plan, or a draft of such a plan, must set out:	Section 5
(d) if a final master plan for the airport is in force – whether or not the development is consistent with the final master plan; and	
(h) the airport-lessee company's assessment of the environmental impacts that might reasonably be expected to be associated with the development; and	
(j) the airport-lessee company's plan for dealing with the environmental impacts mentioned in paragraph (h) (including plans for ameliorating or preventing environmental impacts); and	

1.4 Structure of this report

The structure of the report is outlined below.

- Section 1 – provides an introduction to the report
- Section 2 – describes the methodology for the assessment
- Section 3 – describes the empty container park sector in Sydney, including port trade and supply chain drivers for empty container movements
- Section 4 – describes the assessment of potential impacts of the project
- Section 5 – provides recommended measures to mitigate potential ECP impacts
- Section 6 – summarises the assessment and main conclusions
- Section 7 – the Appendix, including output from the modelling

2 Methodology

A desktop analysis has been adopted to model the current and future capacity of the ECP sector in terms of the potential closure of Tyne's Tempe site and the termination of QUBE's lease from Sydney Airport Corporation.

Current and forward estimates of empty container throughput and storage volumes have been modelled using key operational assumptions to develop forecasts to 2031.

2.1 Framework

The approach adopted the following steps:

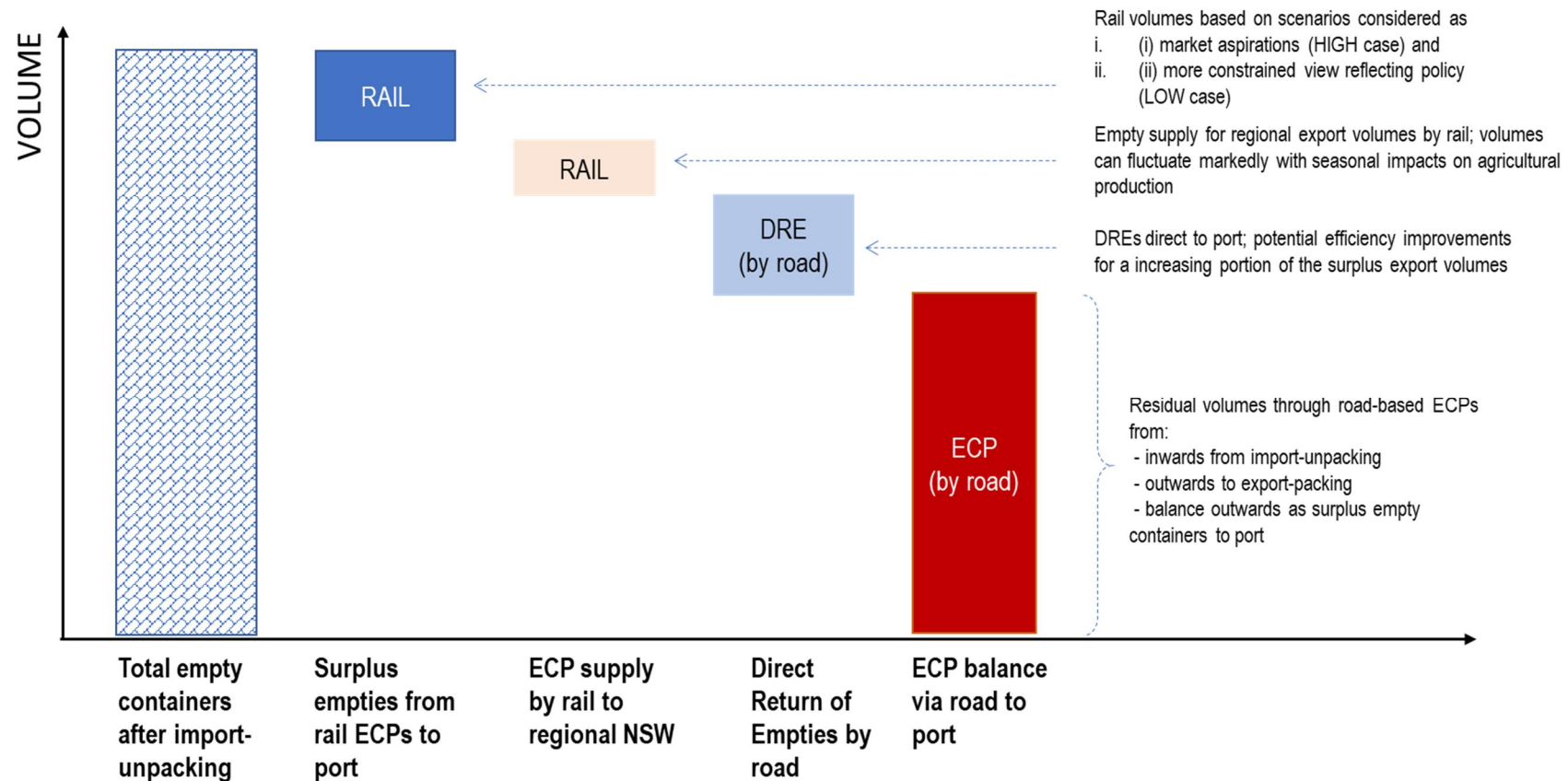
1. Estimate the volume of empty containers moving for each mode as 2015, 2018, 2021, 2026 and 2031, using public data sources¹;
2. Identify the rail/Intermodal Terminal (IMT) volumes under two scenarios being:
 - o Low Rail case based on current IMTs at Yennora, Minto and Cooks River plus Moorebank (QUBE); this scenario aligns with the present forecasts from Transport for NSW of 28% for rail mode share by 2026².
 - o High Rail case based on current/Moorebank IMTs, plus developments proposed for Enfield (LYNX) and St. Marys (Pacific National) metro; this scenario forecasts a rail mode share of 39% by 2026.
 - o Modest growth in regional rail (up to 1%) is assumed under both scenarios.
 - o The new IMTs may also absorb volumes from the existing IMTs at Minto and Yennora however will depend on relative prices and catchment areas.
3. Identify the volume of empty containers moving by road:
 - o Forecast continued growth in the volume of empty containers moving by road as Direct Return of Empties (DRE) to the port; from 100,000 to 300,000 Twenty Foot Equivalents (TEUs) to 2031;
 - o Derive estimates for the balance of empty containers moving through the road-based ECPs as (i) empty container from import-unpacking, (ii) empty containers for export-packing and (iii) evacuation of surplus empty containers moved to port.

The following diagram illustrates the step wise process adopted in the generalised modelling. Forecasts for full and empty containers, by trade and mode are shown in the Appendix in Table 5 and Table 6.

¹Primary sources are the Commonwealth BITRE Waterline publications
<https://www.bitre.gov.au/publications/publications.aspx?query=waterline> and Transport for NSW Freight database
<https://www.transport.nsw.gov.au/data-and-research/freight-data>

² NSW Government Freight and Ports Plan 2018-2023; page 4

Figure 1 – Stepwise framework for estimating ECP throughput by pathway



2.2 Assumptions

The following assumptions have been used in the modelling.

- Based on the 2015 empty container volumes and port trade for empty exports, the aggregate volume held at ECPs were around 4% of ECP throughput and equivalent to about 25-27 cycles in empty container volumes and an average dwell time of about 2 weeks.
 - It is recognised that dwell time will be influenced by seasonal factors and trade imbalances.
 - These metrics are used to determine future ECP storage forecasts for both road and rail sites.
- To operate efficiently, ECP volumes are generally around 65-75% of overall capacity and are used to determine future cumulative ECP capacity.
 - Modelling for 2018 storage, recognised the volume of empty containers stored in transport depots as latent demand and therefore cumulative demand was around 95% of available ECP capacities.
- Rail mode share for the LOW scenario is 28% and equivalent to present forecasts by 2026, however the HIGH scenario is 39% by 2026, and reflects each IMT operator's forecast throughput.
- The rail mode forecasts at each IMT have assumed to be around 85% of the published targets.
- Under each rail scenario, Moorebank, Enfield and St. Marys IMTs will commence operations in the period 2018 to 2021, with further site development staged to meet expanding demand over time.
- The capacity of the rail network and port-rail interface will continue to attract investment and achieve operating efficiencies over time consistent with various publications from TfNSW and NSW Ports.
- DRE volumes will grow as a viable alternative pathway to ECPs for larger shipping lines and importer operations.
- Commercial arrangements will be developed to reflect the changing cost profiles for shipping line and transport companies, as ECP sites and capacities start to decentralise away from the immediate port precinct.

3 Existing environment

3.1 Port trade and empty containers

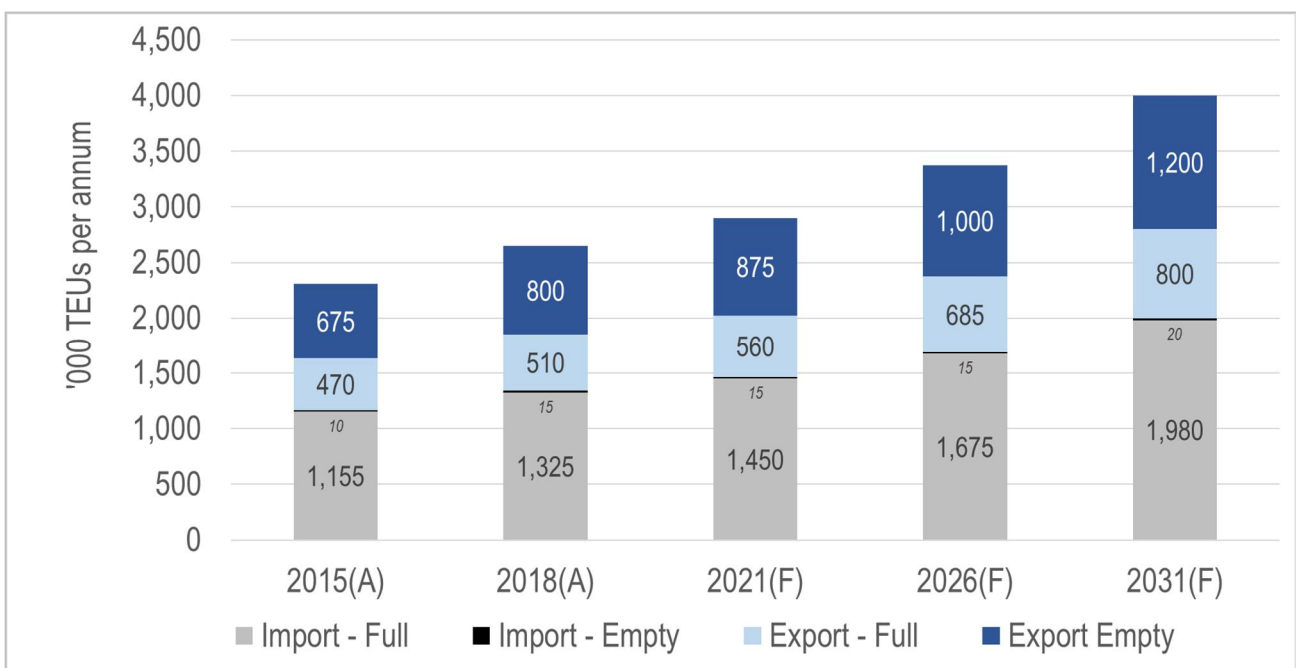
Port volumes and forecasts

Import-export (IMEX) trade in containers for NSW is handled predominantly through the container-terminals at Port Botany³, with almost 2.4 million TEUs handled in 2015, growing to 2.6 million TEUs in 2018. Forecast container trade is expected to reach 2.9 million TEUs by 2021, almost 3.4 million TEUs by 2026 and 4.0 million TEUs by 2031. Forward growth to 2031 is assumed to be between 3-4% per annum⁴.

Containerised trade through Port Botany is dominated by import containers carrying consumer, technology and industrial goods. Full export containers are predominantly agricultural products and semi processed industrial goods, representing around 40% of the number of import containers. Port Botany's largest export activity is the evacuation of surplus empty containers back to origin ports in Asia, Americas and Europe. The volume of empty exports has been consistently around 60% (+/- 2%) for the last decade.

The following graph shows the current and forecast growth in container trade to 2031, segmented as loaded import, empty imports, loaded exports and empty exports. The import of empty containers is relatively minor in the overall task.

Figure 2 - Current and forecast container trade through Port Botany ('000 TEUs per annum)



Source: Assembled from BITRE Waterline publications (2015-2018) and Transport for NSW

³ In 2017, Newcastle port handled around 5,000 containers of general cargo. Source: <https://www.portofnewcastle.com.au/Resources/Documents/Trade-Report-2017---Final---For-web.pdf>

⁴ Generalised modelling for Transport for NSW (2018), Future Transport, Greater Sydney Services and Infrastructure Plan and Freight and Ports Plan 2018-2023

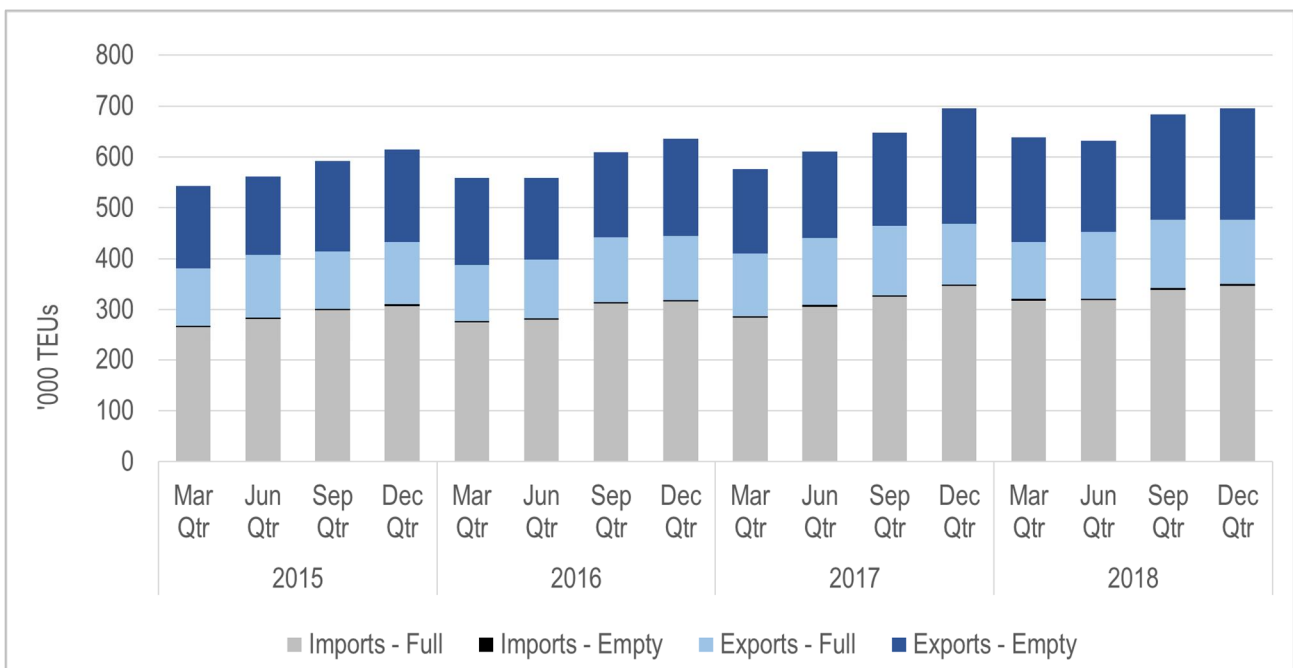
3.2 Growth and seasonality in empty export flows

While overall port volumes have grown around 4.5% annually since 2015, there is considerable variability in demand when comparing volumes on a quarterly basis. The following graph shows the variation in demand across each year since 2015, in addition to the underlying growth.

Seasonality factors influencing demand from quarter to quarter include:

- Seasonal consumer demand in the September and December quarters ahead of the Christmas peak period, underpinned by longer term changes in the underlying consumer sentiment
- Agricultural production or drought impacting the export flows of grain, cotton, wine and horticulture products
- Export of other semi-processed and finished goods influenced by global demand and currency rates

Figure 3 - Container volumes by quarter since 2015



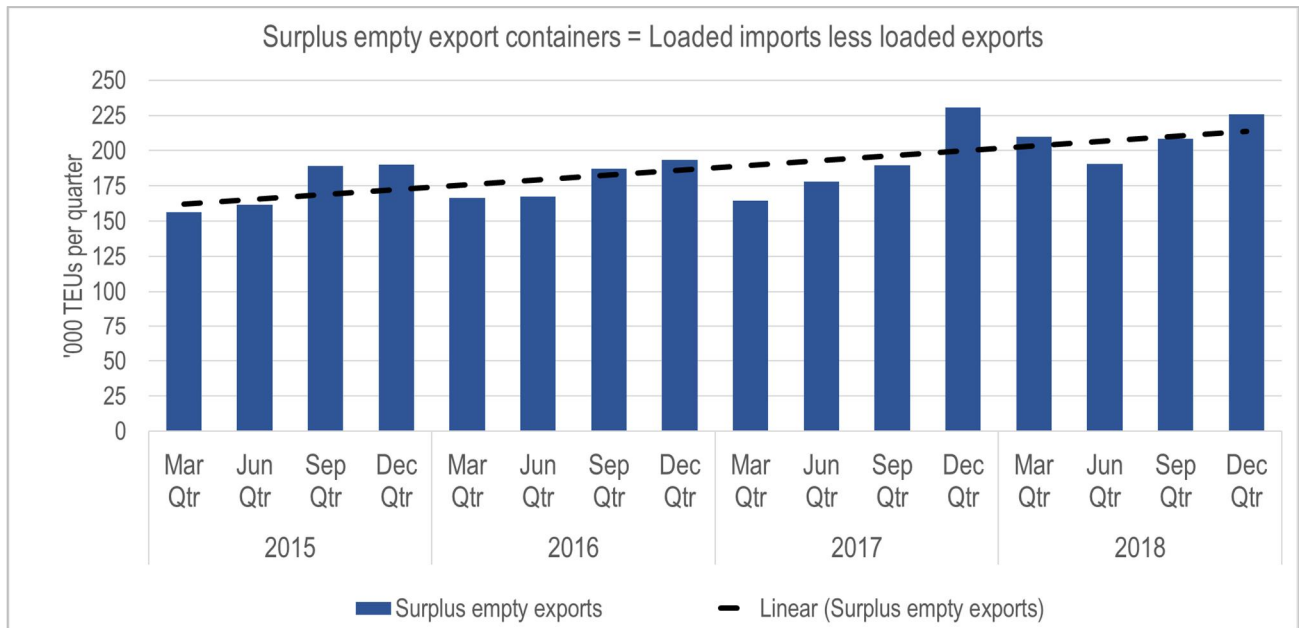
Source: Assembled from BITRE Waterline publications (2015-2018)

The drought has depressed the volumes of agricultural exports since 2017, which together with peak inbound flows of consumer goods, has resulted in a significant build-up of empty containers in Sydney. In contrast, several industry stakeholders also recalled previous trading periods where Sydney experienced a shortage of export containers due to peak export demand and lower inbound flows. The export movement of empty containers back to origin ports is a significant cost to shipping lines, which is exacerbated with seasonal imbalances in demand.

Figure 4 shows the asymmetrical trade between loaded import and empty export containers on a quarterly basis since 2015. There is an underlying growth in export empty containers however the seasonality variances across the year are also increasing over time. These changes in export patterns have led to a build up of 10,000 TEUs of empty containers stored in Sydney ECPs, as shipping lines are unwilling to meet the higher costs of exporting an increased number of empty containers in lieu of loaded export movements.

Further analysis of the changes in export cycle is shown in the Appendix.

Figure 4 - Growth and variance in empty container exports on quarterly basis since 2015



Source: NMC analysis of BITRE Waterline data (2015-2018)

4 Description of ECP sector

4.1 Role of ECPs in containerised port trade

The management of empty containers is fundamental to the overall logistics processes serving Port Botany container trade. ECPs provide a critical role to aggregate empty containers and provide short term storage on behalf of the shipping lines who own the containers. The empty containers are then either (i) supplied to exporters to load export consignments or (ii) surplus volumes of empty containers are moved to port for return to overseas ports.

The general functions carried out at most road serviced ECP's include:

- Receival and unloading of empty containers from importers.
- Storage of containers in designated bays (by shipping line); in the larger sites, the storage locations are managed through yard management systems to optimise space, with stacking from 3 to 6 high.
- Container maintenance, repair and cleaning services (in the larger sites).
- Container retrieval and truck loading for supply to exporters.
- Management of "stack runs" of surplus containers by road transport to port.
- Truck scheduling and queuing systems for inwards and outwards movements.

ECPs and intermodal terminals with rail services operate with a similar functionality, however the "stack runs" by road are substituted with the movement of empty containers by train.

Many of the ECP sites range between 2-6 hectares with the largest being QUBE (Cooks River) at 12 hectares and Tyne (Tempe) at 10 hectares. The cumulative area of the ECPs in Sydney is presently around 55 hectares and has remained static since 2015. This area does not include Enfield and Moorebank.

Figure 5 - Typical ECP storage and transport operations



Source: NSW Ports - Cooks River Intermodal Terminal at <https://www.nswports.com.au/ports-and-facilities/cooks-river-intermodal-terminal/>

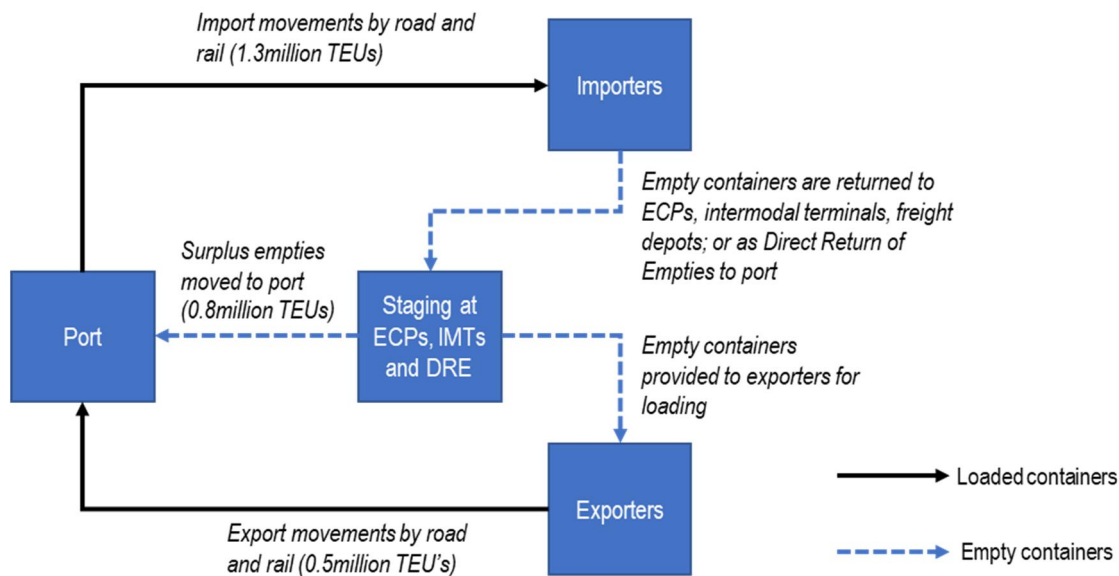
The following diagram shows the primary flows through Port Botany and its catchment area.

- Every loaded import container becomes an empty container.
- Around 40% of the empty containers are reloaded as an export container.
- Around 60% of all export movements are surplus empty containers.

- Each movement may be undertaken by road or rail.
- Presently around 75% of all empty containers are staged through an ECP with the remaining empty containers moving through rail/intermodal terminals or as Direct Return of Empties (DRE) to the port. More detailed explanation of the various pathways and volumes is provided in section 4.

Over the last 3 years, the average annual growth rate in the total IMEX container task has been around 4.5%. However, the compounded average growth rate (CAGR) of loaded export containers has only been around 2.5%, whereas the growth of export empty containers exceeds 8% annually⁵, and as a consequence, the build-up in stored empty containers has exhausted any latent capacity in ECPs⁶.

Figure 6 - Primary container movements through Port Botany and catchment areas (2018)



4.2 ECP site locations and capacities

Presently, there are 11 ECPs operating in Sydney with a cumulative capacity of around 58,000 TEUs. In 2015, the volume of empty containers stored at the ECPs was around 38,000 TEUs with a cumulative utilisation of 65%. Table 2 over page lists the current ECPs with site capacity and volumes as at 2015.

Table 3 over page shows the ECPs that existed in 2015. ECPs can be geographically segmented into 3 zones as (i) ECPs within port precinct; (ii) ECPs located immediately outside the port precinct, and representing the largest capacity, and (iii) ECPs located across western suburbs of Sydney. MCS Cooks River is now owned by QUBE, and MCS Banksmeadow has been closed and its operations relocated to Cooks River.

⁵ NMC analysis of BITRE Waterline data

⁶ Based on media reports and comments from industry stakeholders; for example, <https://www.fullyloaded.com.au/industry-news/1902/alarm-rung-over-sydney-empty-container-system>

Table 3 - ECP site capacities and utilisation in 2015

Note – this table was produced in 2015 and reflects the MCS ownership of the Cooks River and Banksmeadow sites, which was subsequently acquired by QUBE in 2018. Afterwards, QUBE transferred the Banksmeadow operation into Cooks River.

Park	Capacity (TEU)	Holding 20'	Holding 40'	Holding (TEU)	Utilisation
MCS Banksmeadow	3500	154	608	1370	39.1%
MCS Rail - St Peters	15000	4597	3137	10871	72.5%
Patrick - Port Botany	3000	357	659	1675	55.8%
QUBE Sydney Haulage - Port Botany	9000	3608	1421	6450	71.7%
TYNE - Tempe	10500	2216	2718	7652	72.9%
TYNE / ACFS - Port Botany	4000	517	782	2081	52.0%
TYNE - Punchbowl	2000	462	548	1558	77.9%
Western Containers - Strathfield	3200	871	817	2505	78.3%
MT Movements - Molineaux Point	2400	148	453	1054	43.9%
Patrick Botany Link 2400	2000	151	554	1259	63.0%
QUBE Link	3000	0	569	1138	37.9%
TOTAL	57600			37613	65.3%

The ECP operational capacity survey undertaken in March 2015 (Table 3.4) gives a more up to date overview of capacity in Sydney. Total capacity is almost the same as the previous 2010 data (57,600 TEU in 2015 vs 57,900 TEU in 2010) indicating that no additional ECP capacity has been created in Sydney. Of note is the utilisation rate of approximately 65% indicating that existing ECPs have some capacity to absorb additional container volumes before the proposed ECP at Moorebank Intermodal Terminal is developed.

Source: WSP/Deloitte Report titled Strategic Movement Plan for Containers - Port Botany and Sydney Metropolitan Area Stage 1 Report (2018) based on NSW Ports Cargo Facilitation Committee meeting minutes, 12 February 2015

4.3 Commercial influences for ECP locations

The land transport costs to move an import container from port to the importer premises is usually the responsibility of the importer⁷. Similarly, the movement of an export container from exporter premises to port is the responsibility of the exporter.

The importer is also responsible for the cost of returning an empty container to the ECP and is advised by the shipping line as to the specific location of the ECP to return/collect empty containers.

In contrast, the movement of surplus empty containers from the ECP to port is the responsibility of the shipping line as the owner of the container. Consequently, shipping lines prefer to store empty containers as close as possible to the port precinct to minimise their costs. Conversely, for importers and exporters, moving empty containers to/from an ECP located at the port in lieu of an ECP in western Sydney may escalate the importers/exporters overall costs.

The following table summarises which entity is responsible for the transport and handling costs at various stages in the supply chain.

Figure 7 - Supply chain roles, logistics activities and cost responsibilities

Movement / activity	Responsibility for meeting costs		
	Importer	Exporter	Shipping line
Import movements			
• Port to importer premises for full container; road or rail	☑		
• Importer premises for return of empty container to ECP	☑		
• Direct Return from importer to port terminal	☑		
• Receiving and handling costs into port terminal			☑
• Receiving (Lift In) and handling into ECP storage			☑
• Short and long term storage costs at ECP			☑
• Container repairs and maintenance costs at ECP			☑
Export movements			
• Handling at ECP and despatch (Lift Out) to road or rail		☑	
• Transport costs from ECP to exporter premises		☑	
• Transport costs from exporter premises to port terminal		☑	
• Evacuation of surplus empty containers from ECP to port terminal			☑
• Stevedore's costs for handling and storage of empty containers at port terminal			☑

4.4 Future ECP capacity

In addition to the existing ECPs shown in the previous table, there are current/emerging IMTs planned which will integrate an ECP capability to complement the core intermodal site operations. These sites include Moorebank (QUBE), Enfield (LINX) and St. Marys (Pacific National). These sites are expected to be operational by 2021-23 and expand their respective capacities through to 2026.

Rail shuttles have moved full and empty containers between port and inland intermodal terminals since 1990, and now total around 400,000 TEUs.

⁷ Variations to these arrangements will depend on the trading terms between sender and receiver.

4.5 Insights from the 2019 challenges confronting ECPs

Recent media statements have identified a critical shortage in ECP capacity^{8,9,10}, and the challenges facing the transport sector responding to the directions of their shipping-customers. As previously mentioned, ECP capacity has remained largely unchanged since 2015, when ECP utilisation was around 65%.

Since 2015, the growth in empty export container has been around 8% per annum. In addition, seasonal variances from strong imports in the last part of 2018 and low exports due to the drought over last 2 years has created surplus of empty containers in Sydney.

Industry stakeholders have reported that some ECP sites had reached 100% full over several days and halted receivals. Shipping lines had to issue redirect notices to their carriers requiring that empty containers be delivered to alternative ECP sites, which caused operational stress and added cost. Further, many of the large and medium-sized transport operators are holding empty containers at their yards reflecting lagged ECP demand.

These challenges reflect an underlying deficit in ECP capacity in Sydney¹¹. Some of the underlying issues cited in media sources and by industry stakeholders include the following insights:

- The ECP sector is highly competitive and price sensitive, has elastic demand, and yields low margins for ECP operators/investors. Arguably, these economic conditions inhibit future investment in ECP capacity.
- There has been no significant increase in ECP capacity since 2015, despite strong growth in demand. The newer sites that have emerged over last decade are smaller in size (2000-4000 TEUs).
- The scarcity of large land parcels near to the port inhibits the growth in near-port capacity for ECPs. Other industries with higher margins are more likely to secure any large land parcels in future.
- Simply expanding ECP capacity without addressing underlying inefficiencies is not the long-term solution.
- Alternative methods such as the Direct Return of Empties to port may mitigate demand through ECPs, however are still developing and are not suited to all customers/carriers. The DRE method removes one transport leg in the pathway from customer to port.
- Integrating ECP with the new IMTs offers operating scale and synergy, however these sites are located away from the port precinct and may require alternative commercial and transactional arrangements between shipping lines and ECP operators and customers.

⁸ <https://www.tandlnews.com.au/2018/07/17/article/the-hidden-cost-in-exports-and-imports-empty-container-management/>

⁹ <https://www.fullyloaded.com.au/industry-news/1902/alarm-rung-over-sydney-empty-container-system>

¹⁰ <https://www.reefgroup.net.au/waste-of-space-sydneys-problem-with-empty-container-management/>

¹¹ At the time of preparing this report, TfNSW is commissioning a study to analyse this issue in more detail through 2019 and develop a longer-term strategy for the ECP sector.

5 Empty container pathways

Broadly, there are 3 possible pathways for empty containers moving in the IMEX chains through Port Botany, as shown in the table below. The following sections provide a high-level outline of current and emerging drivers and pathways influencing empty container movements.

Table 4 – Empty container pathways and operating characteristics

Description	Mode	ECPs	IMTs	Freight depots	Import flows	Export flows	Examples
The traditional road-based pathway operating through ECPs to/from port, importers and exporters	ROAD	☑	-	☑	☑	☑	Most road operators
The Direct-Return-of-Empties (DRE) by road which bypasses the ECP and returns empty containers back to port	ROAD	-	-	☑	☑	-	Generally, the larger operators
The rail/intermodal pathway where ECPs need to be integrated with the rail terminal	RAIL	☑	☑	-	☑	☑	Minto, Yennora, Moorebank, Enfield, Cooks River

5.1 Port terminal operations

The stevedore manages port terminals and is responsible for loading and unloading full and empty containers for shipping. Port terminal operations receive and stockpile containers however this operation is not the same as the functions carried out at ECPs.

Although there are differences amongst the 3 stevedoring operators DP World, Patrick and Hutchison, the port terminal receives empty container via three pathways.

- The movement of surplus empty containers by road carriers from ECPs to the port terminal. These movements are often referred to as “stack runs” of a large number of containers and conducted 1-5 days before the designated sailing date of the ship.
- Direct Return of Empties (DRE) also within 1-5 days of the sailing date.
- Full train movements of empty container from ECPs located at intermodal terminals. These movements are generally limited to 2 days before the ship sailing date.

Each of these movements is also shown in the following sections.

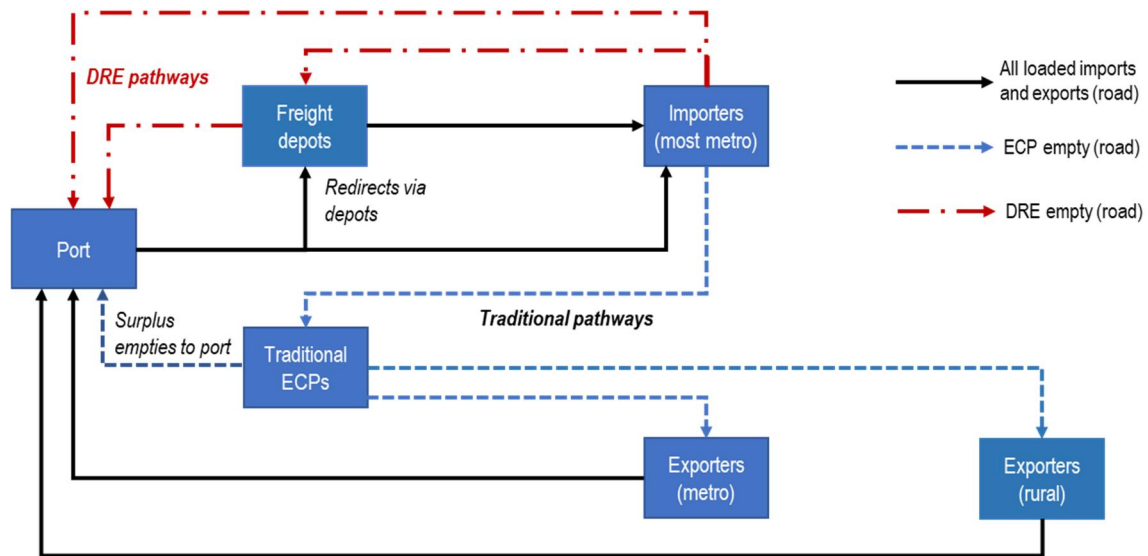
5.2 Movements by ROAD

Road transport presently accounts for around 85% of the containers moved to/from Port Botany, with the balance carried by rail to/from metro and regional intermodal terminals. Given the overall volume of empty container exports at Port Botany, around one-third of the road movements to/from Port Botany are carrying empty containers either from an ECP or as DRE movements to port¹².

¹² BITRE Waterline reports

The following diagram shows the generic ECP and DRE movements by road within the Port Botany catchment. Further explanation of the elements within the diagram are also provided.

Figure 8 – ROAD movements in the Port Botany catchment



ECP movements by road

Road transport has been the dominant mode for moving empty containers to/from ECPs, with 75% of empty container volumes handled through ECPs¹³.

- Full import containers are moved by carrier from the port direct to importer or are staged through freight depots¹⁴.
- Once the container is unloaded by the importer or their agent, the shipping line instructs the carrier to return the empty container to a nominated ECP.
 - The carrier may stage the empty returns at their depot to achieve better vehicle utilisation before moving the empty container to the ECP.
 - The importer (and their carriers) are responsible for the transport costs to return the empty containers to the ECP.
- At the ECP, the empty containers are unloaded by forklift and stored in designated stacks for each shipping line (customer).

¹³ Source: WSP/Deloitte Report titled Strategic Movement Plan for Containers - Port Botany and Sydney Metropolitan Area Stage 1 Report (2018); page 42

¹⁴ Over the last decade, there has been an emerging trend for the large to medium operators to stage the delivery of import containers through their respective freight depots. While this pathway creates two transport movements and additional handling at the freight depot, the process allows the carrier to retrieve import volumes from the port on a 24-7 basis, yet stage delivery to customers who often operate on a weekday shift basis. The approach provides for greater fleet utilisation and scheduling, avoids daytime road congestion around the port precinct, or delays from queuing at the port terminals. The port to depot movements are often called "stack runs" using higher productivity vehicles on approved routes.

- Some ECPs provide container repair and cleaning services for their customers, especially where containers needed to be prepared for the movement of export agricultural commodities such as grain and flour).
- Exporters are responsible to collect empty containers from nominated ECPs and instruct their carriers to move those empty containers to metro or regional premises for loading export consignments (representing around 40% of total export volumes)¹⁵. Once the export consignment is loaded, the carrier delivers the loaded container back to the port. The nominated ECP will depend on the various commercial arrangements between exporter and shipping line, as well as shipping line and ECP operator.
- For surplus empty containers, the shipping line instructs its carrier to collect the containers from the ECP and deliver the containers to the port terminals for loading onto the designated ship.
- The shipping line is responsible for the transport costs for the movement between ECP and port, and therefore the shipping lines prefer ECPs which are located nearer to the port terminals so that these costs are minimised.

Direct Return of Empties

The Direct Return of Empties (DRE) pathway is limited to road-based movements and is shown in the previous diagram. The process relates to the import flow has emerged over the last decade and operates where approved by the shipping lines.

- Import containers are moved from the port direct to importer or are staged through freight depots.
- Once the container is unloaded, the shipping line instructs the carrier to return the empty container to a designated port terminal. DP World receives DRE movements directly whereas Patrick channels DRE movement through their Cargo Link depot adjacent to the Patrick port terminal.
- The stevedore manages the accumulation of the empty containers within the port terminal. The proximity of the empty stack near the berth provides an opportunity for the shipping line and stevedore to rapidly load empty containers before the ship departure and thereby maximise utilisation of the ship's capacity.
- Stockpiling empty containers within the port terminals requires a rapid turnover of containers from receipt to ship loading, and the dwell time of containers are generally shorter than observed at ECPs.

The volume of DRE movements is increasing however at present, the transport sector has identified a number of operating challenges which need to be addressed¹⁶. Key issues which have been identified are:

- Slot availability not coinciding with drop off is not always available or possible and double handling (staging) of containers due to less empty slot availability at the port terminal
- No show penalties for missed or late dehire; these penalties are not charged by ECP's
- Longer truck turnarounds at the port terminals in comparison to ECP's

¹⁵ The movement of an empty import container direct to an exporter for loading rarely occurs as this requires that both importer and exporter are using the same shipping line, that the container type is compatible, and the timeframes for the import and export movement coincide.

¹⁶ As an example, see <http://www.ifc.com.au/empty-container-returns-direct-to-terminal/>

5.3 Movements by RAIL

The movement of containers to/from Port Botany by rail has emerged as a viable alternative to road transport. Rail transport does not presently operate in DRE movements.

Pre-2000, rail achieved a mode share of 30% however the capacity of intermodals in Sydney has been constrained while overall port throughput has grown, causing a decline in mode share when misleadingly expressed as a percentage. However, in absolute terms transport of containers by rail has grown from around 70,000 TEUs in 1998 to 400,000 TEUs in 2018. The intermodal terminal developments at Moorebank, Enfield and St. Marys introduce a further 1.2 million TEUs of terminal capacity to support metro rail shuttles. Presently, policy and planning outlined in the 2018-2023 Freight and Ports Plan has identified a rail mode share of 28% by 2026 however a "market view" based on the emerging IMT capacities such as Moorebank rail mode share could exceed 40% rail mode share¹⁷.

Figure 9 over page shows the generic ECP and DRE movements by rail within the Port Botany catchment and including most of regional NSW. Further explanation of the elements within the diagram are also provided.

The rail/intermodal pathway is based on operating metro shuttles or regional trains between the port and intermodal terminals and moves road interface away from the port.

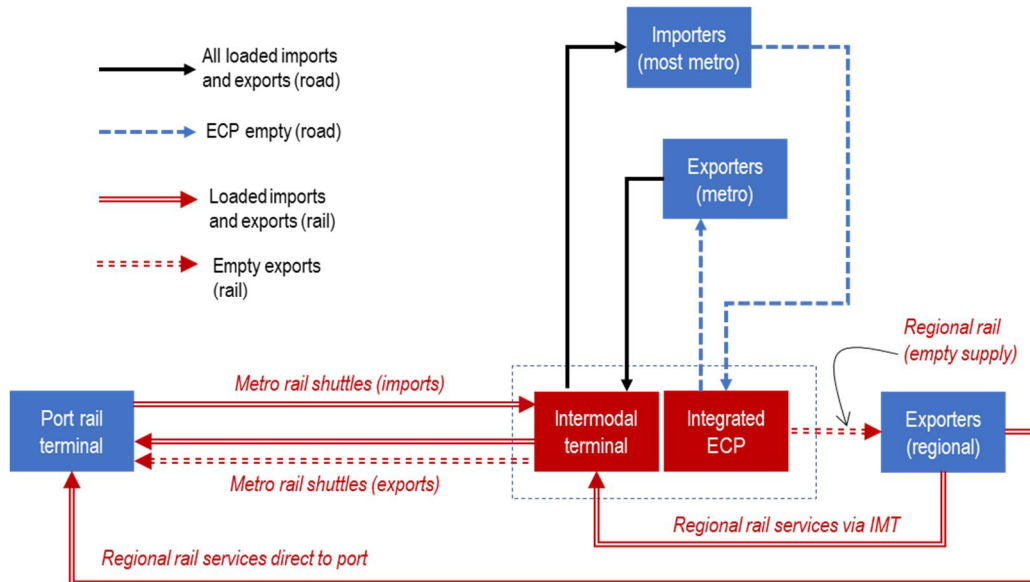
- Cost efficiencies are achieved by moving 80-120 full and empty containers by train per trip, creating scale economies that offset any duplicate handling at the terminal. The process provides an opportunity to return empty containers back to the port leveraging the train's capacity in both directions and balancing inbound and outbound volumes.
- The growth in rail mode share to 2031 will be dependent on expansion of port capacity and stevedore operations, improvement and capacity expansion of the metro rail network and continuing private sector investment in IMTs.
- Presently, most customers are located away from the intermodal terminal and the final leg of the movement between IMT and customer is by road. After unloading, the empty container is returned to the ECP located adjacent to the IMT.
- In several existing IMTs, customers are located within the adjacent freight precinct which mitigates the need and cost for the container to be moved by road (although an internal shuttle vehicle generally positions the container for the customer). Minto and Yennora IMTs have been operating for both onsite and offsite customers. A key feature for the newer IMTs will be the scale of onsite warehousing and ancillary services, especially at Moorebank.
- The intermodal terminals are presently holding smaller quantities of empty containers for the shipping lines. The larger terminals at Moorebank, Enfield and St Marys will expand their ECP capacity and provide full service ECP functions integrated with their other terminal operations.
- Empty containers are moved to nearby or onsite customers for export consignments. The loaded export containers are then returned to the IMT for loading onto the train for transport to the port.
- Empty containers are also moved by rail for regional export customers.
- The overall economics of the process requires integration of a fully functioning ECP adjacent to the IMT, with yard management systems to manage full and empty containers in a common precinct.
 - Some shipping lines have previously indicated some reluctance for holding empty containers away from the port precinct. Any cost differential for returning empty containers from IMTs via rail versus by road is offset by the scale benefits of rail. Different transactional cost arrangements may be required

¹⁷ The two rail mode share targets are assessed in scenario modelling in the next section.

over time that reflect the intermodal chain structures and scale benefits of rail relative to road transport.

- The trend towards operating ECPs integrated with IMTs away from the port precinct offsets the need for procuring scarce port-side land and mitigates road transport congestion.

Figure 9 - RAIL movements in the Port Botany catchment



6 Assessment of impacts

6.1 Project impacts

The specific project impacts are:

- Full impact and closure of Tyne Containers site at Tempe, with loss of storage capacity and with cessation of site operations.
- Full impact on the land leased from the Sydney Airports Corporation Limited which is annexed to the QUBE (Cooks River) site
- Part impact on QUBE (Cooks River) site along the eastern boundary, Depending on the scale and response of adjustments on site, capacity loss at Cooks River will be between 10-15%.

6.2 Strategic issues and timelines

With construction of the project underway from the end of 2020 to the end of 2023, an assessment of the capacity of the ECP sector, and key infrastructure developments across the IMEX container supply chains (including ECPs) was carried out during this period. This section considers the timing of these developments and provides a framework to support modelling of demand and capacity (in section 6.3).

By 2019, the ECP sector has reached a critical situation where growth in the empty container task has exhausted the available capacity of the existing ECPs in Sydney. There are underlying challenges facing the sector to be addressed irrespective of the project.

The project impact on Tyne and QUBE sites will reduce overall ECP capacity however there are current and emerging developments that would increase the capacity of the ECP sector into the future, with the timing of these developments concurrent with construction of the project. The developments are:

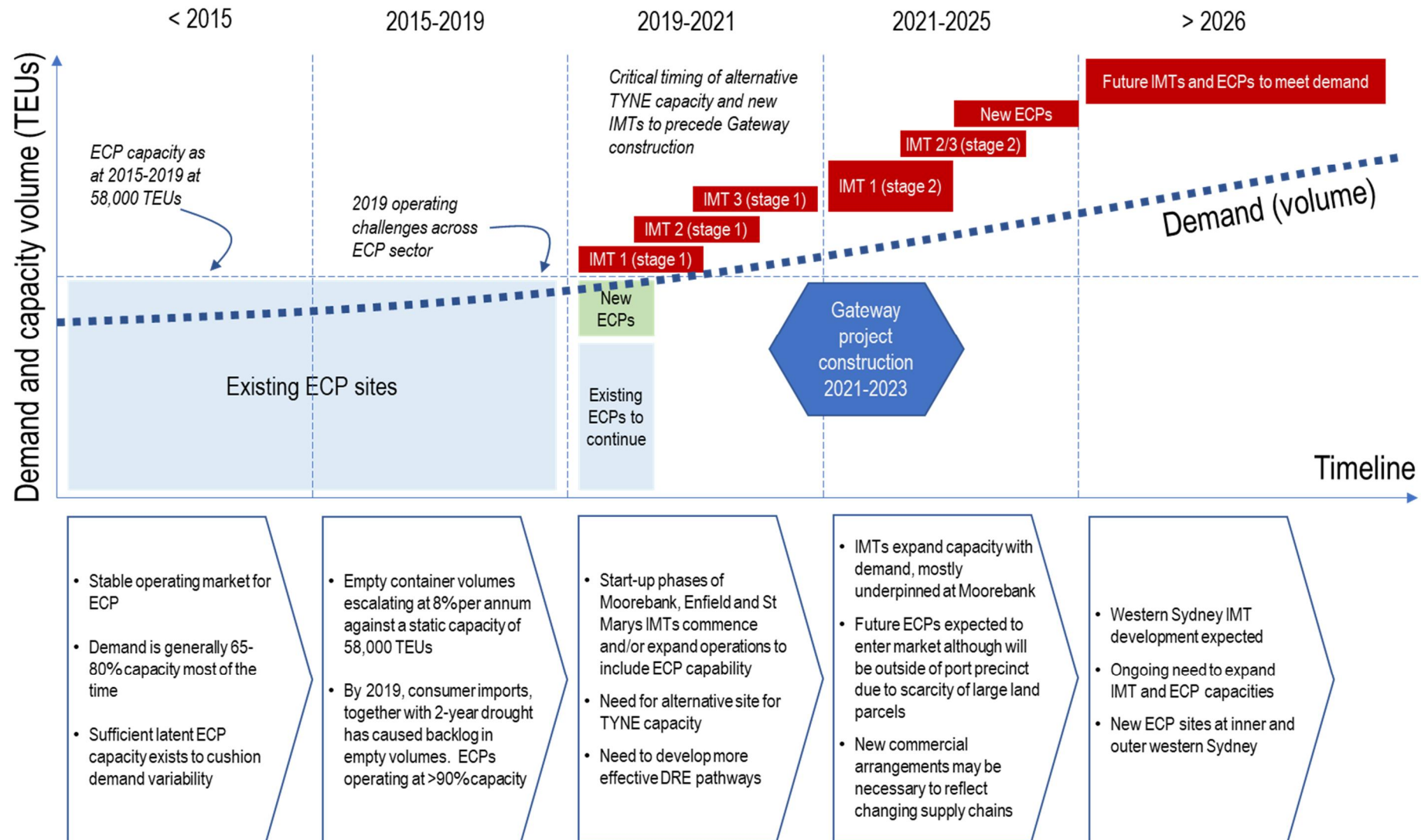
- Maturation of the existing LINX IMT operation at Enfield, also incorporating an ECP capability;
- Commencement of operations at Moorebank IMT (stage 1) incorporating an ECP capability by the end of 2020;
- Planning for development of the St. Marys IMT by Pacific National, with potential for operations before 2023;
- Continued expansion for DRE pathways and operations, especially at the port interface.

It is also recognised that current and potential operators will invest in ECP capacity in response to market demand. Traditional ECP operations are easily duplicated provided that (i) there is available and accessible land ideally 4-6 hectares in area; and (ii) contracts are obtained from shipping lines. Given the scarcity of land at/near the port precinct, shipping lines (as ECP customers) will need to tolerate their empty containers being stored further away from the port terminals. New commercial arrangements may be necessary to reflect a change in the apportionment of cost amongst the stakeholder across the supply chain.

The following diagram provides a framework for considering the strategic issues within key time periods. The diagram considers the continuous growth in empty container demand against incremental increases in ECP capacity. The timing of key projects is also shown to demonstrate (i) the need for capacity to be provided in advance of demand; and (ii) that demand is less than 70% of ECP capacity.

The strategic issues arising from each time phase are also shown below the diagram.

Figure 10 - Strategic phases for expanding ECP capacity commensurate with Gateway Project



6.3 Modelling of scenarios and impacts

An outline of the modelling approach and assumptions was provided in section 2. The modelling assessed two key issues, which are:

- Demand changes in the volume of full and empty containers moving along the various export pathways over time, including to/from road and rail ECPs (by scenario).
- Volume of ECP throughput and storage required over time to meet overall supply chain demand, including any new ECP sites required to offset any deficit in capacity from closure of Tyne (Tempe) site and reduced footprint at QUBE (by scenario).

The modelled results for each scenario are shown in the Appendix in Table 7 and Table 8. The following charts summarise the scenario results for (i) volumes by export pathway and (ii) ECP storage capacity and demand over time.

Export pathways encompassing empty containers

Each full import container becomes an empty container and around 75% of empty containers are held in ECPs before (i) being re-used as an export container, or (ii) the surplus empty container volumes are evacuated to the port. Analysing potential changes in the export pathways under each rail scenario will indicate the degree to which rail-based ECPs will provide alternative capacity over time.

For each scenario, the volume of loaded and empty containers in each export pathway are shown in the following diagrams.

- Under both scenarios, the increasing demand through rail-IMTs will divert a proportion of containers away from the traditional ECPs;
- For the LOW rail case, the volume through the traditional ECPs will continue to grow with underlying demand;
- For the HIGH rail case, throughput at the traditional ECPs will decline especially for surplus empty exports.

Figure 11 - Export pathways - LOW rail scenario

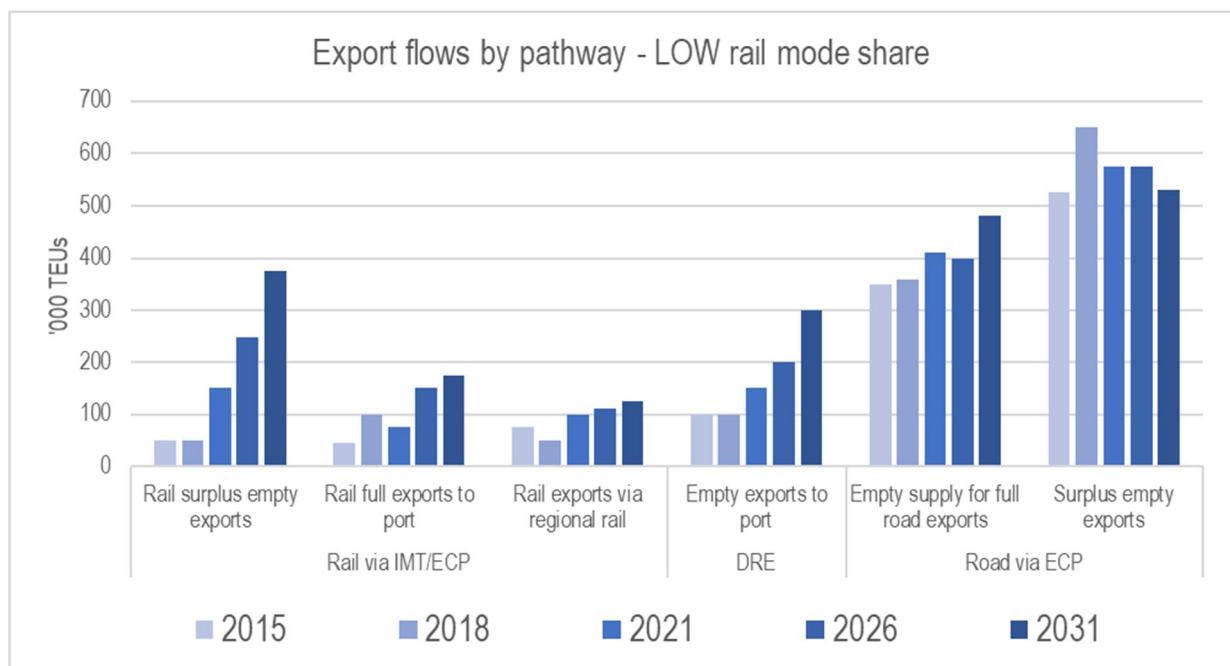
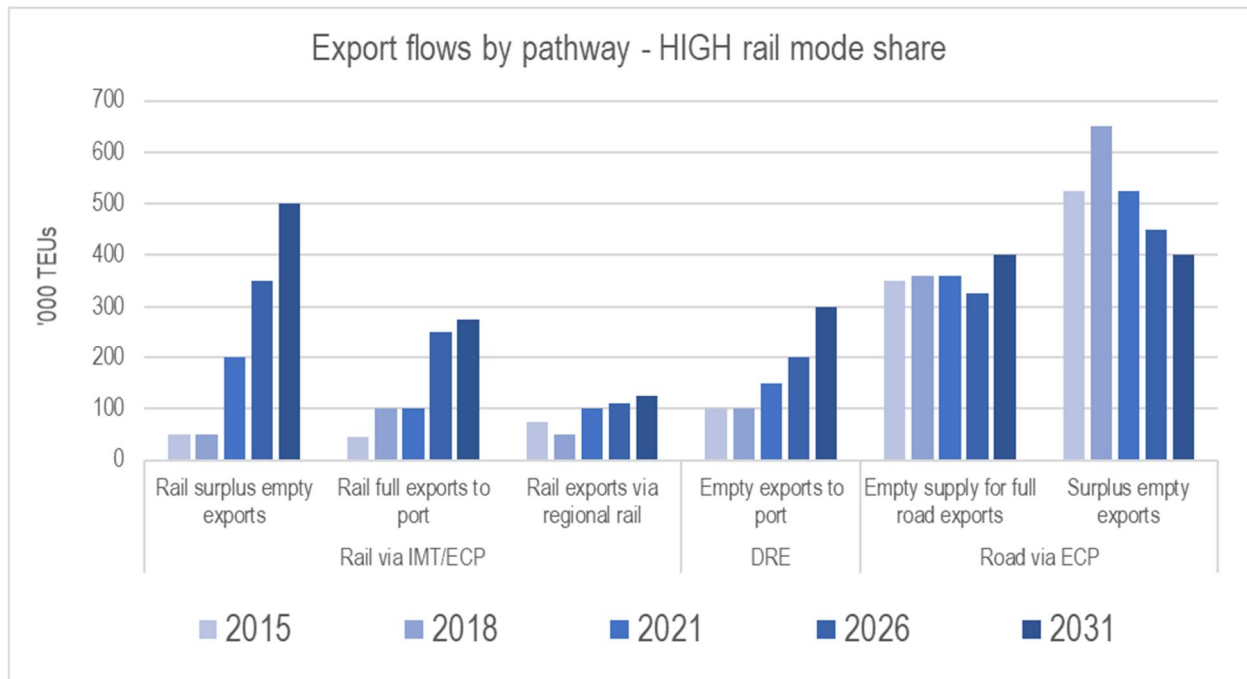


Figure 12 - Export pathways - HIGH rail scenario

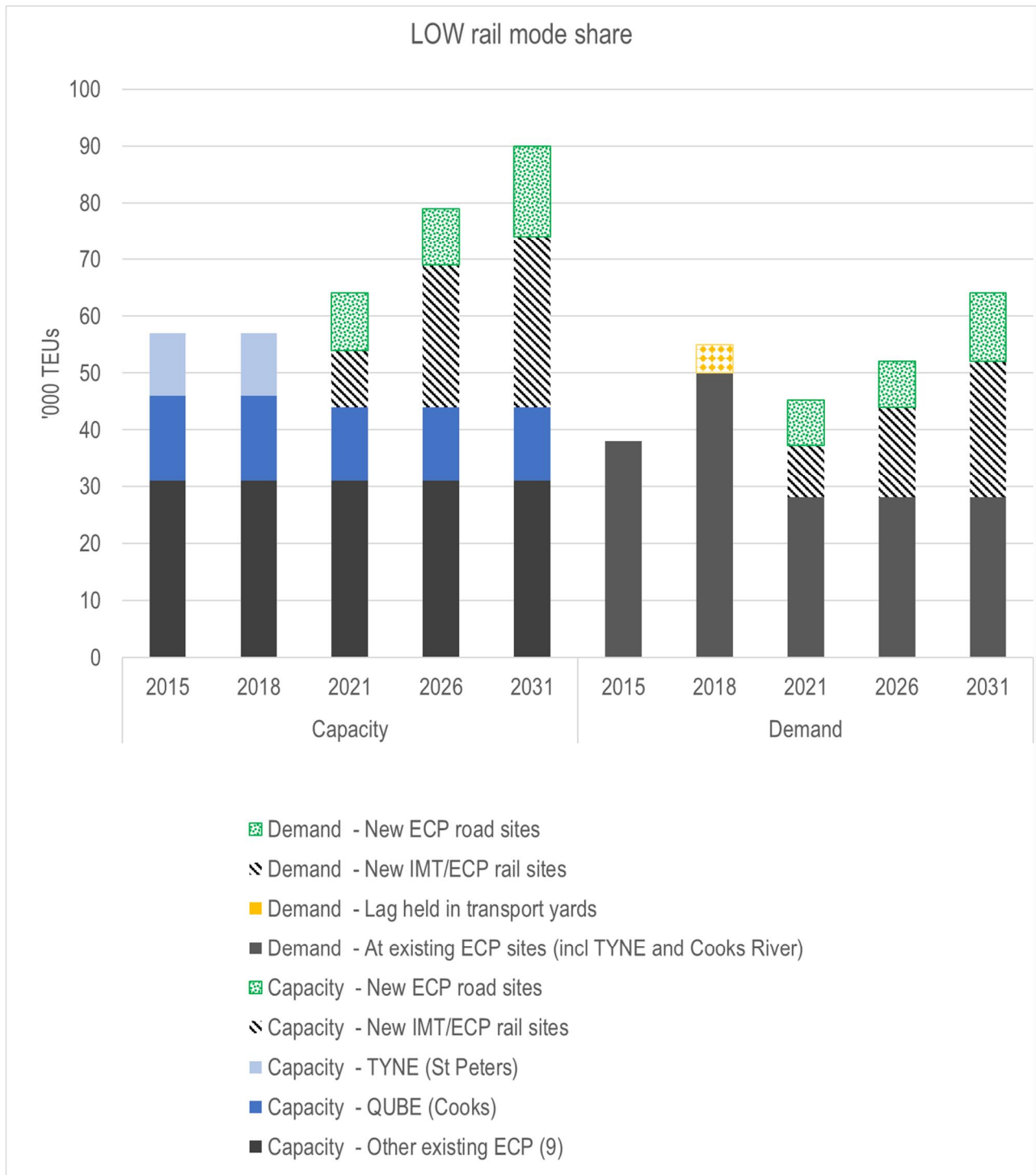


6.4 ECP storage capacities

This section summarises the analysis of the storage volumes and required site capacities under each of the two rail-based scenarios. Figure 13 and Figure 14 over page illustrate the changes in aggregate ECP capacity over time, compared for forecast growth in the empty container task. Supporting analysis is shown in Appendix Table 7 and Table 8. The following diagrams summarise the analysis.

- Under the LOW rail scenario, IMT capacity is focussed on Moorebank and Enfield contributing IMT capacity consistent with the 28% rail mode share target.
 - By end-2020, the loss of capacity from Tyne and QUBE (Cooks River) has been supplemented by Moorebank and other IMTs which are operational and have a capability to handle empty containers.
 - The DRE services have expanded and/or additional road based ECPs have been built as a market response to meet future and ongoing growth in ECP demand, as containerised trade growth continues. The future demand and capacity of the new road ECPs are shown in the following diagrams however site locations are not specified herein.
 - The timing of construction of the project with the TYNE closure, relative to ramp-up of operations at Moorebank IMT and the new ECP site is critical in the period 2019 to 2021. Enfield is presently operational, with Moorebank expected to be operational by the end of 2020, and St Marys by mid-late 2021.
- Under the HIGH rail scenario, IMT capacity is focussed on Moorebank, Enfield and St. Marys achieving full operational ramp-up before 2021.
 - The rail-IMTs are fully operational and negate the need for any additional road-based ECPs in future.
 - The ECP access arrangements at each of the new IMTs needs to be on an "open access" basis and available for the market to dehire empty containers required.

Figure 13 - ECP storage capacity and demand - LOW rail scenario



HIGH rail mode share

'000 TEUs

Capacity

Demand

2015 2018 2021 2026 2031

2015 2018 2021 2026 2031

■ Capacity - Other existing ECP (9)
 ■ Capacity - QUBE (Cooks)
 ■ Capacity - TYNE (St Peters)
 ▨ Capacity - New IMT/ECP rail sites
 ▩ Capacity - New ECP road sites
 ■ Demand - At existing ECP sites
 ■ Demand - Lag held in transport yards
 ▨ Demand - New IMT/ECP rail sites
 ▩ Demand - New ECP road sites

7 Conclusions

- Container trade through Port Botany is partially characterised by the high volume of surplus empty export containers, being 60% of export volume and 30% of total port volume. The empty container logistics task has continuous growth commensurate with port trade in containers.
- The empty container task is influenced by (i) trade imbalances for import and export volumes (ii) seasonality from consumer and industrial demand (iii) climatic variations affecting the output and exports of agricultural commodities (iv) global economy and trading. Port trade has grown around 4.5% annually, with loaded exports growing at 2.5% and surplus empty export containers at 8%.
- Each full import container becomes an empty container and around 75% of the empty container volume is held in ECPs before being (i) re-used as an export container, or (ii) surplus volumes that are evacuated to the port as empty export containers.
- There are emerging changes in the export pathways for containers that are complementing the traditional road-based movements from exporters (loaded containers) and ECPs (empty surplus containers). There is an (i) expanding network of new rail-IMTs around metro Sydney and (ii) the emerging practice called Direct-Return-Empties where surplus empty containers are returned to the port bypassing ECPs.
 - To optimise train utilisation and operating costs, the new IMT will need to integrate the ECP function into the intermodal terminal, with rail shuttles used to return empty containers back to port.
 - Road transport will provide the final movement between the customer and the IMT.
- In 2015, there was around 38,000 TEUs in empty containers stored in eleven ECPs with a cumulative capacity of around 58,000 TEUs, and average site utilisation of 65%. As utilisation increases above 80%, operating inefficiencies start to emerge in the ECPs, with knock-on impacts to the shipping and transport sector.
- Seasonal variations across the year can vary ECP storage demand up/down by 10-15%. Where trading conditions fail to export any surplus containers in a following period, there is an observable increase in the volume stored in ECPs.
- By 2019, the ECP sector has reached a critical situation where growth in the empty container task has exhausted the available capacity of the existing ECPs in Sydney. There are underlying challenges facing the sector to be addressed irrespective of the project. Since 2017, trade imbalances and the drought have caused a substantial build-up of empty containers in Sydney with ECPs reported to be 85-95% of capacity and with overflow storage of empty containers at more than 20 transport depots.
- The project is expected to commence construction from late 2020 to late 2023. The timing of the initial stages of the new IMT and potential ECP developments will be concurrent with the project.
- The project would have a direct impact on Tyne (Tempe) and partial impact on QUBE (Cooks River). The impact on present ECP capacity would be around 12,000 TEUS and an average storage volume of 9,000 TEUs.
- Future empty storage capacity at the new IMTs and expansion of the Direct-Return-Empties to port may offset this loss of capacity from Tyne (Tempe) and QUBE (Cooks River), however is dependent on a commensurate expansion service capacity at the port interface to handle trains and DRE. Shipping lines will also need to accept the underlying operational and commercial changes occurring across the sector.
- The new IMTs are consistent with the policy of a rail mode share target of 28% outlined in the NSW Government's 2018-2023 Freight and Ports Plan. It is however likely that a higher rail mode share target could be realised if all three IMTs operate at the maximum potential.
- New road based ECPs (or expansion of existing ECPs) is the likely market response to any short fall in IMT capacity to handle future demand in empty containers.

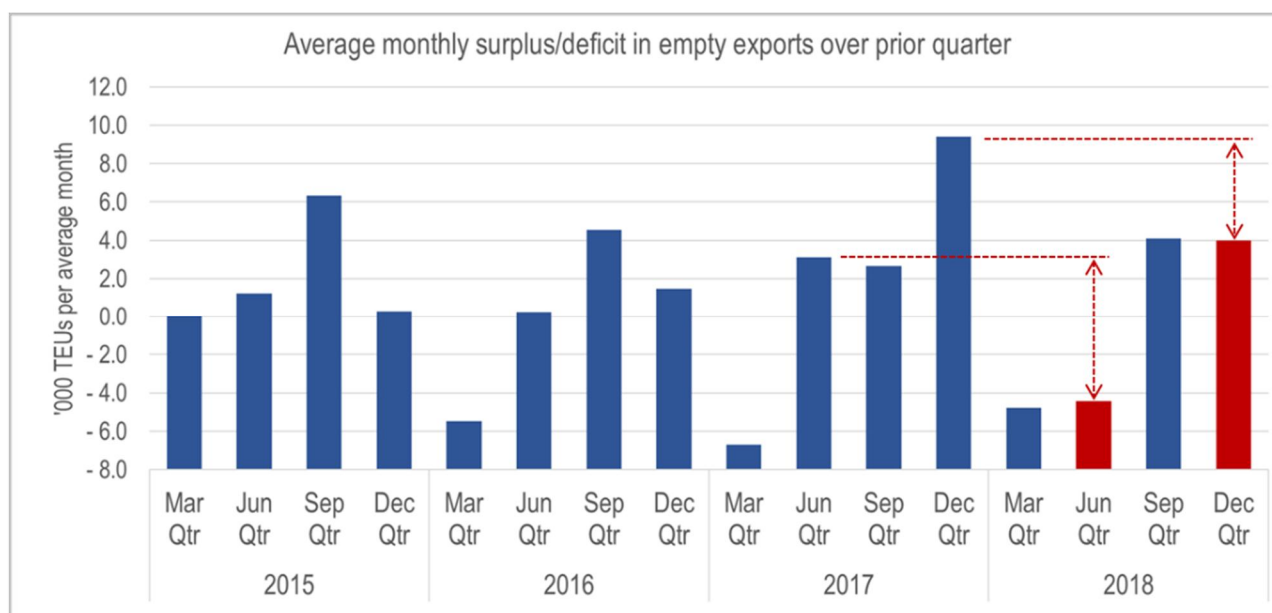
8 Appendix

8.1 Analysis of seasonality in empty export volumes

There have been changes in the pattern of empty export volumes since 2015. Figure 15 below plots the volume of empty exports for each quarter since 2015¹⁸.

- The pattern in the seasonality of empty exports in 2015 and 2016 is similar and reflects the pattern that has operated in prior years.
- The pattern altered in 2017 and 2018.
 - The June 2018 quarter is lower than the same quarter in 2017,
 - The December 2018 quarter is also lower than the same quarter in 2017.
 - The lower Q2 and Q4 empty exports volumes in 2018 compared to Q2 and Q4 in 2017 indicates a build-up of 10,000 TEUs of empty containers that need to be stored in ECPs.
- This observation has been supported by recent comments from industry and media.
- While data is not yet available for Q1 of 2019 year, the expected seasonal reduction in empty exports will serve to maintain the ECP storage volumes at present.

Figure 15 –Variances in empty export flows against prior quarterly; expressed as monthly averages



Source: NMC analysis of BITRE Waterline data (2015-2018)

¹⁸ The purpose of converting the quarterly flows to average monthly estimates is to align with ECP capacity and utilisation metrics.

8.2 Modelling results

Table 5 - Volume of full and empty containers by mode share - LOW rail scenario

LOW Rail Case			2015 (Actual)			2018 (Actual)			2021 (Forecast)			2026 (Forecast)			2031 (Forecast)		
Flow	Region		'000 TEUs			'000 TEUs			'000 TEUs			'000 TEUs			'000 TEUs		
			Road	Rail	Total	Road	Rail	Total	Road	Rail	Total	Road	Rail	Total	Road	Rail	Total
Import	Metro	Full	1,055	80	1,135	1,100	200	1,300	1,125	275	1,400	1,225	450	1,675	1,415	550	1,965
		MT	10	0	10	15	0	15	15	0	15	15	0	15	20	0	20
		Total	1,065	80	1,145	1,115	200	1,315	1,140	275	1,415	1,240	450	1,690	1,435	550	1,985
	Rural	Full	20	0	20	25	0	25	25	0	25	25	0	25	30	0	30
		MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	20	0	20	25	0	25	25	0	25	25	0	25	30	0	30
	All	Full	1,075	80	1,155	1,125	200	1,325	1,150	275	1,425	1,250	450	1,700	1,445	550	1,995
		MT	10	0	10	15	0	15	15	0	15	15	0	15	20	0	20
		Total	1,085	80	1,165	1,140	200	1,340	1,165	275	1,440	1,265	450	1,715	1,465	550	2,015
Export	Metro	Full	280	45	325	285	100	385	325	75	400	300	150	450	360	175	535
		MT	625	50	675	750	50	800	725	150	875	775	250	1,025	830	375	1,205
		Total	905	95	1,000	1,035	150	1,185	1,050	225	1,275	1,075	400	1,475	1,190	550	1,740
	Rural	Full	70	75	145	75	50	125	85	100	185	100	110	210	120	125	245
		MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	70	75	145	75	50	125	85	100	185	100	110	210	120	125	245
	All	Full	350	120	470	360	150	510	410	175	585	400	260	660	480	300	780
		MT	625	50	675	750	50	800	725	150	875	775	250	1,025	830	375	1,205
		Total	975	170	1,145	1,110	200	1,310	1,135	325	1,460	1,175	510	1,685	1,310	675	1,985
Total	All	All	2,060	250	2,310	2,250	400	2,650	2,300	600	2,900	2,440	960	3,400	2,775	1,225	4,000
	Mode share		89%	11%		85%	15%		79%	21%		72%	28%		69%	31%	
IMTs forecast throughput									Lower rail share			Lower rail share			Lower rail share		
	-Existing metro	Tput		175			350			250			250			250	
	-Rural	Tput		75			50			100			110			125	
	-St.Marys	Tput															
	-Moorebank	Tput		0			0			250			600			850	
	-Enfield	Tput		0			0										
	-Totals			250			400			600			960			1,225	

Source: NMC modelling

Table 6 - Volume of full and empty containers by mode share - HIGH rail scenario

	HIGH Rail Case		2015 (Actual)			2018 (Actual)			2021 (Forecast)			2026 (Forecast)			2031 (Forecast)		
			'000 TEUs			'000 TEUs			'000 TEUs			'000 TEUs			'000 TEUs		
Flow	Region		Road	Rail	Total	Road	Rail	Total	Road	Rail	Total	Road	Rail	Total	Road	Rail	Total
Import	Metro	Full	1,055	80	1,135	1,100	200	1,300	1,025	400	1,425	1,075	600	1,675	1,125	825	1,950
		MT	10	0	10	15	0	15	15	0	15	15	0	15	20	0	20
		Total	1,065	80	1,145	1,115	200	1,315	1,040	400	1,440	1,090	600	1,690	1,145	825	1,970
	Rural	Full	20	0	20	25	0	25	25	0	25	25	0	25	30	0	30
		MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	20	0	20	25	0	25	25	0	25	25	0	25	30	0	30
	All	Full	1,075	80	1,155	1,125	200	1,325	1,050	400	1,450	1,100	600	1,700	1,155	825	1,980
		MT	10	0	10	15	0	15	15	0	15	15	0	15	20	0	20
		Total	1,085	80	1,165	1,140	200	1,340	1,065	400	1,465	1,115	600	1,715	1,175	825	2,000
Export	Metro	Full	280	45	325	285	100	385	275	100	375	200	250	450	280	275	555
		MT	625	50	675	750	50	800	675	200	875	675	350	1,025	700	500	1,200
		Total	905	95	1,000	1,035	150	1,185	950	300	1,250	875	600	1,475	980	775	1,755
	Rural	Full	70	75	145	75	50	125	85	100	185	100	110	210	120	125	245
		MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Total	70	75	145	75	50	125	85	100	185	100	110	210	120	125	245
	All	Full	350	120	470	360	150	510	360	200	560	300	360	660	400	400	800
		MT	625	50	675	750	50	800	675	200	875	675	350	1,025	700	500	1,200
		Total	975	170	1,145	1,110	200	1,310	1,035	400	1,435	975	710	1,685	1,100	900	2,000
Total	All	All	2,060	250	2,310	2,250	400	2,650	2,100	800	2,900	2,090	1,310	3,400	2,275	1,725	4,000
	Mode share		89%	11%		85%	15%		72%	28%		61%	39%		57%	43%	
IMTs forecast throughput																	
	-Existing metro	Tput		175			350			250			250			250	
	-Rural	Tput		75			50			100			110			125	
	-St.Marys	Tput								100			150			225	
	-Moorebank	Tput		0			0			250			600			850	
	-Enfield	Tput		0			0			100			200			300	
	-Totals			250			400			800			1,310			1,750	

Source: NMC modelling

Table 7 - Forecast volumes for empty container pathways and ECP storage – LOW rail scenario

LOW Rail Case		2015 (Actual)	2018 (Actual)	2021 (Forecast)	2026 (Forecast)	2031 (Forecast)
		'000 TEUs	'000 TEUs	'000 TEUs	'000 TEUs	'000 TEUs
Analysis of empties						
Total imports (full/empty)	T'put	1165	1340	1440	1715	2015
Total Full exports	T'put	470	510	585	660	780
Total empty exported	T'put	675	800	875	1025	1205
% MT exports to All imports	%	58%	60%	61%	60%	60%
Paths that bypass road ECPs						
- Rail empty exports to port	T'put	50	50	150	250	375
- Rail Full exports to port	T'put	45	100	75	150	175
- ECP rail exports via regional rail	T'put	75	50	100	110	125
- DRE road exports direct to port	T'put	100	100	150	200	300
Subtotal	T'put	270	300	475	710	975
Paths that transit ECPs						
- Empty supply for full road exports	T'put	350	360	410	400	480
- Empty road exports to port	T'put	525	650	575	575	530
Subtotal	T'put	875	1,010	985	975	1,010
% ECP surplus exports compared to total MT exports		78%	81%	66%	56%	44%
ECP site capacity (max at 100% utilisation)						
- TYNE (St Peters)	Max capacity	11	11	-	-	-
- QUBE (Cooks)	Max capacity	15	15	13	13	13
- Other existing ECP (9)	Max capacity	31	31	31	31	31
- New IMT/ECP rail sites (MBK, ENF, STM)	Max capacity	-	-			
-St.Marys						
-Moorebank				10	25	30
-Enfield						
- new ECP road sites	Max capacity	-	-	10	10	16
- Total ECP site capacity	Max capacity	57	57	64	79	90
ECP demand based on ECP pathways						
- at existing ECP sites	Holding	38	50	28	28	28
- lag held in transport yards	Holding	0	5	0	0	0
- new IMT/ECP rail sites	Holding	0				
-St.Marys	Holding			0	0	0
-Moorebank	Holding			9	16	24
-Enfield	Holding			0	0	0
- new ECP road sites	Holding	0	0	8	8	12
- Total MT demand at ECPs	Holding	38	55	45	52	64
MT storage demand against ECP T'put	%	3.8%	5.0%	3.7%	3.9%	4.2%
Annual MT storage cycles (rotation of MTs)	Cycles	26.3	20.2	27.3	25.7	23.6
Week holding at ECPs	Weeks	2.0	2.6	1.9	2.0	2.2
% storage to capacity		67%	96%	71%	66%	71%

Source: NMC modelling

Table 8 - Forecast volumes for empty container pathways and ECP storage – HIGH rail scenario

HIGH Rail Case		2015 (Actual)	2018 (Actual)	2021 (Forecast)	2026 (Forecast)	2031 (Forecast)
		'000 TEUs	'000 TEUs	'000 TEUs	'000 TEUs	'000 TEUs
Analysis of empties						
Total imports (full/empty)	T _{put}	1165	1340	1465	1715	2000
Total Full exports	T _{put}	470	510	560	660	800
Total empty exported	T _{put}	675	800	875	1025	1200
% MT exports to All imports	%	58%	60%	60%	60%	60%
Paths that bypass road ECPs						
- Rail empty exports to port	T _{put}	50	50	200	350	500
- Rail Full exports to port	T _{put}	45	100	100	250	275
- ECP rail exports via regional rail	T _{put}	75	50	100	110	125
- DRE road exports direct to port	T _{put}	100	100	150	200	300
Subtotal	T _{put}	270	300	550	910	1200
Paths that transit ECPs						
- Empty supply for full road exports	T _{put}	350	360	360	300	400
- Empty road exports to port	T _{put}	525	650	525	475	400
Subtotal	T _{put}	875	1,010	885	775	800
% ECP surplus exports compared to total MT exports		78%	81%	60%	46%	33%
ECP site capacity (max at 100% utilisation)						
- TYNE (St Peters)	Max capacity	11	11	-	-	-
- QUBE (Cooks)	Max capacity	15	15	13	13	13
- Other existing ECP (9)	Max capacity	31	31	31	31	31
- New IMT/ECP rail sites	Max capacity	-	-	-	-	-
- St Marys				5	8	10
- Moorebank				10	20	30
- Enfield				5	8	10
- new ECP road sites	Max capacity	-	-	0	-	0
- Total ECP site capacity	Max capacity	57	57	64	80	94
ECP demand based on ECP pathways						
- at existing ECP sites	Holding	38	50	28	28	28
- lag held in transport yards	Holding	0	5	0	0	0
- New IMT/ECP rail sites	Holding	0				
- St Marys	Holding			4	4	6
- Moorebank	Holding			9	16	24
- Enfield	Holding			4	4	6
- new ECP road sites	Holding	0	0	0	0	0
- Total MT demand at ECPs	Holding	38	55	45	52	64
MT storage demand against ECP t _{put}	%	3.8%	5.0%	3.8%	4.2%	4.5%
Annual MT storage cycles (rotation of MTs)	Cycles	26.3	20.2	26.5	23.8	22.3
Week holding at ECPs	Weeks	2.0	2.6	2.0	2.2	2.3
% storage to capacity		67%	96%	70%	65%	68%

Source: NMC modelling

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