THE WESTERN SYDNEY GATEWAY PROJECT

STRATEGIC PLAN

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Contents

List of Appendices

1 Overview and Executive Summary

1.1 Overview

This document has been prepared by BluePrint Sydney Pty Ltd (BPS) for the Western Sydney Airport Alliance (The Alliance).

Following the announcement made by the Prime Minister on 15 April 2014, BPS was engaged by the Alliance to prepare its strategic plan.

This document outlines the strategic plan for the Alliance to inform the delivery of Sydney's second regular public transport airport on land owned by the Commonwealth at Badgerys Creek. For the purposes of this plan, BPS has named this project "The Western Sydney Gateway Project" (The Project).

1.2 Executive summary

BPS analysed the current state of development for The Project. This provided the basis for the BPS Strategy. The results of which supplied The Alliance with a suite of tools and recommendations to achieve its objectives and requirements. These tools and recommendations are consolidated as below.

BPS identified the initial stakeholders and categorized them into groups. This was with the view to provide a bespoke engagement approach and management strategy for each group. The primary outcome was the provision of a recommendation on the criticality of identified groups such that they could be managed accordingly. The critical stakeholder was identified as the community.

A comprehensive review of the previous EIS was completed. This is with a view of outlining critical considerations in preparation of a new EIS. As a result BPS recommended a new EIS be conducted in addition to further studies to inform the requirements of the EIS.

The recommended runway layout option was Option A. BPS has developed a tool for the comparative assessment of runway layout options. Should The Alliance require consideration of further options, this tool provides a framework for comparative analysis.

BPS has formulated a unique set of concepts and recommendations to inform the design, operation and construction of the airport precinct. This drove the creation of a conceptual layout which when implemented will facilitate innovation and inspire a world class precinct.

The strategy for fuel provision has considered port to plane. The outcome of the BPS analysis was the implementation of a pipeline connecting the Kurnell import facility to Badgerys Creek airport.

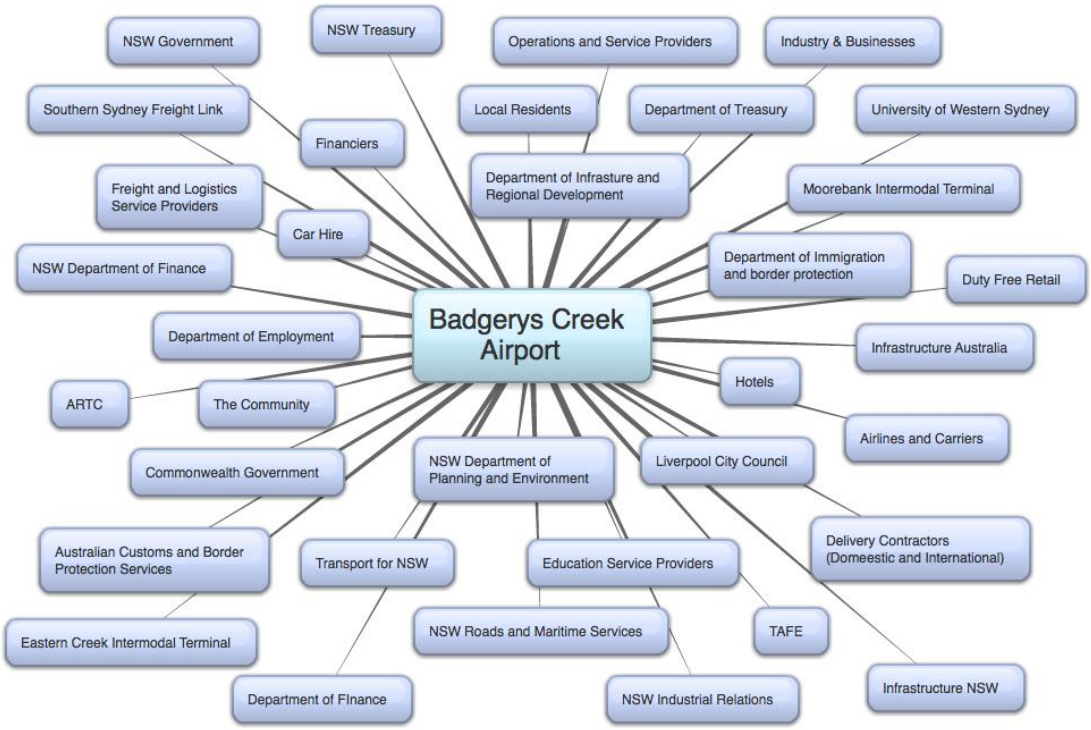
In its final recommendation for this strategic plan, BPS has analysed the infrastructure and transport links to be delivered within the critical growth centres associated with the Badgerys Creek precinct. The outcome was a recommendation, prioritising the delivery of infrastructure and transport links within the growth centres.

2 Stakeholders

2.1 Stakeholder Identification

A project of this proportion will inevitably affect a large number of stakeholders (refer Appendix A for an initial list of stakeholders). This is diagrammatically represented in the figure below.

Figure 1: Stakeholders



2.2 Stakeholder Engagement

Traditionally, from a stakeholder management standpoint, the inception of Commonwealth funded infrastructure projects within NSW has been managed with a pre-tense of averting the risk of stakeholder and community backlash. This approach, whilst being conservative in its framework, has not always proven successful. Without referring to any by name, it is noted that several such programs have proven cases in point to the shortcomings of traditional stakeholder engagement routes.

BPS recognizes the challenges faced in managing the various stakeholders of The Project, but moreover, it recognizes the opportunities prevalent to the implementation of a robust and transparent stakeholder engagement strategy.

The comprehensive identification of all stakeholders is a working list and is well beyond the scope of this strategy (note, a list of initial stakeholders and interested parties is located at Appendix A). Our solution is focused toward realising stakeholder expectations and driving performance from a stakeholder management standpoint.

Herein we unveil our stakeholder engagement strategy which, when implemented, will achieve the following outcomes:

- establish rapport with stakeholders;
- drive performance and innovation; and
- deliver a program in line with the values of its stakeholders.

2.3 Stakeholder Impact Analysis

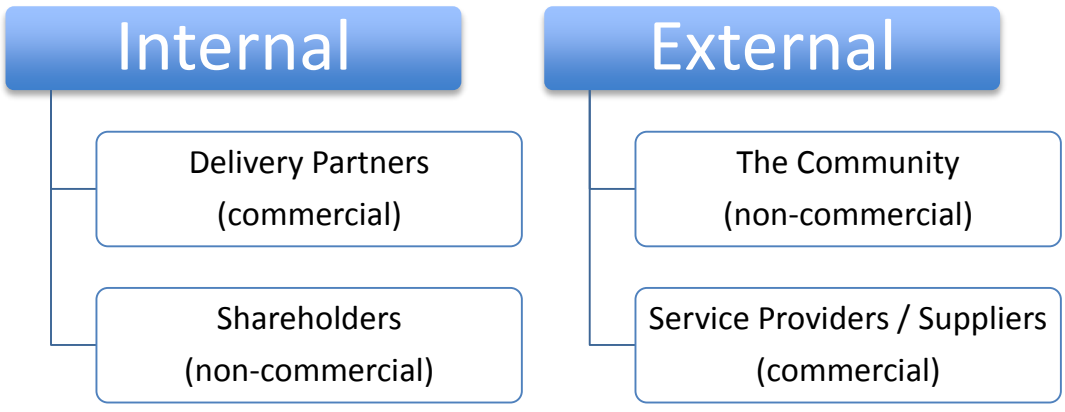
Noting figure 1, it is paramount that stakeholders may be grouped into a number of categories driven by some form of common interest. Understanding the interests and motivations underpinning these stakeholder groups allows for the implementation of a tailored engagement approach.

In its strategy, BPS has dissected stakeholders into four key groups being distinguished by the following key factors:

1. Stakeholders are classified as either:
    a. Internal, i.e. directly engaged in, or instrumental to, the development of the project and any relevant policies to deliver it, or;
    b. External, i.e. not directly involved in the development of the project but likely to impact the proceedings of the project; and
2. Stakeholders were then further dissected within these two groups by their commercial interests that being either:
    a. commercial, which in the case of internal stakeholders, would isolate delivery partners engaged to deliver the project for a profit, and for External stakeholders, would include service providers or suppliers who would likewise be driven by commercial levers; or
    b. non-commercial, i.e. being driven by influences other than commercial benefit, which in the case of Internal stakeholders would namely include ministerial and departmental political forces (occupying both state and federal governments), encapsulated in the shareholder group, and for External groups would be best summed up as the community.

The structure of these four key stakeholder groups is illustrated in the figure below.

Figure 2: Stakeholder Groups



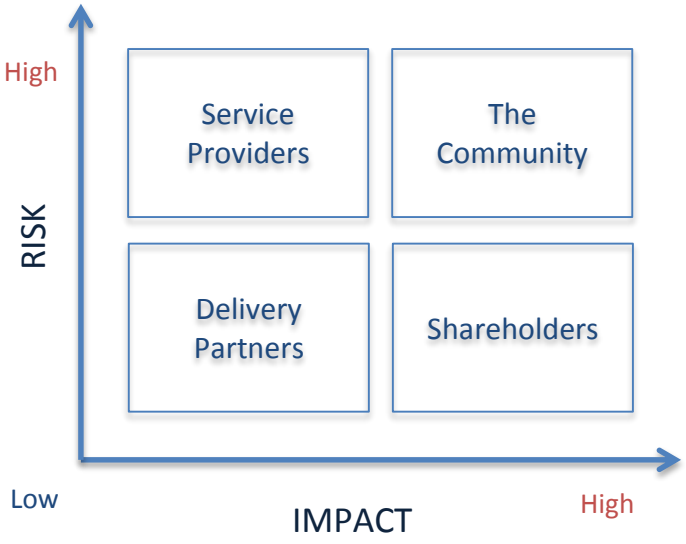
Having clearly identified the rationale of our key stakeholder groups, a criticality analysis was carried out to assess potential risks and potential opportunities each group possessed to impact the project.

The criticality analysis was carried out via assessment of inherent risk set against the impact of this risk to the project success, for each stakeholder group. In this right, risk was identified as the potential to detrimentally affect the project progression in accordance with the

stakeholder outcomes. Likewise, impact was identified as the potential for a group to impart a greater performance and drive success in accordance with the stakeholder outcomes.

This analysis, albeit unconventional, ultimately identifies which of our stakeholder groups are critical and must be addressed in our stakeholder engagement strategy framework. The results of our analysis are shown in Figure 3 below.

Figure 3: Risk vs Impact Diagram (criticality analysis)



The analysis concludes that of our stakeholder groups, those categorized as external stakeholders tend to possess a higher risk to that of our internal stakeholders. In acknowledgement of this, BPS recognises the potential for critical impact to the success of The Project, namely within Shareholders and the Community stakeholder groups. It is apparent that the critical stakeholder (i.e. the combination of high risk and potential high impact) group is the community.

2.4 Our Approach

Noting the criticality of each stakeholder group, discussed above, BPS refines its analysis to establish its Stakeholder engagement approach. This results in an identification of apt engagement routes for each stakeholder group.

In the table below we examine a number of factors driving our engagement approach including: the interests, relative project stages which may impact certain groups, and what we are seeking from each stakeholder group. The assessment of each of these influencing factors determines the engagement methods, listed below.

	Stakeholder Group			
	Internal		External	
	Shareholders	Delivery Partners	Service Providers	Community
Interests	value for money	compensation, land and access to land	assurance of continuity of business	transparency, dignity and opportunities
Outcome Sought from The Alliance	funding, resources and endorsement	optimised performance & innovation	partnership and resources	trust and ownership of ideas, values and outcomes
Stages of Impact	initiation	delivery and operations	delivery and operations	ongoing
Criticality	high	low	high	critical
Engagement Method	internal organisation	market sounding	partnership & negotiation of agreements	community liaison

Table 1: Factors driving stakeholder engagement methods

2.5 Stakeholder Engagement Methods

The methods derived in table 1 are explained in greater detail in the following sections.

2.5.1 Internal Organisation

- **Who:** shareholders include political parties, representative Ministers of Parliament, Federal and State Government departments.
- **What:** shareholders interests will be inevitably captured and adhered to from the very onset of the program. The strategy to engage this group is focused on the structure and management of the internal organisation i.e. The Alliance.
- **Why:** this structure ensures shareholders take ownership in the project, their areas of expertise are utilized effectively, and their ideas and concepts are captured. This will inevitably lean out endorsement times for the progression of the project through in line with State and Federal governance requirements.
- **How:** mandated roles within the organisation structure of the delivery authority, including roles for senior personnel from shareholder departments and organisations. These roles will be established with direct lines of report to Ministers and the board of directors.
- **When:** BPS will work with shareholders and finalise The Alliance organisation structure and assist in recruitment to fill specialist roles throughout the inception phase of the project.

2.5.2 Market Sounding

- **Who:** delivery partners, both domestic and international, will be engaged via a robust and interactive market sounding process.
- **What:** this process will require extensive experience in successfully engaging with delivery partners and informing the market of our outcomes.
- **Why:** in order to receive quality bids and a great final product the market must be well informed of The Project outcomes.
- **How:** it is apparent that given the magnitude and scope of works delivered, delivery partners will need to collaborate and drive innovation throughout the delivery and operation of The Project.
- **When:** these stakeholders will need to be on board from the early stages to ensure the foundations are laid for a successful partnership. This process will be led and managed by the BPS procurement specialist from inception through to contract award.

2.5.3 Partnerships

- **Who:** service providers must be given ample opportunity to innovate and provide world-class services.
- **What:** an interactive industry consultation will need to be actively managed and driven to establish effective industry partnerships.
- **Why:** given the expectation from industry and the expectation to deliver jobs, this engagement method must be driven a former industry executive, with a minimum 20 years industry experience. In its role, BPS can establish and manage the overall process however it is envisaged that a senior stakeholder manager will need to be recruited to deliver this method.
- **How:** the stakeholder manager will likewise need to negotiate agreements with all relevant utility providers and authorities. This negotiation will need to be initiated at the executive level and implemented using a top-down approach.
- **When:** negotiations will occur with various parties from design through to the operation stages. Our negotiation model will lean out unnecessary iterations of negotiations of terms to agreements and optimize partnership engagements from the very onset. This assures terms are agreed in principle at the early stages with senior manager endorsement and filtered through to mid-management to oversee implementation and agreement finalisations.

2.5.4 The Community Liaison Process

- **Who:** as previously identified, the community is our critical stakeholder group and must be addressed in a thorough and comprehensive manner.
- **Why:** the implementation of the community liaison process will empower the community, allow it to voice its concerns and opinions, capture its creativity, and most importantly give it a sense of ownership.

- **What:** this method will be tailored toward capturing the values and vision of the community in order to drive The Project's value and vision statement. The value and vision statement will be advertised via mail-drop and on our website once established. The establishment of trust from this initial consultation will be fundamental to the success of the project from a community perspective.
- **How:** both delivery partners and The Alliance will have active roles in establishing and maintaining community consultation sessions and responding to questions. The community will be given ample opportunity to drive innovation including participation in a naming competition for the airport precinct. The ongoing community liaison process will be driven by key performance indicators (KPI) namely in the terms of the Deliver Partner agreement. In line with driving innovation, updates will be presented to communities via email notification, twitter, Facebook, and a free app which provides specific news feeds relating to the project.
- **When:** our method ensures the community are engaged through all stages of the project. More importantly it will provide every opportunity for community participation in the development of the precinct. An initial community consultation process will be carried out, to capture the community's reception of the airport precinct. Local residents, local business and local service providers will be open to register and participate via online registration. Moving forward, information sessions and feedback will be accepted via several mediums including email, Facebook, twitter and a community consultation center purpose built for the early stages of the project development.

3 Concepts to be the Centre of the Community

In line with The Project outcomes and clearly demonstrated in the stakeholder engagement sections above, the community is at the very heart of this strategy. Having realised opportunities to engage the community and capture its innovative ideas, the need to give back and contribute to the community has likewise been recognised. Noting the reality that opportunities will arise throughout the lifecycle of The Project, the strategy identifies four key community concepts, presented in the following sections.

3.1 Local trade participation

The utilization of local tradespeople, contractors and working staff will be mandated within the Delivery Partner agreement. The successful delivery partner must engage and maintain a minimum of 25% of its employees from Western Sydney and its surrounds. These employment opportunities will be in place from delivery through to operations and maintenance phases. Further participation will be incentivised with the implementation of KPI's with the Delivery Partner, rewarding achievements of local participation for targets greater than 25% and up to 50% of its total workforce.

3.2 University of Western Sydney and TAFE programs

In association with local education service providers, namely the University of Western Sydney and TAFE, The Project will provide the following opportunities for students:

Apprenticeships: incentivised programs for placements in delivery partner organisations and local industry bodies.

Scholarships: offering 2 scholarships up to the value of $20 K per annum for up to 4 years for local students demonstrating academic excellence and contributing to community service.

Graduate programs and Cadetships: opportunities in both the Delivery partner organisation(s) and The Alliance for graduates and young professionals.

3.3 Local business initiatives

The stakeholder manager will engage industry partners and drive a bespoke initiative to provide priority occupation of newly established commercial spaces for existing business and trades in the Badgerys Creek locale.

3.4 Western Sydney Wanderers partnership program

The Western Sydney Wanderers partnership program will form part of our Industry engagement method and will work toward providing the club's members exclusive flight benefits. These will include priority ticketing for flight packages to follow the Wanderers in its pursuit to win premierships.

4 Recommendations to inform the Environmental Impact Statement

4.1 Introduction

The previous Draft Environmental Impact Statement[1] (EIS) offers a comprehensive review of the objectives at the time of writing. Primarily due to the time since completion of the Draft EIS (17 years) we recommend a new EIS be prepared.

The new EIS is to be commissioned by The Alliance on behalf of the Commonwealth Government. The previous EIS and related supporting information is to be made available to provide background information to assist completion of the new EIS.

The new EIS is to provide a comprehensive statement incorporating the following key information.

4.2 Information to be discussed / covered within the EIS

- A brief history of the development of aviation facilities in Sydney and describe the need for a second major airport, and the objectives of the Second Sydney Airport proposal.
- The decision making process, identify the proponent and describe the requirements and procedures for the environmental assessment. The role and structure of the EIS and identification of associated technical papers, related legislation, agreements and conventions.
- Describe the objectives of the consultation strategy, the philosophy underpinning them, the role of consultation in the EIS process. Identify areas targeted by the consultation strategy, the stakeholders, elements of the consultation strategy and the community response to the proposal.
- Provide an outline of the background for some of the developments that have influenced and will continue to influence decisions on the Second Sydney Airport.
- Review historic and current forecasting for air traffic[2]. This is with the view of making recommendations for further studies to inform planning.
- Review the strategic alternatives available for providing increased airport capacity to meet the forecast growth in passengers and aircraft movements.
- Examine and explain the potential roles of a Second Sydney Airport. Provide assumptions about how the airport might operate.
- Outline the purpose of the airport planning process including; airspace management issues, the airport operation scenarios considered, preliminary airport options and ongoing design stages that would occur if the proposal proceeds.
- Describe the three (3) airport options under consideration. The probable design, staging, construction and operation of each option[3].

[1] *Draft Environmental Impact Statement, Second Airport Proposal, (Badgerys Creek) prepared by PPK Environment & Infrastructure – December 1997.*
[2] *Joint (Commonwealth & NSW) Study on Aviation Capacity for the Sydney Region prepared by Department of Infrastructure & Transport Canberra – 2012.*
[3] *Second Sydney Airport Planners (1997a, I997b and 1997c).*

- Examine the potential impacts of the airport options on metropolitan, regional and local planning, and on existing and future land uses. Describe the potential infrastructure that would be required to support each airport option.
- Provide a review of the potential effects of aircraft noise and summarise the findings / conclusions.
- The EIS is to review and summarise the provided air quality study to inform potential changes in air pollutant levels arising from the construction and operations of a Second Sydney Airport at Badgerys Creek, and potential local regional and health impacts. Provide recommendations for additional air quality studies.
- Provide a review on the following noise considerations associated with the potential three (3) airport options and associated potential operations. Considerations should be made for multiple flight paths and impacts on residences and communities in the vicinity.
    - Over-flight noise.
    - Noise of aircraft taking off or coming in low in order to land, as it is experienced at ground level.
- Assesses potential noise impacts of the Second Sydney Airport other than those arising from aircraft over-flight noise. This includes but not limited to;
    - Construction phase.
    - Road and Rail developments serving the airports.
    - Surrounding Commercial and Industrial operations.
- Examine the influence of meteorological conditions on airport runway use-ability and air quality in the vicinity of the airport options. Prepare an outline of potential adverse meteorological factors that could affect aircraft or airport operations.
- Examine a range of potential impacts of the three (3) airport options, including but not limited to;
    - Sterilisation of mineral resources.
    - Loss of agricultural productivity.
    - Energy usage.
    - Waste generation and disposal.
- Discuss the hazards and risks that would arise from construction and operation of any one of the three (3) airport options.
- The EIS is to examine the geology and soils of the airport site options and surface and ground water quality in the region. Impacts on surface water quality and potential health impacts on drinking water supplies are to be investigated. Provide recommendations for additional geological and geotechnical investigation.
- Outline the potential transport impacts, both for land and aviation, of the Second Sydney Airport.
- Prepare an outline of the available costs of the proposal.
- Investigate the various socio-economic impacts of the Second Sydney Airport proposal.
- The EIS is to prepare a summary of findings / conclusions of the provided Visual and Landscape study. Provide recommendations for additional Visual and Landscape studies.

- Provide an overview of the recommended approach to environmental management; the aim is to ensure that the Second Sydney Airport is managed to the highest international standards of environmental responsibility. This includes but not limited to;
    - Key legislative and policy obligations applying to the airport, including a summary of the environmental safeguards to be implemented.
- The EIS is to prepare a summary of findings / conclusions of the provided flora and fauna study. Provide recommendations for additional flora and fauna studies.
- The EIS is to prepare a summary of findings / conclusions of the provided investigations into both Aboriginal cultural heritage and non-Aboriginal cultural heritage and provide recommendations for additional investigation works.
- Provide an overview of the assessment documented in the EIS and a summary of the ways in which it assists the decision making process. The cumulative impacts of the proposal and the likely environmental implications of the potential future expansion of the Second Sydney Airport.

4.3 Independent studies

The following studies / reports are to be undertaken in order to inform the EIS:

- Planning Management Report
- Quantity survey
- Air Traffic Report
- Construction Analysis Plan
- Waste Management Study
- Site Servicing Strategy
- Traffic & Transport Study
- Aircraft Noise Study
- Stormwater Management Study
- Risk Assessment Study
- Meteorological Study
- Air Quality Study
- Geological and Geotechnical Reports
- Flora and Fauna Study
- Aboriginal Cultural Heritage Investigation
- Non-Aboriginal Cultural Heritage
- Visual and Landscape study

5 Recommendations for Runway Layout

BPS has conducted a comparative assessment of each runway layout option as described in the previous EIS.

Summary of Criteria Used for Comparative Assessment of Runway Layout Options	
Considerations	**Issues to be Considered**
Site Constraints	Adjacent land use for compatibility with airport operations
	Incidence of penetrations of Obstacle Limitation Surfaces
	Impacts on electricity transmission lines if re-routing is required
	Ownership of land adjacent to the airport
Airspace Considerations	Conflicts with operations at other airports
	Capability to design flight paths to be clear of restricted areas and noise sensitive land uses
Runway Usability	Runway orientations relative to prevailing wind speed and direction
Defense	Defense establishments in and adjacent to the airport and potential restrictions on aircraft operations
Design / Construction / Cost	Bulk earthworks required to create a level platform to accommodate airport facilities
	Potential for flooding of the airport
	Impacts on existing water courses and containment of surface runoff volumes and pollutants
	Likely demand and provision of required utility services (roads and car parks, railway, electrical power, potable and firefighting water, sewage reticulation and treatment, gas, telecommunication, aircraft fuel)
	Influences of site topography, soil types, source of imported materials and type of construction on the construction plan
	Preliminary cost estimates for site preparation works
Regional Planning	Impacts on future regional planning
	Land use planning compatibility with aircraft operations
Aircraft Noise	Noise impacts from aircraft operations
Other Environmental Issues	Flora and fauna
	Aboriginal cultural heritage

Summary of Criteria Used for Comparative Assessment of Runway Layout Options	
Considerations	**Issues to be Considered**
	Non-Aboriginal cultural heritage
Community Expectations	Community expectations resulting from previous planning of a second Sydney airport

Table 2: Comparative Assessment Criteria

5.1 Impacts of Aircraft Overflight Noise on the local community

The Alliance has requested BPS consider aircraft overflight noise as its critical criteria, as outlined in table 2 above. Noting this, the following considerations were accounted for in the assessment of noise impacts and minimal community interference.

5.1.1 Impacts on People

The following criteria were considered in assessing the Impacts of Aircraft Overflight Noise on People.

1. People that may experience the following Australian Noise Exposure Concept levels:
    - greater than 30
    - greater than 25
    - greater than 20
    - greater than 15
2. People that may experience, on average, the following number of noise events over 70 dBA a day:
    - greater than 100 events
    - greater than 50 events
    - greater than 20 events
    - greater than 10 events
3. People that may, on average, be awoken the following times.
    - once a night
    - once every 2 nights
    - once every 5 nights
4. Educational facilities that may experience, on average, the following number of noise events over 65 dBA between 9am and 3pm:
    - greater than 100 events
    - greater than 50 events
    - greater than 20 events
    - greater than 10 events

5.1.2 Impacts of Induced Vibration

Predicted number of residents experiencing at least one event per 30 days with maximum noise level exceeding 90 dBA.

5.1.3 Impacts on Property Value

Estimated net direct property devaluation.

5.1.4 Impacts on Wildlife

Noise associated with the airport options has the potential to affect wildlife in the Blue Mountains National Park and the natural areas south of Lake Burragorang.

5.2 Recommendation

BPS has assessed each layout option in line with the criteria described above. The outcome of its assessment recommends option A as outlined in the previous EIS[1].

BPS notes the outcomes of the new EIS may dictate the requirement for the assessment of an alternate runway layout option. In this regard BPS has provided the comparative criteria assessment, described above, as a tool to compare the alternate runway layout option(s) with the recommended option A. This is with the view of providing a direction on the runway layout to be adopted.

6 Airport Design

6.1 Introduction

In line with The Alliance objectives, Sydney's second regular public transport (RPT) airport will be built on land owned by the Commonwealth at Badgerys Creek in western Sydney and will be in operation by 2025. In order to bring this to fruition, elements of its design will need to be considered at all planning phases.

BPS suggests a staged design including: stage 1 (design for 3 million passenger air movements (Pax) by 2025), in consideration of stage 2 (9 million Pax by 2035) and ultimately stage 3 (30 million Pax by 2050).

The design should consider the world's best airports, as listed in Appendix B, to inform the basis of the new Badgerys Creek airport.

In order to drive creativity and innovation BPS has provided a conceptual framework to develop the new airport. The framework considers the items discussed in the following sections.

6.2 Terminal Design

The terminal design is to be separate operational considerations from design & construction considerations as discussed below.

6.2.1 Operational Considerations

Operational Concepts		
Concept	**Purpose and/or implementation strategy**	**Value Add**
Mitigate common commuter complaints	Provide high quality food facilities	Commuter satisfaction
Provide cost effective services and facilities	Free Wi-Fi throughout - This could also be used by the airport to notify passengers of gate changes or other notifications Cold tap water in frequent locations Comfortable facilities to the international area for transfer commuters and/or activities / attractions within or nearby the site Affordable kid's club facility - this would benefit all parties including the retail facilities	High commuter satisfaction with minimal cost to the operator / construction costs
Ensure the airport is 'a destination'	Provide services including 'buy now - pickup on return' facilities	This would encourage consumer spending and provide convenience.

Operational Concepts		
Concept	**Purpose and/or implementation strategy**	**Value Add**
Provide commuter focused facilities	Close proximity grocery shopping and restaurants	Opportunity for commuters to purchase essentials within the vicinity, with a strategic byproduct of economically enhancing the area.

Table 3: Operational Concepts

6.2.2 Design & Construction Considerations

D&C Strategic Concepts		
Concept	**Purpose and/or implementation strategy**	**Value Add**
Modular build design	Design can easily be expanded as it's required. Use of precast panels	Faster construction program Manufactured on site - facility reused post construction as a commercial business and then reused for the extensions.
Reduce long transitions	Reduce the amount of walking commuters need to undertake within the terminal and also allow for a quick exit from the terminal. Either design to reduce travel distance or add in extensive moving walks	Commuter satisfaction
Sustainable build and operation	Utilise solar technology, daylight, low embedded energy materials, locally sourced materials as well as other technologies investigated by the ESD consultant	Reduce construction and operational costs.
Make it open and inviting	Have a single level terminal with extensive daylight and fresh air	Help 'freshen' commuters - if they are enjoying their experience more then it might have flow on effects to their spending in retail facilities
Consider advances in airport / pre-airport processing technology	Reduce lobby size Integrate earlier baggage drop - bag drop at train station arrivals - bag drop immediately at arrivals entrance prior to entering the terminal or immediately inside.	Smaller terminal build or more Net Lettable Area (NLA) - cost benefit to Capital expenditure or operational income. Reduce the distance baggage needs to be transported by the commuter at the airport - customer comfort.

D&C Strategic Concepts		
Concept	**Purpose and/or implementation strategy**	**Value Add**
Research local indigenous communities	Integrate indigenous symbols and landscapes into the architecture	Cultural link Point of interest / unique identity
Integrate the current local environment	Integrated tree's into terminal (refer figure 4 and 5 below) Integrate Badgerys Creek itself (the Creek or a modified version) into the terminal - sealed off via a see-through glass walkway	Maintain a sense of the existing / previous landscape. Point of interest / unique identity

Table 4: D&C Strategic Concepts

Figure 4: An image of the current Badgerys Creek landscape (left) and a design concept for the airport support columns (right)

Figure 5: A concept design of the Mexico City international airport (Once finished, it will be one of the most sustainable airports ever built)

6.2.3 Retail & Commercial Activities

Make it 'a destination'.

- Have a Direct Factory Outlet (DFO), and /or Ikea for example within close proximity. Integrate with a retail developer such as Westfield, QIC, GPT or the like to create a shopping hub which will embrace the community. These businesses could also share logistics with their counterparts within the terminal.
- Build a purpose built stadium nearby to house the new home for the Western Sydney Wanderers.

Locate facilities on the airport site or nearby to maximize the benefits that nearby air transportation can bring.

- Such as freight, maintenance facilities including training, and airline support services such as catering facilities and the like
- Integrate an airport hotel into the airport to easily transfer early morning departures as well as allow easy access late at night. Also integrate it into the train terminal access so that the general public who need an easy access hotel can also utilise it. Locate it "just outside the terminal" like London's Sofitel Heathrow Terminal 5 for example - this is situated just one lift and two corridors from British Airways' main hub at T5.

Commercial opportunities could exist for businesses to integrate the proximity of the Blue Mountains, Jenolan Caves, Lake Burragorang and other natural wonders.

Industry will also flourish especially manufacturing industries that can export and import via the new airport.

6.2.4 Public Transport

Commuters utilise many forms or transport to get to and from an airport. Taxis, hire cars, buses, rail and road transport.

6.2.4.1 Road Transport

Private vehicles:

- Allow bag drop facilities prior to parking facilities.

i.e. check-in scan could occur at the entrance to the airport for those already checked-in, commuter temporarily parks and drops bag then drives to the carpark, then returns back to the airport to complete customs / security. Available footprint would drive carpark design i.e. on grade or multi-deck.

- Have multiple arrival lanes for vehicles to mitigate traffic jams entering airport.
- The internal road configuration would be put to market to drive innovation.
- Provide shading for cars that integrate solar cells as well as water harvesting for use in toilets, irrigation, and filtered for use in water bubblers

Taxis:

- Taxi drop off and pickup to be a dedicated automated area that is separate from other forms of transport, such as self-drivers.
- This would allow for a system that could operate smoothly.

Hire Cars:

- In addition to day rate hire car companies also allow car club companies such as GoGet to operate from the airport.
- Car share companies could also develop if commuters opted to allow their vehicles located in the long stay carparks to be utilised by others while they are away, e.g. companies like CarNextDoor.

Bus:

- Initially bus transportation would be used to link major centres to the airport.
- These services would need to be express and frequent so that they provided commuters with a smooth and fast commute. These major centres would also need to facilitate carpark facilities due to the increase need that would eventuate. Local bus routes to bring commuters to these major centres would also need to be added.
- Dedicated bus lanes on major roads to the airport could also be integrated to ensure traffic congestion could not cause major delays to the commuter.

Rail:

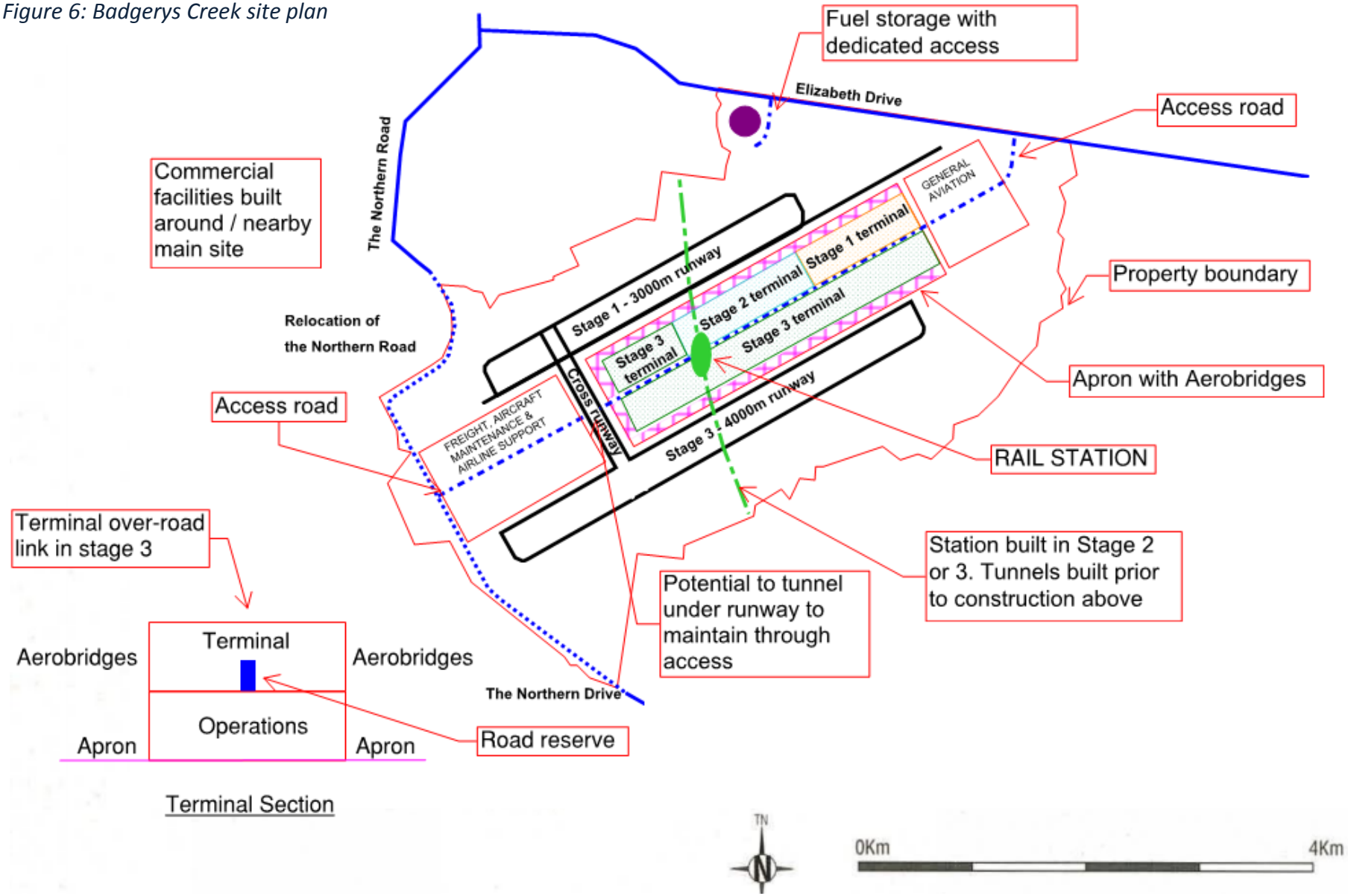
The planned South West Rail Link would add an additional six train stations to the network (refer to figure 7 shown in Section 8) under a long-term plan to upgrade public transport in the region and to link Badgerys Creek airport.

- Initially the rail station at Badgerys creek would be planned for and the ideal location reserved but not built. It would be built when the airport expands to greater capacity. The excavation for the tunnels however would need to be constructed in the initial stages so that its construction would not interfere with the ongoing operation of the initial runway. A cheaper form of construction could then also be used i.e. cut and fill.

6.2.5 Concept Layout

In figure 6, below, BPS has demonstrated a conceptual layout capturing the aforementioned design elements. This illustrates the feasibility for the integration of the elements.

Figure 6: Badgerys Creek site plan



7 Fuel provisions

7.1 Introduction

In its strategy, BPS has recognised the high-risk nature of the aviation industry as paramount in the supply of fuel provisions. The fuel provision strategy herein has considered the following risks:

- engine malfunction resulting from poor fuel provision quality control; and
- security threats of attacks on critical fuel provisions.

The fuel provision approach therefore has the required controls in place to reduce the above risks and their subsequent consequences.

7.2 Import facility

Since the closing of the Kurnell Caltex refinery, access to refined oil in Sydney is entirely through imports that arrive by ship. Therefore the issue of fuel provision has three components:

- which port are ships to arrive at
- How is the fuel to be transported from the port to the airport
- How is the fuel to be distributed at the airport

The Glebe Island port and the Kurnell port were considered as feasible options for a preferable import facility. Port Kembla in Wollongong and Newcastle Port have been discounted due to the distance required for transportation to Badgerys Creek.

Glebe Island in Port Jackson would have the benefit of being proximal to the airport and is a current working port. Although considered a deep-water port, the depth of the harbour is not great enough to allow passage for the largest ships. Further, the use of this port for refined oil supply would constrain the existing port demand for delivery of dry bulk goods, such as sugar, gypsum and cement. The berthing facilities at Glebe Island have a maximum depth of 11.9 m restricting the size of vessel and therefore suitability to supply fuel.

Although not currently a working port, the conversion of the Kurnell refinery to a fuel import terminal is already underway. This is based on a plan announced by Caltex in 2012. Dredging is currently underway to provide fixed berth depths of 12.8 m and a sub berth depth of 14 m allowing larger container ship capacity leading to increased efficiency of fuel provision. The potential economies of scale occurring from the use of large ships would improve the total economic viability of the airport. The land based facility is undergoing a transformation to incorporate an import station and store fuel products.

BPS recommends that the Kurnell facility be adopted as the preferable import facility. Fuel supplied from ships is to be segregated into specific and traceable batches at the import station. Noting the risks associated with a lack of quality control in fuel provision, BPS recognises the requirement to mandate traceability of fuel from port to plane, including a specific container ship, storage facility at the port, a specific batch in the pipeline and a specific storage facility at the airport.

7.3 Transport of fuel from port to airport

BPS analysed all available options for transporting fuel to the airport including rail, road and pipeline. The results of this analysis, as discussed below, concluded a pipeline to be best suited for the provision of fuel.

7.3.1 Rail

The existing Enfield Intermodal Terminal is the most proximal freight terminal to the airport. Fuel could be supplied by freight rail to this terminal before being trucked or transported by pipeline to Badgerys Creek airport. This option has been discounted because of the potential inefficiencies in having two forms of transport. An east west freight corridor, which would connect the Enfield terminal to the airport, is being considered (by others) which would allow for one form of transport to the airport. However, this is not considered preferable, as it would place increased demand on the freight line.

7.3.2 Road

Trucking fuel requires significantly less capital expenditure with the required roads being available (M5 and M7 motorways). The initial (2025 Pax) number of truck movements required is 30 return trips. This is based on the BPS that assumption that Badgerys creek airport will require 10 % of the fuel needs of the Sydney Kingsford Smith airport.

Road movement of fuel is a significant safety risk. In addition to potential safety risks, trucking places an unnecessary load on the existing road infrastructure.

7.3.3 Pipeline

The installation of a pipeline carries a significant initial capital expenditure. It has been estimated that 90% of the capital expenditure is associated with the purchase and preparation of the pipeline corridor. BPS recommends the construction of a high capacity bulk fuel line from Kurnell to Badgerys Creek. The existing Caltex pipeline corridor is to be adopted to Silverwater and then a new pipeline corridor is to be acquired running west from north of Guildford to between Wetherill Park and the Prospect Nature Reserve.

7.3.3.1 Provision of fuel at the airport

BPS has identified fuel provision options within the airport. This includes either trucking to the plane or an underground hydrant system. BPS recommends the hydrant systems, noting the larger capital expenditure however it is considered preferable for operational reasons. The hydrant system reduces the amount of traffic on the apron and is a more automated and controllable process.

8 Transport Links

The BPS strategic plan has been developed in accordance with the NSW State Infrastructure Plan. This strategic plan has considered the three main areas of road infrastructure; roads surrounding the airport, roads supporting the northwest growth centre and roads supporting the southwest growth centre (refer figure 7 below). These key areas of development should be developed simultaneously where possible. BPS considers the priorities to be in the following order.

8.1 Priority 1 - Northwest growth centre

The road infrastructure supporting the northwest growth centre is recommended to be the highest priority. Significant expansion projects in this area include the Sydney Business Park that will employ approximately 7000 people. Significantly the Sydney Business Park is looking to employ 1000 youth. The youth unemployment rate in Western Sydney is one of the highest in Australia. This area has been prioritised as it will support economic development in the region in the medium term and potentially address social issues such as youth unemployment.

The following projects are associated with the northwest growth centre and are listed in no particular order:

- Richmond Road Stage 1 – Bells Creek to Townson Road
- Richmond Road Stage 2 – Townson road to grange avenue
- Schofields Road Stage 1 – Windsor Road to Tallawang Road
- Schofields Road Stage 2 – Tallawong Road to Veron Road
- Werrington Arterial Road Stage 1 – M4 to Great Western Highway (Planning)

8.2 Priority 2 - Southwest growth centre

The southwest growth centre (refer figure 7 below) is focused around the ‘development triangle’, that is the area encompassed by Camden Valley Way, Northern Road and Bringelly Road. Key areas identified for development include the City of Liverpool and Camden Council, Catherine Fields Precinct and Leppington.

The following projects are associated with the northwest growth centre and are listed in no particular order:

- Bringelly Road – Camden Valley Way to King Street
- Camden Valley Way Stage 1 – Ingleburn Road to Raby Road
- Camden Valley Way Stage 2 – Raby Road to Oran Park Drive
- Camden Valley Way Stage 3 – Bringelly Road to Ingleburn Road
- Narellan Road – Camden Valley Way to Blaxland Road

8.3 Priority 3 - Roads surrounding Badgerys Creek

In addition to airport access, local roads will be upgraded in the area to support commercial and industrial developments proximal to the airport. Such facilities can include car rental stores, supermarket chains, petrol stations and factory outlet stores.

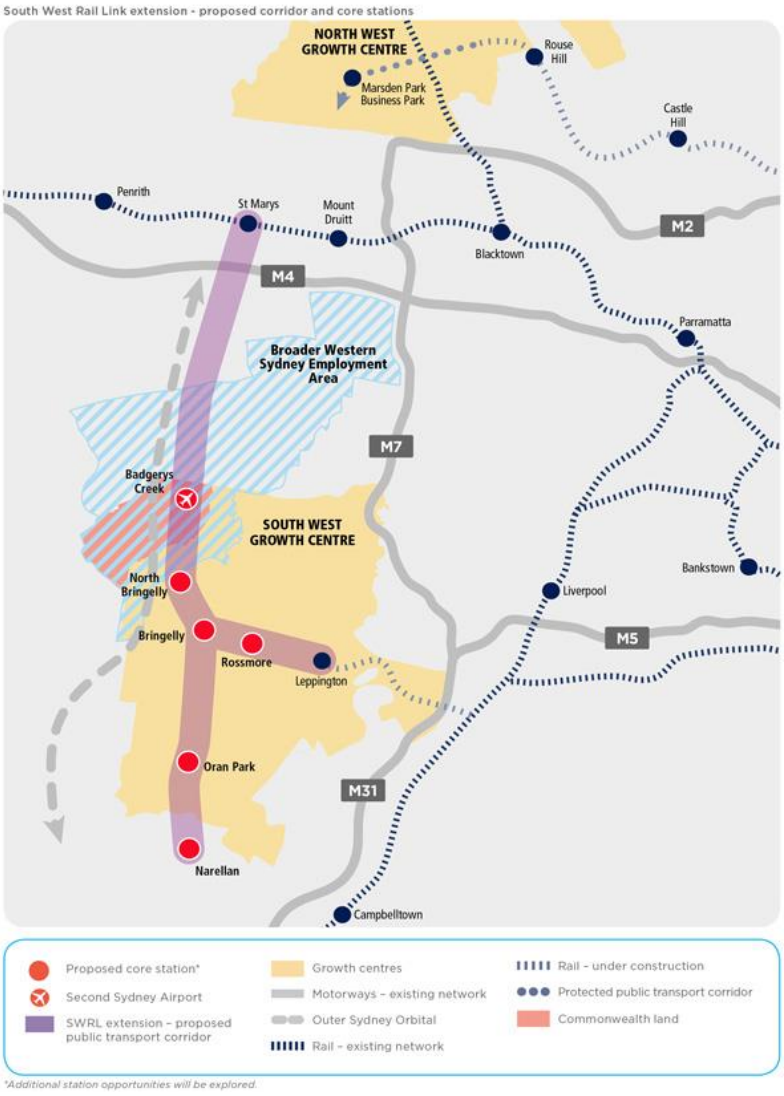
The following local roads around Badgerys Creek will require adjustment or upgrades to suit recommended runway layout option A.

- Mamre Road
- Elizabeth Drive
- Badgerys Creek Road
- The Northern Road

8.4 Priority 4 - Freight and passenger rail

Planning for future freight and passenger rail connections is to occur prior to the construction of the airport. This is a lower priority to the road projects, as the rail lines will not be constructed until after the opening of the airport. Notwithstanding the construction of rail tunnels beneath the airport as outlines in section 6, the timing of construction and the development of the line will be dependent on the motivations of the private sector, which will lead this infrastructure development. A corridor for the Western Sydney Freight Lane is to be identified and planned as well as a site for the Eastern Creek Intermodal Terminal.

Figure 7: Integrated transport links and growth centres



APPENDIX A. LIST OF STAKEHOLDERS AND INTERESTED PARTIES

Internal stakeholders

Shareholders

(NSW Government)
NSW Treasury
Department of Finance
Infrastructure NSW
Department of Planning and Environment
(Australian Federal Government)
Department of Treasury
Department of Finance
Department of infrastructure and Regional Development
Infrastructure Australia

Delivery Partners

Contractors *(both International and Domestic)*
Department of Employment
Department of Immigration and border protection
Australian Customs and Border Protection Services
ARTC
Moorebank Intermodal Terminal
Southern Sydney Freight Link
Transport for NSW
Roads and Maritime Services
Department of Education
NSW Industrial Relations
Delivery Partners
Financiers
Service Providers –

External stakeholders

Service Providers

Asset Management & operations
Industry
Freight & Logistics
Medical
Customs
Fuel and Raw materials
Utility and service providers
Aeronautical
Businesses
Air Carriers
Hotels
Food
Vending machines
Duty Free Retail
Car Hire
Taxi
Emergency Services Providers
NSW Police,
Australian Federal Police and
NSW Fire Brigade,
NSW Health
Education Service Providers
University of Western Sydney
TAFE
High Schools

The Community

Local council
Liverpool City Council
Local Residents
Local small business
Local service providers

APPENDIX B. WORLDS BEST AIRPORTS

The below airports are categorized based on their passenger air movements from the 2014 Worlds best airports at the World Airport Awards. It should be noted that Australian Airports feature in the top 10 for each category.

The 2025 PAX is estimated at 3 Million. The designers should therefore look at what the world's best airports serving under 5 million passengers are doing right and wrong. Below is a list of the top six airports in this category from the 2014 Worlds best airports. I have included the top six in this category as the relatively new Adelaide Airport sits at number 6.

Rank	Airport Name	Code	City	Country
1	London City Airport	LCY	London	United Kingdom
2	Durban King Shaka Int'l Airport	DUR	Durban	South Africa
3	Halifax Stanfield Int'l Airport	YHZ	Halifax	Canada
4	Guayaquil International Airport	GYE	Guayaquil	Ecuador
5	Billund Airport	BLL	Billund	Denmark
6	Adelaide Airport	ADL	Adelaide	Australia

Given 2035 PAX is 9M the designers should look at what the world's best airports serving 5-10 million passengers are doing right and wrong. Below is the list of the top 5.

Rank	Airport Name	Code	City	Country
1	Cincinnati/Northern Kentucky Airport	CVG	Cincinnati	USA
2	Cologne Bonn Airport	CGN	Cologne	Germany
3	Cape Town International Airport	CPT	Cape Town	South Africa
4	Bahrain International Airport	BAH	Bahrain	Bahrain
5	Gold Coast Airport	OOL	Gold Coast	Australia

Given 2050 PAX is 30M, designers should look at what the world's best airports serving 20-30 & 30-40 million passengers are doing right and wrong. The list of the top 5 are shown below.

Rank	Airport Name	Code	City	Country
1	Zurich Airport	ZRH	Zurich	Switzerland
2	Copenhagen Airport	CPH	Copenhagen	Denmark
3	Brisbane Airport	BNE	Brisbane	Australia
4	Melbourne Airport	MEL	Melbourne	Australia
5	Dusseldorf Airport	DUS	Dusseldorf	Germany

Rank	Airport Name	Code	City	Country
1	Munich Airport	MUC	Munich	Germany
2	Shanghai Hongqiao Int'l Airport	SHA	Shanghai	China
3	Narita International Airport	NRT	Tokyo	Japan
4	Taiwan Taoyuan Int'l Airport	TPE	Taipei	Taiwan
5	Sydney Airport	SYD	Sydney	Australia

Overall The World's Best Airports in 2014 are the following. Unfortunately no Australian Airport features in this category. Maybe in future years to come Badgerys Creek will feature in this list.

Rank	Airport Name	Code	City	Country
1	Singapore Changi Airport	SIN	Singapore	Singapore
2	Incheon International Airport	ICN	Seoul	South Korea
3	Munich Airport	MUC	Munich	Germany
4	Hong Kong International Airport	HKG	Hong Kong	Hong Kong
5	Amsterdam Schiphol Airport	AMS	Amsterdam	The Netherlands

http://www.worldairportawards.com/Awards_2014/Categories.htm