Western Sydney Aerotropolis Special Infrastructure Contributions Analysis

Department of Planning Industry and Environment

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BACKGROUND AND OVERVIEW

The Aerotropolis is a 11,200ha precinct surrounding the future Western Sydney International (Nancy-Bird Walton) Airport (WSA) and falls within the Liverpool and Penrith local government areas (LGAs).

The planning package for the Aerotropolis was finalised in September 2020 and includes - the Western Sydney Aerotropolis Plan (WSAP), the Western Sydney Aerotropolis State Environmental Planning Policy (the Aerotropolis SEPP) and Stage 1 of the Western Sydney Aerotropolis Development Control Plan 2020 (the DCP).

Six of 10 precincts in the Aerotropolis have been rezoned - the Initial Precincts (Aerotropolis Core, Badgerys Creek, Northern Gateway, Wianamatta-South Creek, Agribusiness Precinct) and the Mamre Road Precinct.

Atlas Urban Economics (Atlas) is engaged by the NSW Department of Planning, Infrastructure and Environment (DPIE) to examine the potential for a Special Infrastructure Contribution (SIC) in the following areas (referred to as 'the Study Area'):

- Initial Precincts:
 - Lands within 1200m of proposed Metro stations (WS Aerotropolis and Luddenham) and Mixed Use zones within the Initial Precincts (referred to as 'Station Precincts')
 - ^o Lands in the Aerotropolis outside the Station Precincts
- The Mamre Road Precinct.

The Study assesses the capacity of these areas to contribute to a SIC in terms of development feasibility, noting planning aspirations and permissibility, and the unique characteristics of each area.

The capacity testing findings are aggregated to identify a generic SIC rate/s that could apply and the considerations that influence the rate/s. The testing also considers the cumulative impact of other contributions that could apply.

RATIONALE OF SIC AND PREMISE OF CHARGE

Special Infrastructure Contributions (SICs) are a contribution from new developments for state and/ or regional infrastructure in high growth areas or urban renewal precincts. The SIC funds infrastructure such as schools, state and regional roads, regional open space, emergency and health facilities and some public transport infrastructure.

SICs aim to balance the funding requirement with broader planning and development objectives to ensure infrastructure can be delivered to support growth. SICs will apply to land after they are rezoned.

In a greenfield environment (such as the Study Area) that has been rezoned for urban uses, development is expected to occur and gain momentum over time. There is significant investment by all levels of government in strategic planning and infrastructure planning for the Aerotropolis and the broader Western Parkland City.

Notwithstanding the coordinated approach of government resources and infrastructure investment, the take-up of development opportunities by different land uses will vary. While some land uses will immediately respond to the rezoning of land, certain development (particularly higher densities) is expected to be challenging in the early years. Over time and as a critical mass of workers and residents starts to build, development momentum is expected to follow.

A contributions framework should be cognisant of the need to balance development feasibility in the early years against the expectation that development will intensify over time. It is therefore important that the SIC basis of charge considers that:

- Not all land uses and development typologies will be feasible on 'Day 1' of rezoning.
- Some development typologies will be feasible in the early years though take-up would be on an incremental/ gradual basis as market demand deepens.
- There is close alignment between imposition of the SIC and the rate of market activity and capital investment. This would avoid 'front-loading' contributions until development is ready to respond to market demand.



It would be important to achieve a balance between viable development (that is not over-burdened by contributions in the early years) and viable cost capture/recovery for infrastructure delivery.

Balancing Infrastructure Cost and Deliverability

The current SIC basis of charge on a contribution per hectare of NDA is appropriate in a greenfield context where the land use and built form response is expected to be low in density. However over time, when developments become more dense and land is used more intensely (accommodating more residents and more workers), the contribution per hectare of NDA no longer represents a good proxy by which to charge for infrastructure need.

As higher density building formats become viable to deliver (e.g. shop top housing, residential apartment buildings, multistorey commercial buildings), so too do higher contributions become viable commensurate with market willingness to pay for higher density building formats. Requiring a contribution that is charged based on a per hectare of NDA only would result in a shortfall of funds to deliver adequate infrastructure.

The Study considers a two-tiered, blended approach to the basis of SIC charge could be appropriate for certain precincts in the Study Area where development is expected to intensify over time. Such an approach could be based on a contribution charge per hectare of NDA *and* based on a percentage of development cost.

1. Contribution based on charge per hectare of net developable area (NDA)

The rate adopted should recognise that certain uses have larger land requirements (e.g. industrial) and do not necessarily generate more revenue per square metre of NDA.

As an example, an industrial facility of 5,000sqm may require 10,000sqm of site area whereas an office building of 5,000sqm may only require 2,000sqm of site area. Requiring the same contribution rate per hectare of NDA would mean the industrial facility contributes twice the amount compared to the office building, even though the office building may accommodate many more workers.

2. Contribution based on a percentage of development cost (similar to the basis of s7.12 contributions)

A contribution on this basis would be 'linked' to the application of capital to development activity, which would be in response to market demand. This allows the requirement for contributions to align with market willingness to pay.

Higher density uses have better tolerance to a higher contribution rate based on a charge per hectare of NDA compared to low density uses (e.g. logistics/ warehousing uses) that are developed to well under FSR 1:1. For this reason, the SIC charge on a per hectare of NDA should be at a level that is not beyond the capacity of lower density uses to contribute. A contribution based on a percentage cost of development could be applied additionally to those (higher density) uses that have the capacity to contribute. These higher density uses are in the main located in the Station Precincts.

The following bases of charge is tested in the Study Area:

Study Area	SIC (\$/ha NDA)	SIC (% cost of development)		
Initial Precincts				
Station Precincts	Yes	Yes		
Outside Station Precincts	Yes	No		
Mamre Road Precinct	Yes	No		

Table ES-1: Tested SIC Bases of Charge

Source: Atlas

A two-tiered approach would enable SICs to be responsive and staged according to market investment. At the subdivision stage, a lower SIC amount (\$/ha NDA) would reflect the preliminary nature of that stage of development. This approach allows the SICs to align with market demand and to the amount of capital that is applied in response to that market demand.

As more capital is applied to land, more SICs are required. This approach would assist in the staging of contributions according to the quantum of investment in what is expected to be a young and emerging market before viable sale revenues establish.

In precincts where development is not expected to significantly intensify over time (e.g. Mamre Road and outside Station Precincts), a single contribution charge (based on NDA) is considered to be more appropriate.



POTENTIAL SPECIAL INFRASTRUCTURE CONTRIBUTIONS (SIC)

Base Assumptions

For a contributions framework to be viable, development in the first instance needs to be feasible (i.e. development is feasible without a SIC). Where development is not feasible (even without a SIC), the viability of a SIC is a moot issue.

The contributions testing makes a base presumption of market demand, premised on the Western Parkland City Authority's Investment Attraction Office's work program and initiatives to secure commercial occupier interest in the Aerotropolis.

The base presumption of development feasibility assumes:

- There is underlying market demand for the subject land use and development typology.
- There is market willingness to pay an economic price for new floorspace. This is referred to as 'effective demand'.
- Sites can be economically acquired/ consolidated to enable a commercial return on investment.

Draft s7.12 and s7.11 development contributions plans are proposed to apply to the Initial Precincts and the Mamre Road Precinct respectively. The testing assumes a s7.12 rate of 6.5% and s7.11 rate of \$700,000/ha NDA respectively.

Initial Precincts

Increases in land values following the rezoning of land for urban uses and accessibility benefits expected from the WSA Metro network provide the capacity for development to contribute.

The Study notes that some development types respond to density and can be incentivised by higher density controls. However, not all land uses and locations lend themselves to dense development, e.g. industrial developments do not generally respond vertically to density due to vehicle loading/ circulation areas and requirement for hardstand areas.

Land uses and typologies in the Station Precincts are expected to be dense and more compact, and more responsive to density controls. These land uses also 'value' proximity to metro train services and are accordingly expected to have a willingness to pay to be within proximity of access to public transport facilities and expected commercial and residential activity.

Land uses further away from the Metro stations are expected to be less dense, with more generous carparking facilities and larger floorplates. Their capacity to contribute to infrastructure will be less. Development types that do not 'value' proximity to Metro train stations are expected to locate where land values would be cheaper due to lower permitted densities.

Table ES-2 summarises the tolerated SIC rates in the Initial Precincts.

Table ES-2: Summary of Potential SIC Rates, Initial Precincts

Study Area	Precinct/Land Use Zone	Tier 1 SIC (\$/ha NDA)	Tier 2 SIC (% cost of development)	
Aerotropolis Core/ Badgerys Cr	eek			
Inside Station Precinct	Mixed Use Zone	\$500,000	2%	
Inside Station Precinct	Enterprise Zone	\$200,000	1%	
Outside Station Precinct	Enterprise Zone	\$200,000	Not applicable	
Northern Gateway				
Inside Station Precinct	Mixed Use Zone	\$500,000	2%	
Inside Station Precinct	Enterprise Zone	\$200,000	1%	
Outside Station Precinct	Enterprise Zone	\$200,000	Not applicable	
Agribusiness Precinct				
Outside Station Precinct	Enterprise/ Agribusiness Zone	\$200,000	Not applicable	

Source: Atlas

Generic feasibility testing indicates 6.5% of cost of development effectively places a cap on a potential SIC and is better tolerated in areas where higher densities and higher order uses are permitted. Low density developments do not have the capacity to pay a SIC should local contributions be required at 6.5%.



The capacity of development to contribute is finite. Any increased requirement in one form of contributions will affect the capacity of development to pay other contributions.

The Study acknowledges that the proposed s7.12 development contributions plan is in draft and following public comment and consultation will be subject to the approval of the Minister for Planning and Public Spaces.

Notwithstanding, the permissibility of higher density development typologies assists to ameliorate the capacity to contribute to a SIC. Where application of the SIC rates results in development that is 'marginal to feasible', tolerance will improve over time as the WSA and WSA Metro openings approach and commence operations.

Mamre Road Precinct

The Study understands that negotiations for VPA contributions are ongoing between DPIE and proponents in the Mamre Road Precinct - at a contributions rate of approximately \$200,000/ha NDA. The Study assumes a similar contributions rate will continue to apply, noting a draft s7.11 Development Contributions Plan is proposed to apply to the Mamre Road precinct.

If the proposed s7.11 rate of \$700,000/ha NDA were to apply, the capacity for development to pay a SIC would be adversely affected.

CONSIDERATIONS FOR IMPLEMENTATION

Feasibility testing identified the capacity of development in the Initial Precincts and Mamre Road Precinct to pay a SIC under a base presumption of market demand.

Tolerance to a SIC varies by typology (a function of location), density, local contributions and the assumed cost of land.

• Land Use Zone and Typology

The Mixed Use zone is intended to provide for a greater range of land uses and development densities compared to the Enterprise zoning, including shop top housing. This resulted in higher site values in the Mixed Use zone and therefore a greater capacity to contribute to a SIC.

Station Precincts

Precinct planning envisages higher density uses in the Station Precincts. Land values are accordingly expected to respond to the permissibility of greater densities. Notwithstanding, market attitudes towards higher density development will require time to mature and therefore higher density formats are not expected to be feasible to deliver in the early years of rezoning.

The application of an additional charge in the Station Precincts (percentage charge on the cost of development) will align with capital investment in response to market demand as it occurs over time.

• Local Development Contributions

A draft s7.12 development contributions plan is proposed to apply to the Initial Precincts. Generic feasibility testing indicates 6.5% of cost of development is tolerated in areas where higher densities and higher order uses are permitted.

In the Mamre Road Precinct the current negotiated VPA contributions of approximately \$200,000/ha NDA is assumed to be implemented.

Cost of Land

Land values began to shift on the Government's commitment to WSA and a WSA Metro network. These values will continue to adjust to market demand and as planning certainty (including statutory contribution requirements) firms. Since release of the draft WSAP, land values are observed to have increased as market participants began acquiring and consolidating sites in and around the Aerotropolis. Post-rezoning, land values are expected to further increase. The further increase in land values will ameliorate the impact of SIC requirements on development feasibility.

It will be critical for the SIC framework to be subject to regular review. This will ensure SIC rates are within market tolerance but also ensure the basis of charge represents a reasonable proxy for cost recovery of infrastructure. As the Aerotropolis matures and development momentum grows, it will be necessary to ensure market demand is (as far as is possible), aligned to infrastructure provision and cost recovery.



Glossary of Terms

Development Margin	Development Margin is profit divided by total costs (including selling costs).
Greenfield Area	Land that is zoned for agricultural and/or non-urban uses. Greenfield areas are typically not serviced by essential infrastructure such as water, sewerage, gas and electricity.
Growth Area	An area identified for urban development; as defined under the State Environmental Planning Policy (Sydney Region Growth Centres) 2006
Investment Attraction Office	The Investment Attraction Office is part of the Western Parkland City Authority, whose mandate is to attract and target investment into the Aerotropolis as well as facilitate investment across the Western Sydney City Deal's eight local councils.
Initial Precincts	Rezoned precincts in the Aerotropolis - Aerotropolis Core, Badgerys Creek, Northern Gateway, Wianamatta-South Creek, Agribusiness Precinct
Metro Station Precinct	Lands within 1200m of the Metro stations (WS Aerotropolis and Luddenham) and Mixed Use zones within the Initial Precincts.
Project IRR	Project IRR is the project return on investment, where the discount rate where the cash inflows and cash outflows are equal.
Residual Land Value	The Residual Land Value is the maximum price a developer would be prepared to pay for a site in exchange for the opportunity to develop the site, whilst achieving target hurdle rates for profit and project return.

Abbreviations

ANEC	Australian Noise Exposure Concept
DCP	Development Control Plan
DPIE	Department of Planning, Infrastructure and Environment
FSR	Floor Space Ratio
GFA	Gross Floor Area
IRR	Internal Rate of Return
LGA	Local Government Area
NDA	Net Developable Area
NSA	Net Saleable Area
NWGA	North West Growth Area
RLV	Residual Land Value
SEPP	State Environmental Planning Policy
SIC	Special Infrastructure Contribution
SWGA	South West Growth Area
VPA	Voluntary Planning Agreement
WPCA	Western Parkland City Authority
WSA	Western Sydney Airport
WSAP	Western Sydney Aerotropolis Plan
WSPP	Western Sydney Planning Partnership



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3 Domestic Economy Forecasts (2020-2021)



1. Introduction

1.1 Background and Overview

The Western Sydney Aerotropolis (the Aerotropolis) is a 11,200ha precinct focused around the future Western Sydney International (Nancy-Bird Walton) Airport (WSA). To leverage on the catalytic impact of the new airport, the Aerotropolis is being planned as a highly connected, innovative new city and major employment centre to accommodate up to 139,000 jobs.

In September 2020 NSW Government announced six new metro stations along the Sydney Metro Western Sydney Airport line. The new line will extend from the existing St Marys train station to the Aerotropolis and include six new metro stations.

Planning for the Aerotropolis is underway and is coordinated by the Western Sydney Planning Partnership (the WSPP) as established by the cross-Government Western City Deal. The planning package for the Aerotropolis was finalised in September 2020 and includes - the Western Sydney Aerotropolis Plan (WSAP) and finalisation report, the Western Sydney Aerotropolis State Environmental Planning Policy (the Aerotropolis SEPP) and Stage 1 of the Western Sydney Aerotropolis Development Control Plan 2020 (the DCP).

The WSAP defines the Aerotropolis by 10 precincts with six initially rezoned and the focus of precinct planning, i.e. the Aerotropolis Core, Badgerys Creek, Northern Gateway, Wianamatta-South Creek, Agribusiness Precinct and Mamre Road.

Figure 1.1 depicts the Structure Plan for the Western Sydney Aerotropolis as per the finalised WSAP.







1.2 The Study Area

The Aerotropolis is a 11,200ha precinct surrounding the future Western Sydney International (Nancy-Bird Walton) Airport (WSA) and falls within the Liverpool and Penrith local government areas (LGAs).

The Aerotropolis is primarily a rural and agricultural area on the outskirts of Greater Sydney's existing urban footprint. Land use zoning under the former planning framework generally limited land use and development to rural, agricultural uses and some forms of industrial uses. The Luddenham Village on the western edge of the Aerotropolis is the sole cluster of urban uses in the region. Initial precincts in the Aerotropolis and in Mamre Road precinct (located in the north-eastern corner of the Aerotropolis) have been recently rezoned.

Land use zones which previously applied were generally RU1 Primary Production, RU2 Rural Landscape and RU4 Primary Production Small Lots. Land was subject to a range of minimum lot sizes, predominantly ranging from 10ha to 40ha. Some 280ha of privately owned land along the northernmost edge of the Aerotropolis has been rezoned to a mix of B4 Mixed Use and B7 Business Park under the Penrith Local Environmental Plan 2010 – this being the site of the proposed 'Sydney Science Park' mixed-use precinct.

Figure 1.2 depicts the existing land use zones which apply across the Aerotropolis under previous local planning instruments.



Figure 1.2: Previous Land Use Zones, Western Sydney Aerotropolis

Source: Atlas

Existing land use activity reflects these land use zones with a variety of agricultural, rural and related activity observed. The nature of land uses across the region is typical of peri-urban areas located elsewhere across Greater Sydney.



1.3 Scope and Approach

Atlas Urban Economics (Atlas) has been engaged by the NSW Department of Planning, Infrastructure and Environment (DPIE) to examine the viability of a Special Infrastructure Contribution (SIC) in the Aerotropolis. A SIC framework will apply to the following areas:

- Lands within 1200m of proposed Metro stations (WS Aerotropolis and Luddenham) and Mixed Use zones within the Initial Precincts (referred to as 'Station Precincts');
- Lands in the Aerotropolis outside the Station Precincts; and
- The Mamre Road Precinct.

Collectively, these three areas are referred to as the 'Study Area' throughout this report.

Atlas is engaged to individually assess the capacity of these three areas to tolerate a SIC in terms of development feasibility, noting the planning permissibility and unique characteristics of each area.

Approach of the Study

The purpose of the Study is to examine the potential for a SIC across the Aerotropolis. Specifically, the Study seeks to:

- Understand the nature of land use and planning aspirations envisaged across the Aerotropolis and the corresponding development types that could be accommodated in the Initial Precincts.
- Test how much can feasibly be levied on new development in each area.
- Aggregate the findings to identify if there is a generic contribution rate/s that could apply and the observations that should influence the rate/s.
- Investigate the tolerance range for a generic contributions rate/s where development is feasible.
- Identify matters for consideration when implementing a SIC across the Aerotropolis, specifically the cumulative impact of contribution rates (Aerotropolis SIC, local development contributions, etc).

To meet the requirements of the brief, Atlas carried out the following tasks:

- Review of final planning package for the Aerotropolis (in particular the WSAP, Aerotropolis SEPP and Stage 1 DCP) and the finalised rezoning package for the Mamre Road Precinct.
- Review of draft precinct plans for the Aerotropolis.
- Property market analysis to understand market and development activity in the broader Western City region to gauge the likely market demand for envisaged land uses within the Study Area.
- Generic development feasibility modelling of notional development typologies within the Study Area to test tolerance against different contribution rates.
- Recommendations of an appropriate SIC rate/s in the Study Area and highlight key issues for consideration.

1.4 Structure of the Study

The Study is structured in four parts:

- 1. Part A (Background and Context) sets out the rationale for a Special Infrastructure Contribution framework in the Study Area and the methodology used to test the viability of a contribution charge.
- 2. Part B (Initial Precincts) considers the proposed planning framework for the Aerotropolis Core, Badgerys Creek, Northern Gateway and Agribusiness precincts as per draft precinct plans. Feasibility testing is carried out to identify the tolerance of development to imposition of a SIC (within and outside the Station Precincts).
- 3. Part C (Mamre Road) reviews the rezoning package for the Mamre Road Precinct and considers a potential SIC rate.
- 4. Part D (Conclusion and Key Considerations) summarises the feasibility findings and identifies the key economic and market issues for consideration when implementing a SIC across the Study Area.



1.5 Assumptions and Limitations

Atlas acknowledges several key assumptions and limitations associated with this Study.

Presumption of Market Demand

For a contributions framework to be viable, development in the first instance needs to be feasible (i.e. development is feasible without a SIC). Where development is not feasible (even without a SIC), the viability of a SIC framework is a moot issue.

The feasibility testing makes a base presumption of market demand, largely premised on the Investment Attraction Office's work program and initiatives to secure commercial occupier interest in the Aerotropolis.

The base presumption of development feasibility assumes:

- There is underlying market demand for the subject land use and development typology.
- There is market willingness to pay an economic price for the completed floorspace. This is referred to as 'effective demand'.
- Sites can be economically acquired/ consolidated to enable a commercial return on investment.

A desktop appraisal of 'as is' property values (i.e. existing-use values) is carried out without the benefit of site inspections.

Evolution of Market Demand

The Market and Economic Feasibility Study (prepared for the Western Sydney Planning Partnership) finds that viability of development in the Aerotropolis will evolve over time.

Some land uses will immediately respond to the rezoning of land, other land uses have pre-requisite conditions before they are viable for development in a location.

Notwithstanding the permissibility of certain uses and densities in the Study Area, service uses will require trade catchments from which they can draw custom and operate viably. Knowledge-based commercial and office uses are expected to occupy lower density commercial buildings in the early years and gradually transition to higher density formats once a critical mass of workers, residents and visitors establishes.

It will be important for the SIC basis of charge to have alignment with the rate of market activity and capital investment. This would avoid 'front-loading' contributions until development is ready to respond to market demand.

Draft precinct plans identify the spatial distribution of land uses and densities, focusing more intensive activity in Station Precincts and in proximity to future Metro stations. It is appropriate that the opportunity is preserved for these uses to establish over time.

Statutory Contributions Requirements

The Study's parameters of analysis are to test the implications of a s7.12 local contribution in the Aerotropolis and a s7.11 local contribution in the Mamre Road precinct.

Feasibility testing indicates that affordable housing contributions are not viable when concurrently implemented with local and state infrastructure contributions. The Study assumes they will not be required initially; and will be reviewed when higher density residential is viable in the Study Area.

Parking requirements assumed in line with current DCP standards; new parking requirements could apply in the future.

The Study outcomes could be subject to change once the local contributions framework (s7.11 and s7.12) is finalised.

Generic Feasibility Testing

Generic development options are formulated for feasibility testing based on floor space ratios (FSRs). Development schemes tested are notional only; they have not been capacity, urban design or engineering tested.

Generic feasibility testing is based on high-level revenue and cost assumptions and does not consider nuances of a site typically considered in detailed feasibility analysis.





2.1 Premise and Basis of Charge

Special Infrastructure Contributions (SICs) require a financial contribution from new developments for state and/ or regional infrastructure in high growth areas or urban renewal precincts. The SIC funds infrastructure such as schools, state and regional roads, regional open space, emergency and health facilities and some public transport infrastructure.

SICs aim to balance the funding requirement with broader planning and development objectives to ensure infrastructure can be delivered to support growth. SICs will apply to land after they are rezoned.

Infrastructure and development contributions in NSW can be cost-based or revenue-based.

Figure 2.1: Cost and Revenue Based Contributions



Source: Atlas

The calculation of SIC rates are based on a cost-capture/ recovery rationale and has regard to development feasibility and the tolerance of development to contribute. As they apply when sites are rezoned, increases in land values that accompany a rezoning would assist to mitigate negative impacts to development feasibility.

2.2 Economic and Planning Uplift

2.2.1 Economic Uplift - Accessibility and Agglomeration Benefits

The significant level of public and private investment in the Aerotropolis will drive its appeal as a place to live and do business in. Access to public transport is known to be an important factor for residential uses and certain forms of employment. Research suggests the availability of train station access can form a key job consideration for skilled employees.

Being in the right location is key to business success. Businesses select locations based on accessibility by clients, workers, suppliers and to materials and transportation. Businesses who depend on skilled labour will expectedly select locations that enable them to recruit accordingly. Residents in the Western Parkland City are becoming more educated and affluent, thereby forming a broad pool of workers for local businesses to recruit from.

The benefits of agglomeration economies underpin the gravity of large commercial precincts and CBDs where businesses and industry participants seek to cluster and benefit from the gains in efficiency and productivity that result. The value that market participants place on accessibility and agglomeration are reflected in economic uplift, represented by the prices they are willing to pay to rent or purchase space.

This is observed in mature CBD markets like Sydney and North Sydney (and recently Parramatta) where the depth of demand supports increases in rents as buildings become taller and more costly to construct. In maturing markets like Parramatta CBD, tall buildings are becoming more viable due to market willingness to pay for higher floors, views, etc.



Impact of New Public Transport Infrastructure on Land Values

The economic and financial benefits of accessibility can be observed through the analysis of land values and proximity to new rail infrastructure.

Historical land values of properties situated within walking catchments (400m, 800m) of new and proposed metro stations across Greater Sydney are examined to understand the resulting change in land values. This is compared to land values of similarly zoned properties elsewhere in the suburb not within a walking catchment of a metro station.

Two categories of impact areas are selected for investigation:

- 1. Areas benefitting from new metro services for the first time:
 - Tallawong (Rouse Hill) to Cherrybrook (Sydney Metro Northwest)
- 2. Areas where existing train services are upgraded to metro standards:
 - ° Epping to Chatswood (Sydney Metro Northwest)
 - ° Sydenham to Bankstown (Sydney Metro City & Southwest)

Observational analysis shows in most instances there is a positive relationship between station proximity and above average median price growth for properties zoned for residential or business uses. The impact ranges across each station precinct, from nominal (0.2%) additional growth to significant additional growth (12%) compared to the rest of the suburb. The analysis additionally shows that where residential land values in the broader suburb may have fallen (particularly over the 2017-19 period), the decline in land values in the walking catchments is more tempered.

A summary of the observations is provided in Table 2.1.

Catchment Area	Residential	Residential Zoned Land		oned Land
	2014-2019	2017-2019	2014-2019	2017-2019
Sydney Metro Northwest (Tallawong to Che	rrybrook)			
Within 400m	5% to 24%	-1% to 5%	10% to 20%	14% to 32%
Within 800m	5% to 12%	-1% to -9%	6% to 34%	7% to 86%
Outside Catchment (Broader Suburb)	5% to 9%	-1% to -12%	3% to 12%	-3% to 12%
Sydney Metro Northwest (Epping to Chatswo	ood)			
Within 400m	8% to 13%	-10% to 3%	6% to 138%	2% to 221%
Within 800m	6% to 8%	-10% to -6%	7% to 29%	-7% to 22%
Outside Catchment (Broader Suburb)	6% to 7%	-8% to -6%	3% to 12%	-2% to 3%
Sydney Metro Southwest (Sydenham to Banl	(stown)			
Within 400m	6% to 14%	-8% to 1%	10% to 26%	0% to 12%
Within 800m	6% to 14%	-8% to 1%	10% to 26%	0% to 12%
Outside Catchment (Broader Suburb)	4% to 11%	-8% to -2%	-2% to 24%	-20% to 9%

Table 2.1: Average Annual Change in Land Values by Proximity to New Train Stations

Source: Atlas/NSW Valuer General (2020)

The analysis shows how some land uses 'value' public transport more, which is reflected in quantum of land value change. Station precincts that are not particularly conducive to pedestrian activity may not necessarily show a response in land values compared to station precincts that are 'walkable' and able to leverage the train infrastructure.

The analysis shows residential and business zoned lands experienced stronger growth in land values within walking catchments of metro stations, with the difference in growth greater in areas benefitting from new metro services (Tallawong to Cherrybrook) than those already with train services (Epping to Chatswood and Sydenham to Bankstown).

The economic uplift resulting from the unlocking of accessibility and agglomeration benefits is reflected in market willingness to pay - for land and for the opportunity to be in close proximity of public transport. It is through this market willingness to pay that development can afford to contribute to infrastructure.



2.2.2 Planning Uplift - Planning Control Amendments

Amendments to the planning framework represent planning uplift and generally lead to an increase in land values. It is also through this increase in values that development can afford to contribute to infrastructure.

Prior to amendments to the planning framework, the Aerotropolis was primarily zoned for rural and agricultural purposes. Urban zoned land benefits from a greater range of permitted land uses compared to non-urban land. This is reflected in higher land values associated with urban land uses.

The density of permitted development (often reflected in permitted building heights and floorspace) equally influences underlying land uses. In most instances across urban areas, there is a positive relationship between permitted density and land values the greater the development potential.

The range of land uses, and development densities permitted across the Study Area will have direct implications on the level of planning uplift associated with changes to the planning framework.

Whilst these will be discussed in much greater detail later throughout this report, **Table 2.2** summarises the land uses, development typologies and densities that could be accommodated across the Study Area's various precincts.

Table 2.2: Indicative Development	Typologies, Study Area
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ub-Precinct Land Use Zone Indicative Development Typology		Indicative FSR	
Aerotropolis Core			
Mixed Use Centre	MXU	Office buildings	2.5:1 to 3.5:1
		Mixed use development (with shop-top housing)	
Business and Enterprise	MXU/ENT	Office buildings	2.0:1 to 2.5:1
		Strip retail and commercial	
Mixed Use Residential	MXU	Mixed use development (with shop-top housing) Residential flat buildings	1.5:1 to 2.5:1
Enterprise and Light Industry	ENT	Business park	N/A
		Warehousing	
		Industrial park	
Northern Gateway			
Centre	MXU	Office buildings	3.0:1
		Mixed use development (with shop-top housing)	
Mixed Use	MXU	Mixed use development (with shop-top housing) Residential flat buildings	1.8:1 to 3.0:1
Flexible Employment	ENT	Business park	0.6:1 to 1.0:1
		Warehousing	
		Industrial park	
Agribusiness Precinct			
Non-agricultural	AGB/ ENT	Business park	N/A
		Warehousing	
		Industrial park	
Agricultural	AGB	Glasshouses	N/A
Mamre Road			
Logistics and Industry	IN1	Warehousing	N/A

MXU - Mixed Use, ENT - Enterprise, AGB - Agribusiness, IN1 - IN1 General Industrial Source: Hassell/ Hill Thalis/ Studio Hollenstein



2.3 Considerations for a SIC in Greenfield Areas

In a greenfield environment such as the Study Area that has been rezoned for urban uses, development is expected to occur and gain momentum over time. Certain development (particularly higher densities) is expected to be challenging in the early years. Over time and as a critical mass of workers and residents starts to build, development momentum is expected to follow.

A contributions framework should be cognisant of the need to balance development feasibility in the early years against the expectation that development will intensify over time. Careful selection of the basis of charge is critical.

2.3.1 Evolution of the Western Sydney SICs

The Western Sydney Growth Areas Special Infrastructure Contribution (SIC) determination came into effect on 14 January 2011. The SIC applies to development on both residential and industrial zoned land on a per-hectare basis to the net developable area (NDA). The following rates (at 1 July 2020) apply to various growth areas by land use:

Residential

- Western Sydney Growth Centres with precinct plan \$221,686/sqm NDA.
- ° Balmoral Road, Elderslie, Spring Farm \$175,927/sqm NDA.
- Industrial
 - Western Sydney Growth Centres with precinct plan \$94,223/sqm NDA.
 - Western Sydney Growth Centres with no precinct plan \$221,686/sqm NDA.

When the Western Sydney SICs were implemented more than a decade ago, development was of a relatively low scale and low density. Centre-based uses (in B-zones) were also of low scale and low density.

Over the 2014-2018 period, residential densities delivered in the North West and South West Growth Areas increased, with smaller housing formats and higher density typologies gaining market acceptance and becoming feasible to deliver at large scale. Over that time, higher density uses in centres also emerged (e.g. shop top housing, commercial buildings). This evolution has resulted in more new residents and workers than earlier contemplated by precinct planning, making the infrastructure previously planned inadequate for the new communities that have, and continue to establish in the growth areas.

DPIE has signalled its intention to revise the basis of charge for residential uses in Western Sydney. A draft SIC for the North West Growth Area was placed on public exhibition in 2018 wherein SICs were proposed to apply to residential uses on a per additional residential lot or dwelling.

The current application of SICs on an NDA basis does not reflect the capacity of land (particularly of residential and centres land) to be developed more intensely. Furthermore, the SIC rates do not apply to business-zoned lands (B1, B2, B3, B4) in the Western Sydney Growth Areas, effectively exempting centre-based uses from contributing to state and regional infrastructure.

2.3.2 Varying Land Uses and Pace of Development

This Study is cognisant of the greenfield nature of the Study Area. There is significant investment by all levels of government in strategic planning and infrastructure planning for the Aerotropolis and the broader Western Parkland City.

Notwithstanding the coordinated approach of government resources and infrastructure investment, the take-up of development opportunities by different land uses will vary. Some land uses will immediately respond to the rezoning of land, other land uses have pre-requisite conditions before they are viable for development in a location.

Early Movers

Early movers are expected to include large format industrial and lower density residential uses. A *laissez faire* 'zone it and they will come' approach will conceivably be sufficient for these uses to be developed.

• Followers

In contrast to early movers, land uses such as retail and hospitality, local and service commercial/ industrial, require trade catchments from which they can draw custom and operate viably.



- ° Retail development is largely expected to occur 'as of course' as local worker and resident catchments grow.
- **Hospitality** uses such as cafés, restaurants, pubs and hotels will be driven by a diverse trade catchment, requiring different sources of clientele (workers, residents, visitors and tourists) to be viable.
- **Service commercial** (e.g. tax agents and local accountants, health and wellness clinics) and **service industrial** (e.g. garage/ home alarms, smash repairers, coffee roasters) require sufficient customer mass within commuting access.

Retail, hospitality and service uses generally look for clustering and co-location opportunities to be viable.

Incubators

Knowledge-based commercial and office uses have higher amenity expectations of retail and hospitality services. Consequently, not many businesses (unless of significant scale) are likely to want to be 'the first mover' in a commercial precinct. The Investment Attraction Office (IAO) plays a critical role in mobilising investment from these uses.

The above considerations and different timeframes within which various land uses are expected to respond means that their respective building typologies will become feasible over different timeframes.

It is therefore important that the SIC basis of charge has regard to the following:

- Not all land uses and development typologies will be feasible on 'Day 1' of rezoning.
- Some development typologies will be feasible in the early years though take-up would be on an incremental/ gradual basis as market demand deepens.
- Importance for close alignment with the rate of market activity and capital investment. This would avoid 'front-loading' contributions until development is ready to respond to market demand.

2.3.3 Balancing Infrastructure Cost and Deliverability

The current SIC basis of charge on a contribution per hectare of NDA is appropriate in a greenfield context where the land use and built form response is expected to be low in density. However over time, when developments become more dense and land is used more intensely (accommodating more residents and more workers), the contribution per hectare of NDA no longer represents a good proxy by which to charge for infrastructure need.

As higher density building formats become viable to deliver (e.g. shop top housing, residential apartment buildings, multistorey commercial buildings), so too do higher contributions commensurate with market willingness to pay for higher density building formats. Requiring a contribution that is charged based on a per hectare of NDA only would result in a shortfall of funds to deliver adequate infrastructure.

It is therefore important to achieve a balance between viable development (that is not over-burdened by contributions in the early years) and viable cost capture for infrastructure delivery.

The Study considers a two-tiered, blended approach to the basis of SIC charge could be appropriate for certain precincts in the Study Area where development is expected to intensify over time. Such an approach could be based on a contribution charge per hectare of NDA *and* based on a percentage of development cost.

1. Contribution based on charge per hectare of NDA

This is payable at subdivision stage (if applicable) or at development. The rate should recognise that certain uses have larger land requirements (e.g. industrial) and do not necessarily generate more revenue per square metre of land area.

As an example, an industrial facility of 5,000sqm may require 10,000sqm of site area whereas an office building of 5,000sqm may only require 2,000sqm of site area. Requiring the same contribution rate per hectare of NDA would mean the industrial facility contributes twice the amount compared to the office building, even though the office building may accommodate many more workers.

A contribution per square metre of GFA/ dwelling could assist to more accurately reflect the number of workers or residents that a development could accommodate. This basis of charge could however undermine the feasibility of development in the early years as this type of charge favours more mature, high density markets where space is used more intensely. In greenfield markets where building formats are larger (and of lower densities), a contribution charged per square metre of GFA could inadvertently penalise large building floorplates that may seek to be delivered.



2. Contribution based on a percentage of development cost (similar to the basis of s7.12 contributions)

This is payable at subdivision stage (if applicable) or at development. A contribution on this basis would be 'linked' to the application of capital to development activity, which would be in response to market demand. This allows the requirement for contributions to align with market willingness to pay for new space.

The Study recognises that the application of capital to land does not necessarily result in the same quantum of space or the same utilisation rates of that space (by workers and residents). This basis of charge is however considered appropriate as it is linked to the quantum of capital investment in development.

In the early years of the Study Area (coinciding with the opening of the WSA and WSA Metro line), research suggests that potential end sale values of residential and commercial floorspace in the Mixed Use zone are not too dissimilar (circa \$6,000/sqm to \$8,000/sqm). A contribution based on a percentage of development cost therefore does not produce a distortion from development capacity to pay. The exception to this is industrial floorspace that is worth less (in terms of revenue) however it also costs less to construct.

A two-tiered approach would enable SICs to be responsive and staged according to market investment. At the subdivision stage, a lower SIC amount (\$/ha NDA) would reflect the preliminary nature of that stage of development. This approach allows the SICs to 'track' market demand and furthermore align to the amount of capital that is applied in response to that market demand.

As more capital is applied to land, more SICs are required. This approach would assist in the staging of contributions according to the quantum of investment in what is expected to be a young and emerging market before viable levels of sale revenues establish. In precincts across the Study Area where development is not expected to significantly intensify over time (e.g. Mamre Road and outside Station Precincts), a single contribution charge could be more appropriate.

Higher density uses have better tolerance to a higher contribution rate based on a charge per hectare of NDA compared to low density uses (e.g. logistics/ warehousing uses) that are developed to well under FSR 1:1. For this reason, the SIC charge on a per hectare of NDA should be at a level that is not beyond the capacity of low density uses to contribute. A contribution based on a percentage cost of development could be additionally applied to those (higher density) uses that have the capacity to contribute. These higher density uses are in the main located in the Station Precincts.

The next chapter outlines the approach and methodology used in carrying out capacity to pay feasibility modelling.



3.1 Introduction

The capacity of land for new development can be considered in terms of theoretical capacity and market capacity.

- **Theoretical capacity** reflects the physical ability of land to be developed, considering permissibility under local planning frameworks, environmental constraints and other legislative requirements.
- Market capacity is determined by development feasibility. Existing land values, revenue potential, construction and development costs collectively influence the commercial viability of development. Market capacity is of most relevance when considering tolerance to the imposition of a SIC.

This chapter carries out generic feasibility testing with the objective of the contributions testing to understand:

- If nominated development types are feasible to undertake.
- If the nominated development types are feasible to undertake, their capacity to pay SICs.

For a contributions framework to be viable, development in the first instance needs to be feasible (i.e. development is feasible without a SIC). Where development is not feasible in the first instance (regardless of the requirement for contributions), the issue of impact is a moot point. This issue will be considered through feasibility analysis.

The principle of baseline feasibility is an important one as even though higher density formats are envisaged in precinct planning, they are not expected to be viable for some time yet.

3.2 Methodology

Generic feasibility testing is carried out to ascertain the tolerance of development to the imposition of a new SIC. The Hypothetical Development or Residual Land Value (RLV) approach is adopted for the purposes of feasibility testing.

The objective of the generic feasibility testing is to assess the tolerance of development to a SIC, recognising that different development typologies will have different bands of tolerance.

The RLV approach involves assessing the value of hypothetical development, considering total potential revenue and development costs, and making a further deduction for the profit and risk that a developer would require to take on the project.

The RLV can be defined as the maximum price a developer would be prepared to pay for a site in exchange for the opportunity to develop the site based on proposed (or existing) planning controls, whilst achieving target hurdle rates for profit and project return.

Residual land values (RLVs) resulting from generic feasibility testing are compared with pre-zoning land values to understand if development is feasible. Assessed RLVs are also compared against development site sales evidence as a check in ensuring the reliability and validity of the feasibility modelling.

Key Assumptions

Feasibility modelling is premised on notional development schemes – they have not been urban design, engineering or environmentally tested. Development yields assumed are the product of numeric application of proposed floor space ratios (FSRs) and building height controls.

Cost and revenue assumptions are generic and do not have regard to site-specific characteristics (e.g. topography, views, etc.) that a detailed site feasibility analysis/market valuation would typically have.

Revenue assumptions adopted are informed by a market appraisal for key land uses as detailed in Schedule 1. Cost assumptions adopted are derived from standard industry publications and past experience. The set of revenue and cost assumptions adopted in feasibility testing for each precinct are provided in Schedule 2.

Despite the limitations of generic feasibility testing, its results are considered appropriate on an aggregate basis to understand the tolerance of development in the Study Area to a SIC.



Hurdle Rates

In assessing the tolerance of development to contributing to SIC, the key performance indicators and metrics relied upon are development margin¹ and project IRR².

The objective of feasibility testing is to assess if, after contribution to SICs, development margin and project IRR are within acceptable range. Where development is found to result in either development margin or project IRR falling below the acceptance range, it is concluded that there is no tolerance to a SIC.

Benchmark hurdle rates and their 'feasible' ranges for each development typology are indicated in **Table 3.1**.

Table 3.1: Benchmark Hurdle Rates

Development Typology Commercial and Residential		Industrial				
	Feasible	Marginal to Feasible	Not Feasible	Feasible	Marginal to Feasible	Not Feasible
Development Margin	>22%	18%-22%	<18%	>18%	16%-18%	<16%
Project IRR	>20%	18%-20%	<18%	>18%	16%-18%	<16%

Source: Atlas

Target hurdle rates depend on the perceived risk associated with a project. Risks generally include planning, market, financial and construction risk. The greater the risk the higher the hurdle rates required for investment. The Study Area has been rezoned, with precinct plans and development control plans intended to guide future development applications. Accordingly, the Study considers planning risk to be relatively low.

The adopted benchmark hurdle rates are in line with industry and market expectations.

3.3 Factors Influencing Development Tolerance to Contributions

Prior to assessing the tolerance of development to a SIC, it is useful to consider the factors that influence feasibility. The following is a selection of key factors that affect the feasibility of development in the Study Area.

Effective Demand

Land use markets are diverse. Market acceptance of higher density product is good in inner city areas where there is a critical mass of residents/ workers and supporting retail and commercial services to underpin their desirability.

Markets for floorspace types (whether for living or for work) are competitive and influence the price households and businesses are prepared to pay for floorspace. Where there is a depth of market demand for high density floorspace, the end sale prices of the completed product justify a higher cost of construction.

In greenfield or outer city areas and in markets where existing low-density or new medium-density housing formats are comparatively affordable, there can be market resistance to, or an unwillingness to pay for higher density housing. In such markets, prices that can be achieved for apartments are limited by prices paid for lower density housing. For example, if a 3 bedroom detached dwelling is available for \$800,000, it is unlikely a 3 bedroom unit will be able to achieve the same pricing.

Effective demand, therefore, is relevant for development feasibility. The willingness of the market to pay for floorspace underpins the type and nature of development the market can respond with.

Construction Cost

The cost of construction increases as buildings become taller due to building standards and engineering requirements.

In deciding the amount of capital to apply to a site (i.e. how intensely a site should be developed), developer capital will be applied to a point where incremental revenue is equal to incremental cost.

² Project IRR is the project return on investment, where the discount rate where the cash inflows and cash outflows are equal



¹ Development Margin is profit divided by total costs (including selling costs)

Revenue levels do vary considerably between locations, stemming from market attitudes towards high density development. Accordingly, taller buildings will be developed in locations where developers can expect higher revenue levels to offset the increased cost of construction and risk. Expectedly, residential and office towers are found in Greater Sydney's major CBDs.

Cost of Site Consolidation

Sales activity in the Study Area and broader region reflects strong levels of market interest. **Figure 3.1** charts the movement of sale prices of englobo land in the Aerotropolis since 2016.





Source: Atlas

The analysis of market activity indicates sale prices averaged \$1 million per hectare in 2016 and are on average approaching \$2 million per hectare in 2020.

While on average sale prices are approaching \$2 million, sale prices do reflect the permissibility of uses and developability of land. Land that is permitted for a wider range of and uses and higher densities will be, all things being equal, more valuable.

Table 3.2 analyses the prices paid for englobo lands by growth area and precinct in the Aerotropolis and surrounds. Some of these sale prices would have been struck prior to recent rezoning of lands.

Suburb	Growth Area*	Precinct	Precinct Planning Status	Existing Zones (min lot size)	Range of Sizes (ha)		Range of Sale Prices (\$/ha)	
					Low	High	Low	High
Bringelly	WSA	Aerotropolis Core	Rezoned	RU4 (10)	1.6	4.0	\$115,000	\$3,360,000
		Dwyer Road	Not released	R5 (2)	1.9	2.2	\$290,000	\$1,600,000
				RU4 (10)	1.2	10.1	\$590,000	\$1,650,000
Luddenham	WSA	Agribusiness	Rezoned	RU1 (40)	10.1	19.0	\$48,000	\$730,000
		Northern Gateway	Rezoned	RU2 & E2 (40)	12.1	17.4	\$1,075,000	\$1,300,000
Badgerys Creek	WSA	Badgerys Creek	Rezoned	RU1 (40)	2.0	5.5	\$1,200,000	\$2,830,000
Kemps Creek	WSA	Kemps Creek	Not released	RU4 (10)	1.2	44	\$550,000	\$2,350,000
		Rossmore	Not released	RU4 (10)	1.2	2.7	\$650,000	\$2,360,000
Kemps Creek	WSEA	Mamre Road	Rezoned	IN1		10.9		\$2,500,000
Rossmore	WSA	Rossmore	Not released	RU4 (10)	1.9	2.3	\$1,400,000	\$2,930,000



Suburb	Growth Area*	Precinct	Precinct Planning Status	Existing Zones (min lot size)	Range of Sizes (ha)		Range of Sale Prices (\$/ha)	
					Low	High	Low	High
Mount Vernon	WSA	Badgerys Creek	Released	E4 (1)	1.0	60.5	\$100,000	\$3,440,000
				E4 & E2 (1)	1.0		\$2,600,000	
Greendale	Outside	Not applicable	Not applicable	RU1 (40)	10.1	40.4	\$104,000	\$340,000
Mulgoa	Outside	Not applicable	Not applicable	RU5 (0.055)	1		\$1,975,000	
				E4 (1)	1	1.2	\$850,000	\$2,330,000
				E2 & E3 (20, 40)	2.4	385.2	\$70,700	\$1,070,000
				RU2 (20)	1.0	92.2	\$5,000	\$2,200,000
				RU4 & E2 (1,000)	2.2		\$825,000	
Orchard Hills	GPEC	Not applicable	Not released	RU4 (2)	2.1	1.4	\$2,500	\$1,720,000
				RU2 & E2 (40)	1.7	60.3	\$330,000	\$2,000,000

*Western Sydney Aerotropolis (WSA), Western Sydney Employment Area (WSEA), Penrith to Eastern Creek (GPEC) Source: RP data

A wide range of sale prices is observed, being a function of the following factors:

- Size and scale all things being equal, achieve higher prices (on a dollar rate per hectare) than large lots
- Land use zoning and subdivision controls all things being equal, rural lots with large minimum lot size controls (say 40ha) achieve lower prices than lots with lower lot size controls (say 2ha).
- **Urban potential** lots within a growth area (e.g. Aerotropolis) generally achieve higher sale prices than lots not contemplated for future urban uses.
- **Planning status** lots that are within precincts that have been released for precinct planning generally sell for more than lots in precincts where it is uncertain when planning will commence.
- **Ownership patterns and lot fragmentation** despite the potential for urban development in some precincts, lot fragmentation can make them unattractive for site consolidation.

Following the public exhibition of draft precinct plans, development control plans and contributions plans (expected in late 2020) which will detail the nature of planning permissibility and infrastructure contributions requirements, the sale prices of land are expected to adjust and respond accordingly.

Lands in the Mixed Use zone are focused around future Metro stations and are anticipated for a mix of uses and at the highest densities. In time, sale prices of land in these zones are expected to be reflective of their development potential as the viability of the corresponding development typologies emerges.

In same vein, land in the Agribusiness and Enterprise precinct are also expected to reflect their development potential under the draft precinct plans.



PART B: AEROTROPOLIS INITIAL PRECINCTS

4. Strategic Context

4.1 The Initial Precincts

The Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek, Northern Gateway and Agribusiness Precincts of the Aerotropolis are initial precincts rezoned under the Aerotropolis SEPP. Collectively, these precincts are referred to as the 'Initial Precincts'. A SIC is intended to apply in each of the Initial Precincts.

The Sydney Metro - Western Sydney Airport (SMWSA) metro rail line will service the Aerotropolis, with two new metro stations proposed - one in the Northern Gateway (Luddenham metro station) and Aerotropolis Core (Western Sydney Aerotropolis metro station). Lands within 1200m that surround the new metro stations and Mixed Use zones are referred to as 'Station Precincts'.

The Station Precincts are mostly within the Mixed Use zone which permits a range of business and residential uses. Small portions of the Station Precincts fall in the Enterprise zone which permit a range of business uses.

The boundaries of the Initial Precincts and Station Precincts are indicated in Figure 4.1.

Figure 4.1: The Initial Precincts and Station Precincts



Source: Atlas

Future land use and development in the Initial Precincts is prescribed under the WSAP, Aerotropolis SEPP and draft Precinct Plans. An overview of these is provided in turn.

4.2 Planning Framework

The Western Sydney Aerotropolis Plan (2020) defines the Aerotropolis by 10 individual precincts with six the focus of initial precinct planning. Whilst falling within the Aerotropolis, the Mamre Road precinct is subject to a different planning instrument State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP).



Four main land use zones apply in the Aerotropolis - Mixed Use, Enterprise, Agribusiness and Environment and Recreation. These land uses are unique having not been previously defined in the NSW planning system (i.e. Agribusiness) or have a greater range of permitted uses to comparable zones under existing local planning instruments.

Figure 4.2 illustrates the 10 defined precincts of the Aerotropolis and the spatial distribution of land uses as per the WSAP.

Figure 4.2: Land Use Zones (Western Sydney Aerotropolis Plan), Aerotropolis



As observed from **Figure 4.2**, each of the initial precincts comprise a mix of land use zones. The objectives of these zones are diverse and their application to individual precincts is complemented by individual precinct visions.

Western Sydney Aerotropolis State Environmental Planning Policy

The Aerotropolis SEPP was finalised in September 2020. A key feature of the SEPP is the treatment of permitted and nonpermitted land uses across the Aerotropolis. The SEPP takes a prescriptive approach to prohibited uses whereas permissible uses are not specifically outlined; rather permissible uses are to 'achieve the objectives of the zone' with individual precinct plans to identify the spatial distribution of specific land uses. This approach is intended to mitigate the 'crowding out' of desirable land uses by more financially valuable uses.

Accordingly, land use permissibility in each zone will be guided by both the SEPP (which outlines prohibited uses) and development control plans (DCPs) for each precinct (which will outline the preferred location of specific land uses). Draft precinct plans are summarised in the following sections.



4.3 Precinct Planning

4.3.1 Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek

The Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek precincts form the eastern boundary of the Western Sydney Airport, extending from Bringelly Road and The Northern Road in the south/south-west, South Creek to the east and Elizabeth Drive/South Creek in the north.

The Aerotropolis Core and Badgerys Creek are the largest precincts in the Aerotropolis - accounting for some 1,382ha and 612ha of gross land area respectively. Urban development is not expected in the Wianamatta-South Creek precinct – this precinct expected to be primarily zoned for environmental and recreational purposes.

The precinct is mostly zoned Enterprise, with a Mixed Use zone situated in the south around the future metro station.

The adjoining Badgerys Creek precinct is situated immediately east of the WSA and north of the Aerotropolis Core. The precinct is expected to primarily play an industrial and employment focused role, with uses such as defence and aerospace and manufacturing to be encouraged. The Enterprise zone applies to the entirety of the precinct.

The Aerotropolis Core and Badgerys Creek precincts are highly fragmented - there are some 612 allotments across the precincts with a median lot size of just over 2ha. There are seven major landowners across the precincts who control some 1,688ha of gross land area with sites ranging from 114ha to 340ha.

Figure 4.3 depicts the precinct boundaries of the broader Aerotropolis Core and Badgerys Creek precincts, major land ownership patterns and the spatial distribution of proposed land uses as per the WSAP.

Figure 4.3: Precinct Boundaries, Major Landowners and Land Use Zones, Aerotropolis Core and Badgerys Creek



Source: Atlas/WSPP



Draft Precinct Plan

Precinct planning for the Aerotropolis Core and Badgerys Creek precincts takes a 'hub and spoke' approach to land use and development, with a major centre supported by several ancillary centres/nodes. A primary centre is envisioned in the Mixed Use zone around the future Aerotropolis metro station. Numerous smaller service-based centres are envisaged throughout the precinct to accommodate demand for local services from future employment uses.

The role of Badgerys Creek Road as the primary connector road between Elizabeth Drive and The Northern Road is to be strengthened, forming the spine of the precinct. Land alongside this future arterial road corridor is to be zoned for employment uses, aligning with the proposed Enterprise zoning.

The Precinct Plan includes a variety of sub-precincts to represent future land uses including Mixed Use Centres, Employment Centres, Business and Enterprise, Mixed Use Residential, Enterprise and Light Industry, Education and Special Uses.

- Land uses in the **Mixed Use Centre** immediately surrounding the new metro station is expected to be the most dense, accommodating a mix of high rise office buildings, shop top housing and retail uses.
- The **Employment Centres** precinct will be more focused on retail and commercial uses namely mid-rise commercial buildings and ground floor retail.
- The **Mixed Use Residential** precinct will permit a range of medium and high rise shop top housing and residential flat buildings. Residential-only developments will be permitted subject to the achievement of employment targets.
- The Business and Enterprise precinct will be a commercially orientated with a focus on low and mid-rise office buildings.
- The Enterprise and Light Industry precinct will focus on low density industrial typologies (warehouses, industrial parks).

Figure 4.4 illustrates the draft Precinct Plan for the Aerotropolis Core and Badgerys Creek precincts.

Figure 4.4: Draft Precinct Plan, Aerotropolis Core and Badgerys Creek



Source: Hassell (October 2020)



Proposed Density Controls

Development density in the Aerotropolis Core and Badgerys Creek precincts is to be guided by both height controls and floor space ratios (FSRs). Greatest densities are expected in the Mixed Use Centre precinct immediately around the metro station.

FSRs are only intended to apply to the Mixed Use zone with a height control the primary control in the Enterprise zone.

Figure 4.5 and **Figure 4.6** illustrate the proposed height of building and FSR controls to apply to the Aerotropolis Core and Badgerys Creek.

Figure 4.5: Maximum Height of Building Controls, Aerotropolis Core and Badgerys Creek







Figure 4.6: Floor Space Ratio Controls, Aerotropolis Core



Source: Hassell (September 2020)

These controls will form the basis of feasibility testing for the Aerotropolis Core and Badgerys Creek precincts in Chapter 5.



4.3.2 Northern Gateway

The Northern Gateway precinct is located to the north of the Western Sydney Airport and totals 1,616ha of gross land area.

The Northern Gateway will serve as the second primary centre within the Aerotropolis Core, playing a supporting role to the Aerotropolis Core. The precinct encompasses the approved Sydney Science Park which is proposed for a mix of employment and industry with a focus on health and education, warehousing and logistics and R&D. The precinct is also set to benefit from the proposed Luddenham Metro station which will be located within the precinct, linking St Marys to the WSA.

The precinct is predominantly zoned Enterprise, with a Mixed Use zone situated in the north around the Sydney Science Park and future Luddenham metro station.

The Northern Gateway is less fragmented compared to the Aerotropolis Core with just 72 allotments and a median lot size of just over 10ha. There are six major landowners across the precinct who control around 1,100ha of gross land - sites ranging from 90ha to 343ha in gross land area.

Figure 4.7 illustrates the precinct boundaries of the Northern Gateway, major land ownership patterns and the spatial distribution of proposed land uses as per the WSAP.



Figure 4.7: Precinct Boundaries, Major Landowners and Proposed Land Use Zones, Northern Gateway

Source: Atlas/WSPP

Draft Precinct Plan

Similar to the Aerotropolis Core, precinct planning for the Northern Gateway has focused on development of a large centre with a number of smaller centres dispersed throughout the precinct.

The Northern Gateway is impacted by several major infrastructure corridors. The precinct is bisected east-west by the future M12 Motorway, whilst the future metro rail corridor traverses north-south through the centre of the precinct. Luddenham Road is to serve as the primary spine of the precinct, providing a north-south connection and linking within the M12 Motorway and Elizabeth Drive.

An extensive open space network is proposed throughout the Precinct, providing a high level of green amenity whilst responding to significant environmental constraints (mainly flooding).

The Northern Gateway's major centre is to be focused around the future Luddenham Metro station and proposed Sydney Science Park. A smaller centre (also located within the Sydney Science Park precinct) is envisaged in the north-western corner, whilst three smaller centres are proposed in the southern area of the precinct within the Enterprise zone.



Three sub-precincts are envisaged in the Northern Gateway that align with the Mixed Use and Enterprise zonings:

- A Specialised Centre precinct with a focus on higher density employment (i.e. office typologies) and innovation uses focused around the new metro station.
- A Mixed Use precinct to the west of the metro station with a mix of shop top housing and residential flat buildings.
- A Flexible Employment precinct to the majority of the Northern Gateway precinct, accommodating a mix of large format warehousing, industrial parks and low-rise office buildings.
- Four smaller Centre precincts to play a complimentary, local-service role to the mixed-use precinct and the employment areas dispersed throughout.

Figure 4.8 illustrates the draft Precinct Plan for the Northern Gateway.

Figure 4.8: Draft Precinct Plan (Land Use), Northern Gateway



Source: Hill Thalis (September 2020)

Proposed Density Controls

Both building height and FSR controls are to guide development in the Northern Gateway. Expectedly, the greatest densities are located in the Specialised Centre precinct and focused around the future metro station. FSR controls are only intended to apply to the Mixed Use zone with a height control the primary control in the Enterprise zone.

The Northern Gateway is heavily impacted by the Obstacle Limitation Surface (OLS) height limits associated with the neighbouring WSA. In some parts of the precinct, the OLS is *lower* than the proposed height control in the precinct plan.

Figure 4.9 and Figure 4.10 illustrate the proposed height of building and FSR controls to apply in the Northern Gateway.



Figure 4.9: Maximum Height of Building Controls, Northern Gateway



Source: Hill Thalis (October 2020)



Figure 4.10: Floor Space Ratio Controls, Northern Gateway



Source: Hill Thalis (October 2020)

These controls will form the basis of feasibility testing for the Northern Gateway precinct in Chapter 5.



4.3.3 Agribusiness

The Agribusiness Precinct is situated immediately west of the WSA and comprises some 1,384ha of gross land area. The precinct encompasses the existing Luddenham Village along with surrounding rural and agricultural land.

The Agribusiness Precinct is envisaged to support agricultural uses which will underpin the emergence of agribusiness uses in the Aerotropolis. Access to the 24/7 operations of the WSA will provide access to global supply chain networks. The precinct is envisaged to accommodate a wide variety of agribusiness uses, such as high-tech agriculture, food processing, pharmaceutical manufacturing, integrated logistics, fresh food wholesaling and retailing and research and development.

The Agribusiness Precinct is zoned Agribusiness with a small pocket zoned Enterprise in the north. Beyond existing housing that is present, residential land uses are not permitted.

The Agribusiness Precinct is characterised by a mix large rural lots and smaller, denser lots within the Luddenham Village. There are some 359 allotments and a median lot size of 0.2ha (though there are numerous lots in excess of 8ha). There are under a dozen major landowners within the precinct who control over 2,000ha of gross land area, with sites ranging from 82ha to over 600ha in gross land area.

Figure 4.11 shows the precinct boundaries of the Agribusiness Precinct, major land ownership patterns and the spatial distribution of proposed land uses as per the WSAP.



Figure 4.11: Precinct Boundaries, Major Landowners and Proposed Land Use Zones,, Agribusiness Precinct

Source: Atlas/WSPP

Draft Precinct Plan

The Agribusiness precinct is proposed to be mostly zoned Agribusiness with a small pocket of Enterprise in the northernmost portion of the precinct. The broad range of uses permitted in the Agribusiness zone will seek to catalyse and investment in industries such as, *inter alia*, high-tech agriculture, food processing, pharmaceutical manufacturing and integrated logistics.

The Northern Road serves as the central spine of the Agribusiness precinct with the future Outer Sydney Orbital serving as the precincts western border. The Precinct Plan envisages three major parks (Cosgrove Creek Park, Luddenham Agri-Park and Duncan's Lake) across the precinct given existing environmental constraints and significant view corridors.

Whilst the Agribusiness zone is expected to apply to the majority of the precinct, certain pockets are expected to accommodate smaller service-based centres. Three such centres are observed in the north (adjacent the Enterprise zoned pocket of land), in the east and the in the south.


The future vision, role and function of Luddenham Village is to be explored further during the precinct planning process. This will include detailed investigation of the potential for certain land uses that are sympathetic to the character and heritage values of the village. In the interim, the SEPP will permit development that would otherwise be prohibited in the Agribusiness to be carried out if it was permissible under the existing Penrith LEP.

Proposed Density Controls

Height controls are the primary density controls in the Agribusiness precinct with no FSR controls being proposed. Proposed building heights range from 10m to 24m across the majority of the precinct, equivalent to circa 3 to 6 storeys. Maximum building heights in the Luddenham Village are proposed at 10m, aligning with existing controls under the Penrith LEP.

Similar to the Northern Gateway, the Agribusiness precinct is heavily impacted by the Obstacle Limitation Surface (OLS) height limits associated with the neighbouring WSA. In some areas, the OLS is *lower* than proposed height controls.

Figure 4.12 illustrates the draft Precinct Plan and building height controls for the Agribusiness Precinct.

Figure 4.12: Draft Precinct Plan and Height of Building Controls, Agribusiness Precinct



Source: Studio Hollenstein (September 2020)

The next Chapter carries out generic feasibility modelling to assess the tolerance of development in the Initial Precincts to the imposition of a SIC.



5.1 Contributions Testing Scenarios

This chapter tests the tolerance of development to contribute to a SIC in the Initial Precincts.

Chapter 2 examined the rationale and suitability of the SIC basis of charge in greenfield areas. Low density, low intensity development forms have a limited capacity to contribute to SIC on a dollar rate per hectare of NDA. Conversely, high density, high intensity development forms have better capacity to contribute to a SIC on a dollar rate per hectare of NDA.

Chapter 2 identified different timeframes within which various land use and development types were expected to respond opportunities in the Aerotropolis, making important for a SIC basis of charge to have regard to the following considerations:

- Not all land uses and development typologies will be feasible on 'Day 1' of rezoning.
- Some development typologies will be feasible in the early years, though take-up would be on an incremental/ gradual basis as market demand deepens.
- Necessity for the SIC basis of charge to have close alignment with the rate of market activity and capital investment. This would avoid 'front-loading' contributions until development is ready to respond to market demand.

Iterative testing is undertaken to examine the tolerance of the development types to contribute to:

- A base SIC (calculated on a \$/ha NDA basis) across the Initial Precincts.
- A second SIC charge (calculated on a % cost of development basis) in the Station Precincts, recognising that development on land generally within the walking catchment of the metro stations and proximate to mixed use activities is permitted to occur at higher densities.

With each iteration, contributions are refined so development margin and project IRR meet target hurdle rates for feasibility.

5.1.1 Base Assumptions for Feasibility Analysis

The analysis of development feasibility makes the following base assumptions:

- There will be underlying market demand resulting from the coordinated approach by government to investment attraction and economic development.
- Early movers will help build critical mass and help 'seed' retail and local business services.
- Coordinated investment in place-making and public realm improvements, particularly in the Station Precincts.

The analysis assumes that investment momentum will ultimately be self-perpetuating, with early movers and early government investment setting the scene for future investment.

SICs will apply to land after it is rezoned. Market and construction risk are therefore the key risks for development feasibility as land in the Study Area will be appropriately zoned, enabling lodgement of development applications.

Cost of Land

The cost of site consolidation is one of the key factors that influences development feasibility and ability to contribute to SICs. An analysis of land values in the Study Area (and surrounds) has been carried out to anticipate the cost of site consolidation.

Sales activity was earlier explored and analysed in Chapter 3. Based on these findings, the observed land values for site opportunities in the Initial Precincts as outlined in **Table 5.1** are assumed as the cost of land in the feasibility testing.

Table 5.1: Cost of Land, Land Use Zones

Land Use Zone	Low (\$/ha)	High (\$/ha)	Adopted for Testing (\$/ha)
Mixed Use	\$1,500,000	\$3,500,000	\$2,500,000
Enterprise	\$1,500,000	\$3,500,000	\$1,500,000 - \$2,500,000
Agribusiness	\$500,000	\$1,500,000	\$1,000,000



The assumed cost of land is based on observations of market activity trends as well as the anticipated land use and densities in the draft precinct plans.

The Study notes that developers and investors will be willing to pay for land considering its development potential and the cost involved in delivery of development (including the cost of statutory contributions). As the infrastructure contributions framework is finalised and adopted, the market will have greater certainty when carrying out due diligence prior to purchase.

Development Typologies

A sample of development typologies are selected for testing are based on the draft Precinct Plans.

Densities (FSR) are applied to nominated site areas to develop numerical development yields for the purpose of generic feasibility testing. Development scenarios are notional only; they **have not** been capacity, urban design or engineering tested.

Table 5.2 outlines sample development types assumed for the purposes of generic feasibility testing.

Study Area	Zone	Development Typology	Notional Site Area (sqm)	Notional FSR	Parking
Aerotropolis Cor	e/ Badgerys C	Creek			
		Office buildings	2,000	3.5:1	Basement
Station Provinct	MVH	Office buildings	2,000	2.5:1	Basement
Station Precinct	MAU	Mixed use development (incl. shop top housing)	2,000	2.5:1	Basement
		Residential flat buildings	2,000	1.9:1	Basement
Station Precinct	ENT	Business park	2,000	1.3:1	Basement
Outside Station		Warehousing	20,000	0.7:1	At-grade
Precinct		Industrial park	10,000	0.8:1	At-grade
Northern Gatewa	ау				
		Office buildings	2,000	3.0:1	Basement
Station Duppingt	MVH	Office buildings	2,000	1.8:1	Basement
Station Precinct	MAU	Mixed use development (incl. shop top housing)	2,000	1.8:1	Basement
		Residential flat buildings	2,000	1.8:1	Basement
Outside Station		Warehousing	20,000	0.7:1	At-grade
Precinct	EINT	Industrial park	10,000	0.8:1	At-grade
Agribusiness Pre	cinct				
Outside Station		Warehousing	20,000	0.5:1	At-grade
Precinct	EINT/ AGB	Industrial park	20,000	0.7:1	At-grade

MXU - Mixed Use, ENT - Enterprise, AGB - Agribusiness Source: Atlas

Local Contributions and Affordable Housing

A draft s7.12 Development Contributions Plan is proposed to apply to the Study Area. The Study tests the inclusion of s7.12 development contributions at 6.5% the cost of development in assessing the capacity for a SIC.

Feasibility testing indicates that affordable housing contributions are not currently viable. As higher density residential formats grow in market acceptance, the viability of affordable housing contributions included in development will improve.

Other key assumptions that underpin the generic feasibility testing are detailed in Schedule 2.

5.1.2 Outcomes of Contributions Testing

Iterative testing is undertaken to examine the tolerance of the development types to contribute in the following scenarios:

- 1. Contribution on NDA (\$/ha) base SIC rate which applies to all lands within the Initial Precincts.
- 2. Contribution on percentage cost of development (%) additional SIC rate which applies to the Station Precincts.



Observations

Section 2.2 discussed the increases in land values expected to result from economic and planning uplift, through which development can afford to contribute to a SIC.

Land values began to increase in value over the last few years in anticipation of the rezoning of the Study Area in September 2020. **Figure 3.1** illustrated the trend of this increase. Land values and landowner expectations are expected to adjust to the draft precinct plans and infrastructure contributions requirements.

The testing outcomes show that tolerance of development to a SIC varies. Due to differences in parking ratio assumptions (based on the Liverpool DCP in the Aerotropolis Core and the Penrith DCP in the Northern Gateway), SIC rates are better tolerated in the Northern Gateway. Notwithstanding, it is acknowledged that parking requirements may be updated in time.

In the interest of consistency, the application of uniform SIC rates is desired across zones. This would mean rates at the lower tolerance bands in the Aerotropolis Core are adopted, notwithstanding better tolerance in the Northern Gateway.

Table 5.3 summarises the tolerated SIC rates with more detailed analysis findings for the Initial Precincts in Schedule 3.

Study Area	Precinct/ Land Use Zone	Tier 1 SIC	Tier 2 SIC
		(\$/ha NDA)	(% cost of development)
Aerotropolis Core/ Badgerys Cr	eek		
Inside Station Precinct	Mixed Use Zone	\$500,000	2%
Inside Station Precinct	Enterprise Zone	\$200,000	1%
Outside Station Precinct	Enterprise Zone	\$200,000	Not applicable
Northern Gateway			
Inside Station Precinct	Mixed Use Zone	\$500,000	2%
Inside Station Precinct	Enterprise Zone	\$200,000	1%
Outside Station Precinct	Enterprise Zone	\$200,000	Not applicable
Agribusiness Precinct			
Outside Station Precinct	Enterprise/ Agribusiness Zone	\$200,000	Not applicable
Source: Atlas			

Table 5.3: Summary of Contributions Tolerance, Initial Precincts

Impact of a SIC

The testing outcomes affirm that development at higher densities are currently less attractive than lower densities. This is because the market prices do not as yet offset the higher costs associated with taller buildings.

In the longer-term as the market matures and demand for higher density product translates into an economic price/ rent, higher density development will be viable.

Figure 5-1 illustrates the impact of payment of SIC on the value of land using a hypothetical example. The example assumes a cost of land at \$2.5 million.

In the example, if the value of a site for development to FSR 1.5:1 was \$9 million (with no SIC requirement), a SIC requirement could reduce the value of the site to \$7.5 million. This would leave a 'surplus value' of \$5 million over the \$2.5 million assumed cost of the land.

In a higher FSR example, the 'surplus value' would be greater than \$5 million.







Source: Atlas

5.2 Potential Special Infrastructure Contribution (SIC)

The outcomes of section 5.1 indicate there is capacity for new development to pay SICs in the Initial Precincts if there is underlying market demand for new development.

Increases in land values following the rezoning of land for urban uses and accessibility benefits expected from the WSA Metro network provide the capacity for development to contribute.

Notwithstanding, the feasibility and attractiveness of some development types in the Initial Precincts is expected to be challenging in the early years. Over time and as a critical mass of residents and workers starts to emerge, development momentum is expected to grow in a commensurate manner.

Land uses and development types in the Station Precincts are expected to be more dense and more compact than elsewhere in the Aerotropolis. Taller buildings and greater densities are facilitated through the planning framework.

It is therefore appropriate for the SIC framework to have regard to the higher densities and more intensive use of land that is expected in the Station Precincts. This however needs to be balanced against development feasibility considerations particularly in the early years post-rezoning of land.

Chapter 2 discussed the merits for different basis of charge for SICs. The Study's identification of a two-tiered approach in the Station Precincts recognises that capacity to contribute has a broad direct relationship with density. It also identifies the necessity to (as far as is possible), align SICs with the rate of market activity and capital investment.

An additional SIC charge in the Station Precincts recognises the value of the economic uplift that is associated with increased accessibility and agglomeration opportunities for business. Planned densities in the Station Precincts is also reflective of the opportunities that accessibility and agglomeration bring.

SIC Rates by Precinct

The Study notes that some development types respond to density and can be incentivised by higher density controls. However, not all land uses and locations lend themselves to dense development, e.g. industrial developments do not generally respond vertically to density due to vehicle loading/ circulation areas and requirement for hardstand areas.

Land uses and typologies in the Station Precincts are expected to be dense and more compact, and more responsive to density controls. These land uses also 'value' proximity to metro train services and mixed use activities and are accordingly expected to have a willingness to pay to be within the walking catchment of new stations.



Land uses further away from the Metro stations are expected to be less dense, with more generous carparking facilities and larger floorplates. Their capacity to contribute to infrastructure will be less. Development types that do not 'value' proximity to Metro train stations are expected to locate where land values would be cheaper due to lower permitted densities.

Aerotropolis Core and Badgerys Creek

Table 5.4 and **Table 5.5** summarise the level of tolerated SIC by zone and location inside and outside a Station Precinct in theAerotropolis Core/ Badgerys Creek through a sample of development types tested.

Table 5.4: Potential SIC, Aerotropolis Core/ Badgerys Creek (Station Precinct)

Description	Mixed Use Zone				Enterprise Zone
	Office Buildings	Office Buildings	Mixed Use	Residential Flat Buildings	Business Park
Notional Site Area (sqm)	2,000	2,000	2,000	2,000	2,000
Notional FSR	3.5:1	2.5:1	2.5:1	1.9:1	1.3:1
Gross Floor Area (sqm)	7,000	5,000	5,000	3,800	2,600
SIC Tier 1 (\$/ha NDA)	\$500,000	\$500,000	\$500,000	\$500,000	\$200,000
SIC Tier 2 (% cost of development)	2%	2%	2%	2%	1%

Source: Atlas

Table 5.5: Potential SIC, Aerotropolis Core/ Badgerys Creek (Outside Station Precinct)

Description	Enterprise Zone			
	Warehouse/Logistics	Warehouse	General Industrial	
Notional Site Area (sqm)	20,000	20,000	10,000	
Notional FSR	0.5:1	0.7:1	0.8:1	
Gross Floor Area (sqm)	10,000	14,000	8,000	
SIC Tier 1 (\$/ha NDA)	-	\$200,000	\$200,000	
SIC Tier 2 (% cost of development)	1	Not applicable		
C				

Source: Atlas

The assumption of local development contributions at 6.5% the cost of development places a limit on a SIC that could be charged, particularly for low density development (e.g. logistics/ warehouses, <FSR 0.5:1).

The permissibility of higher density development typologies assists to ameliorate the capacity to contribute to a SIC. Where application of the SIC rates results in development that is 'marginal to feasible', tolerance will improve over time as WSA and WSA Metro openings approach and commence operations.

Northern Gateway

Table 5.6 and **Table 5.7** summarise the level of tolerated SIC by zone and location inside and outside a Station Precinct in theNorthern Gateway through a sample of development types tested.

Due to lower assumed parking ratios, higher SICs are tolerated in the Northern Gateway. However, SICs similar to the Aerotropolis Core are suggested in the interest of consistency.

Table 5.6: Potential SIC, Northern Gateway (Station Precinct)

Description	Mixed Use Zone				
	Office Buildings	Office Buildings	Mixed Use	Residential Flat Buildings	
Notional Site Area (sqm)	2,000	2,000	2,000	2,000	
Notional FSR	3.0:1	1.8:1	1.8:1	1.8:1	
Gross Floor Area (sqm)	6,000	3,800	3,800	3,600	
SIC Tier 1 (\$/ha NDA)	\$500,000	\$500,000	\$500,000	\$500,000	
SIC Tier 2 (% cost of development)	2%	2%	2%	2%	
Source: Atlas	1				



Table 5.7: Potential SIC, Northern Gateway (Outside Station Precinct)

Description	Enterprise Zone			
	Warehouse/Logistics	Warehouse	General Industrial	
Notional Site Area (sqm)	20,000	20,000	10,000	
Notional FSR	0.5:1	0.7:1	0.8:1	
Gross Floor Area (sqm)	10,000	14,000	8,000	
SIC Tier 1 (\$/ha NDA)	-	\$200,000	\$200,000	
SIC Tier 2 (% cost of development)		Not applicable		

Source: Atlas

Similar to the Aerotropolis Core, the assumption of local development contributions at 6.5% the cost of development places a limit on a SIC that could be charged and particularly on low density development (e.g. logistics/ warehouses, <FSR 0.5:1).

Agribusiness Precinct

Table 5.8 summarises the level of tolerated SIC in the Agribusiness Precinct.

The zone objectives and permissibility of land uses in the planning framework are expected to result in cost of land in the Agribusiness precinct that is lower than in the Aerotropolis Core and Northern Gateway. This assists development capacity to contribute to a SIC.

Table 5.8: Potential SIC, Agribusiness Precinct

Description	Agribusiness/ Enterprise Zone			
	Warehouse/Logistics	Warehouse/Logistics		
Notional Site Area (sqm)	20,000	20,000		
Notional FSR	0.5:1	0.7:1		
Gross Floor Area (sqm)	10,000	14,000		
SIC Tier 1 (\$/ha NDA)	\$200,000	\$200,000		
SIC Tier 2 (% cost of development)	Not applicable			

Source: Atlas

Balancing Delivery of Development and Infrastructure

Section 2.3.3 identified the importance of striking a balance between requiring contributions to deliver infrastructure and delivery of development itself.

Not all development typologies in Station Precincts will be feasible to deliver from Day 1 and will occur in time as early movers and investment momentum builds concurrent with WSA and WSA Metro openings in 2026.

A two-tier approach in the Station Precincts will assist the important balancing of infrastructure cost-recovery against what is expected to be immature development and market conditions in the early years of rezoning. Investment in development will respond to deepening market demand, with SIC rates as a percentage cost of development aligning with market willingness to pay for new space.



HORSLEYPARK

PART C: MAMRE ROAD PRECINCT

KEMPS CREEK

BADGERYS

6. Strategic Context

6.1 Overview

The Mamre Road Precinct covers an area of some 999ha and is located within the Penrith LGA and some 12km southeast of the Penrith City Centre. The precinct includes large parts of the suburb of Kemps Creek as well as the north-western portion of Mount Vernon. The precinct is broadly bounded by the Erskine Park industrial area to the north, the residential areas of Mount Vernon and Cecil Park to the east, Wianamatta-South Creek to the south and Badgerys Creek and the Twin Waters Golf Estate to the west.

Similar to the rest of the Aerotropolis, the Mamre Road Precinct has historically been a peri-urban area characterised by a mix of rural residential and small-scale farming operations. Three schools (Trinity Primary School, Emmaus Catholic College and Mamre Christian College) and the Emmaus Retirement Village are situated in the north-eastern portion of the precinct.

Mamre Road serves as the primary access road and central spine of the precinct, with Bakers Lane connecting to Aldington Road and Abbotts Road connecting to the east of Mamre Road.

The Mamre Road precinct is less fragmented compared to other precincts within the Aerotropolis - there are just over 100 allotments across the precinct with a median lot size of just over 10ha. There are seven major landowners who control some 311.6ha of gross land area with sites ranging from 32ha to 118ha.

Figure 6.1 illustrates the formal boundaries of the Mamre Road precinct and nature of surrounding land uses.

Figure 6.1: Mamre Road Precinct



Source: Atlas



6.2 Planning Framework

The Mamre Road Precinct forms part of both the Western Sydney Employment Area (WSEA) and Western Sydney Aerotropolis. The WSEA is the largest industrial area in Greater Sydney at some 8,000ha and includes existing industrial precincts such as the suburbs of Erskine Park and Eastern Creek in addition to new precincts such as Huntingwood, Horsley Park, Kemps Creek, Minchinbury and Orchard Hills.

Whilst the precinct falls into both precincts, the State Environmental Planning Policy (Western Sydney Employment Area) 2009 (WSEA SEPP) is the principal planning policy which governs land use and development in Mamre Road.

Following an extensive period of precinct planning led by the NSW DPIE, the Mamre Road Precinct was formally rezoned under the WSEA SEPP in mid-2020. The rezoning facilitated:

- 848ha of industrial (IN1 General Industrial) zoned lands;
- 51ha of recreational (RE1 Public Recreation and RE2 Private Recreation) zoned lands;
- 73ha of environmentally protected (E2 Environmental Conservation) zoned lands; and,
- 27ha of roadways (SP2 Special Uses Classified Road).

The rezoning intends on facilitating capacity for up to 17,000 jobs (depending on the nature of development proposals) with a focus on freight and logistics uses. The rezoning supports the delivery of a potential future intermodal terminal to service the existing WSEA and Western Sydney Aerotropolis and provides protection for the Wianamatta-South Creek precinct.

Figure 6.2 illustrates the finalised Mamre Road Structure Plan.

Figure 6.2: Mamre Road Structure Plan





Proposed Density Controls

Density controls (building heights, FSRs) are not specified in the WSEA SEPP. Precinct-specific development control plans (DCPs) which contribute to masterplans for individual precincts outline the densities allowable across the WSEAs various precincts. A DCP for the Mamre Road Precinct is currently being prepared by DPIE in consultation with Penrith City Council which will outline the detailed design and density controls for development in the precinct.

It is understood that density controls are anticipated to be generally consistent with those observed in other precincts across WSEA. The recently finalised Oakdale East Development Control Plan (2019) applies to the Oakdale East Precinct immediately east of the Mamre Road Precinct and utilises site coverage, setback and building height controls to guide development. Maximum building height controls in the Oakdale East precinct range from 15m to 18m for general industrial and/or warehouse buildings and up to 25m for specialised development types.

Several landowners in the Mamre Road Precinct have commenced development planning for their respective sites – some of which have been progressed as State Significant Development applications (SSDA). An overview of a sample of SSDAs is provided in **Table 6.1**.

SDD	SSD-10479	SSD-10448
Site Area (ha)	72.00	56.30
GFA	374,630	274,475
Building Heights	1-2 storeys	1-2 storeys
Equiv. FSR	0.52	0.49
Typologies	13 warehouse buildings, each comprising a small component of mezzanine office space.	11 warehouse buildings with each comprising an upper level of mezzanine office space.

Table 6.1: State Significant Development Applications, Mamre Road Precinct

Source: DPIE (2020)

As shown in **Table 6.1**, landowners in the Mamre Road Precinct are actively pursuing warehouse and logistics developments with building heights ranging from 1-2 storeys with equivalent FSRs in the order of FSR 0.5:1.

6.3 Potential Special Infrastructure Contribution (SIC)

The Study understands that negotiations for VPA contributions are ongoing between DPIE and proponents in the Mamre Road Precinct - at a contributions rate of approximately \$200,000/ha NDA. The Study assumes a similar contributions rate will continue to apply, noting a draft s7.11 Development Contributions Plan is proposed to apply to the Mamre Road precinct.

If the proposed s7.11 rate of \$700,000/ha NDA were to apply, the capacity for development to pay a SIC would be adversely affected.



PART D: CONSIDERATIONS FOR IMPLEMENTATION

7.1 Tolerance to a SIC

Feasibility testing carried out in Chapter 5 has identified the capacity of development to contribute to SICs.

The analysis of development feasibility assumes:

- There is underlying market demand resulting from the coordinated approach by government to investment attraction and economic development.
- Early movers will help build critical mass and help 'seed' retail and local business services.
- Coordinated investment in place-making and public realm improvements particularly in the Station Precincts.

The analysis assumes that investment momentum will ultimately be self-perpetuating, with early movers and early government investment setting the scene for future investment.

Tolerance to a SIC varies by typology (a function of location), density, local contributions and the assumed cost of land.

• Land Use Zone and Typology

The Mixed Use zone is intended to provide for a greater range of land uses and development densities compared to the Enterprise zoning, including residential uses. This results in higher site values in the Mixed Use zone and therefore a greater capacity to contribute to a SIC. Feasibility results suggest potential SICs of:

- ° Mixed Use zone \$500,000/ha NDA
- ° Enterprise zone \$200,000/ha NDA
- ° Agribusiness zone \$200,000/ha NDA
- ° Industrial zone \$200,000/ha NDA

Station Precincts

Precinct planning envisages higher density uses in the Station Precincts. Land values are accordingly expected to respond to the permissibility of greater densities. Notwithstanding, market attitudes towards higher density will require time to mature and therefore higher density formats are not expected to be viable in the early years of rezoning.

The application of an additional charge (at a percentage on the cost of development) in the Station Precincts will align with capital investment in response to market demand as it occurs over time.

• Local Development Contributions

Draft development contributions plan are proposed to apply to the Initial Precincts and the Mamre Road precinct. Generic feasibility testing indicates 6.5% of cost of development effectively places a cap on a potential SIC and is better tolerated in areas where higher densities and higher order uses are permitted. Low density developments do not have the capacity to pay a SIC should local contributions be required at 6.5%.

The capacity of development to contribute is finite. Any increased requirement in one form of contributions will affect the capacity of development to pay other contributions.

The Study acknowledges that the proposed development contributions plan are in draft and following public comment will be subject to the approval of the Minister for Planning and Public Spaces.

Cost of Land

Land values in the Study Area have already begun to shift in accordance with envisaged land uses in the WSAP. The values of land will continue to adjust according to market demand and as planning certainty firms, with the release of draft precinct plans, development controls plans and development contributions plans. Since release of the draft WSAP, land values are observed to have increased as market participants began acquiring and consolidating sites in and around the Aerotropolis. Post-rezoning, land values are expected to further increase. The further increase in land values will ameliorate the impact of SIC requirements on development feasibility.



7.2 Feasibility and Likely Delivery Horizon

In a greenfield environment such as the Study Area, the issue of development feasibility is often more a question of 'when' than 'if'. When development will be feasible and the pace of development will depend on the depth of market demand.

Table 7.1 considers the triggers that underpin the feasibility of land uses and development typologies and concludes a feasibility horizon based on the findings of generic feasibility testing. The delivery of certain land use and development typologies will be dependent on foundation/ investment partner commitments secured by the WPCA IAO. These are indicated by 'Y*' in **Table 7.1**.

Understanding the likely timeframe for development 'coming online' will be important for DPIE in gauging the timing of securing infrastructure funding for the Aerotropolis over the coming decades.

Land Use	Potential Development Typology	FSR	Feasible on Opening?*	Commencing Delivery Horizon^
Commercial				
Low rise	Commercial/warehouses	1:1 to 1.3:1	Y*	0-5 years
Low to mid rise	Commercial buildings	1.3:1 to 1.5:1	Y*	0-5 years
Low to mid rise	Commercial buildings	2.0:1 to 2.5:1	Y*	5-10 years
Mid to high rise	Office buildings	2.5:1 to 3.5:1	N	15 years+
Industrial				
Transport and Logistics	High clearance warehouses and distribution centres	0.5:1 to 0.8:1	Y	0-5 years
General industrial	High clearance warehousesManufacturing facilities	0.5:1 to 0.8:1	Y	0-5 years
Light Industrial/	Freestanding workshops	0.6:1 to 0.8:1	N	5-10 years
Service Industrial	Strata-titled industrial suites	1.0:1	Ν	5-10 years
Residential				
Medium density	• 'Walk up' multi-dwellings	1.0:1 to 1.3:1	Y	0-5 years
Higher density	Residential flat buildings	2.0:1 to 3.0:1	Ν	5-15 years
Higher density	Mixed use development	2.0:1 to 3.0:1	Ν	5-15 years
Retail and Hospitality				
Supermarket and Speciality Retail	Strip retail	1.0:1	N	5-15 years
	Shopping centres	1.5:1 to 2.5:1	Ν	5-15 years
Hotels, Pubs, Serviced Apartments	• Mixed use commercial buildings	2.5:1 to 3.5:1	Ν	5-15 years
Institutional and Special Use				
Education and Health Facilities	Standalone buildings	1.5:1 to 2.5:1	Y*	5-15 years
	• Mixed use commercial buildings	1.5:1 to 2.5:1	Y*	5-15 years
Arts and Cultural Centres	Standalone buildings	1.5:1 to 2.5:1	Y*	5-15 years
	• Mixed use commercial buildings	1.5:1 to 2.5:1	Y*	5-15 years

Table 7.1: Development	Typologies and Potential Delivery	Timeframes
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Y= Yes, N = No, Y* = Yes subject to investment partner commitments

*Opening assumed at 2026 (coinciding with opening of Western Sydney Airport)

^Commencing delivery horizon timeframes quoted from opening year 2026 Source: Atlas



7.3 Key Issues

There are a number of issues that warrant consideration in the implementation of a SIC in the Study Area.

7.3.1 Impact of COVID-19

The full repercussions resulting from the COVID-19 induced recession on Australian property markets is still unknown. Some impacts are already directly observable and quantifiable. The longer-term implications for many sectors remain uncertain. Forced work at home practices necessitated could see large numbers of occupiers reassessing their floorspace requirements moving forward, having implications for the office sector.

These structural and market cycles such as those currently playing out in the wake of COVID-19 will influence the capacity of certain uses to pay a SIC in the short-term.

Deferral of SIC payments (in line with current SIC policy) could be considered.

7.3.2 Other Contribution Requirements

The capacity of an upzoned development site to contribute to items of public benefit (i.e. SICs, s7.12 contributions, affordable housing, VPAs) is finite. The Study is predicated on a number of assumptions. These key assumptions include:

- Assumption of s7.12 local contributions at 6.5% cost of development in the Initial Precincts and s7.11 local contributions at \$700/ha NDA in Mamre Road precinct.
- Affordable housing contributions will only be required from residential uses; assumed in the longer term when higher density residential formats are viable.
- Parking requirements are assumed at current DCP standards, acknowledging that new parking requirements could apply in the future.

Should any of these assumptions change, the assessed SIC rates could be subject to change.

7.3.3 Typologies and Land Uses

The coordinated infrastructure investment and commitment by all tiers of government to the Western Sydney Aerotropolis and the Western Parkland City is important as it underpins industry and market confidence in its potential as a growth area.

As property markets in the Aerotropolis emerge and start to establish post-rezoning of land, it is important for implementation of infrastructure contributions to be in a considered manner.

The land uses envisaged in the Aerotropolis SEPP are broad, with commercial development typologies permissible in both the Mixed Use and Enterprise zones. Despite this, those land uses and development typologies that 'value' proximity to metro stations are expected to seek out locations within the walking catchment of new stations (i.e. within the Station Precincts) and be willing to pay for the opportunity.

Industrial uses do not generally 'value' passenger train services, typically locating along motorways and main arterial roads that provide direct truck and vehicular access. The Mamre Road Precinct and areas outside Station Precincts in the Initial Precincts that satisfy access and land requirements are expected to appeal to these industrial uses.

The land requirements and ability to respond to density is different between land uses. The capacity of different land uses to contribute will therefore invariably differ. The basis of charge for SICs should appropriately recognise and have regard to these nuances between land uses and development typologies.

Over time, as the Aerotropolis establishes as a market in its own right and the depth of market demand is self-perpetuating, higher density and more intensive forms of development will emerge at large scale. It will be prudent to review the basis of charge to ensure infrastructure demand and deliverability is balanced with viable cost recovery from development.

Draft precinct plans identify the spatial distribution of land uses and densities, focusing more intensive activity in Station Precincts and in proximity to future Metro stations. It is appropriate that a SIC framework supports the spatial distribution of land uses to ensure that development opportunity is preserved for more intensive uses to establish over time.



7.4 Transitional Arrangements

7.4.1 Timing

Advance notice to the market will be important to ensure that land acquisition activity and due diligence investigations by investors and developers account for statutory contributions requirements.

Concessions could be considered to induce early and strategic investment that would result in significant activation of the Station Precincts and have flow-on implications for development momentum. This is important, as development and take-up of land use opportunities are self-perpetuating. The location of more businesses in a precinct will enable the provision of more local retail and business services, and therefore enabling development momentum to grow.

7.4.2 Monitoring and Review

It will be critical for the SIC framework to be subject to regular review. This will ensure SIC rates are within market tolerance but also ensure the basis of charge represents a reasonable proxy for cost recovery of infrastructure. As the Aerotropolis matures and development momentum grows, it will be necessary to ensure market demand is (as far as is possible), aligned to infrastructure provision and cost recovery.

7.4.3 Next Steps

The Study outcomes and recommendations could be subject to change once the rest of the planning framework (Stage 2 DCPs) and local contributions framework are finalised.

The Study recommends a review of findings and outcomes once precinct plans and Stage 2 DCPs are in their final form.



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Schedules

SCHEDULE 1

Market Appraisal

Land Uses

The WSAP and Aerotropolis SEPP outline the various land uses to be prohibited and encouraged within each land use zone. Whilst the proposed uses in the Study Area are yet to be finalised, the broad land use categories envisaged include:

- Commercial and office;
- Retail;
- Mixed-use (shop top) and residential;
- Industrial and business park, including logistics and warehousing;
- Educational, civic and community.

The trends and drivers, market dynamics and competitive context of these respective uses are discussed in turn.

It is at this stage a distinction between market and non-market uses is required. Land uses such as residential, commercial and industrial are what can be described as 'market uses' – they operate in established markets with a variety of market participants. Analysis of market activity can be undertaken to observe the dynamics of demand and supply and market behaviour within specific areas.

In contrast, 'non-market uses' refer to uses that are typically of an institutional nature. There may be only a small number of participants, or the land use may be heavily regulated and/or subject to government policy and funding. Examples include museums and stadiums, hospitals, civic and community buildings and educational establishments (primary/ high schools, vocational establishments and universities).

This Study examines the potential for market uses to be accommodated within development in the Study Area.

General Market Conditions

A variety of macroeconomic and more local market trends will influence demand and take-up of different land uses across the Aerotropolis over the coming decades. An overview of general market conditions of each land use is undertaken below.

Commercial and Office

Investment in the commercial office sector has continued to be buoyed by low interest rates, supporting further market interest as investors (both domestic and foreign) search for low risk and moderate yielding assets.

Greater Sydney's commercial office market performed strongly over the course of 2019. Historically low vacancy rates, rising rents and limited new net supply in the Sydney CBD has led to more businesses considering alternative locations in Sydney's fringe and suburban markets. Furthermore, the significant infrastructure and business investment in Western Sydney has continued to draw more occupiers to suburban markets such as Parramatta, Liverpool and Sydney Olympic Park.

The Western Sydney office market is broad, encompassing the various sub-markets such as the North West³, West⁴ and South West⁵. There are no CBD or major office markets west of Parramatta, the largest of these being Norwest/ Bella Vista (~280,000sqm of office floorspace) and Liverpool (~270,000sqm of office floorspace).

Market conditions across these markets has been mixed over the past 12-18 months. Persistent low vacancy levels and rising rents in the Parramatta CBD have continued to drive demand further west as price-conscious occupiers move into markets such as Norwest, Bankstown and Liverpool where there is more affordable supply.

Markets further west such as Blacktown and Penrith have yet to capture much of this spillover demand, given their limited market profile, distance from key labour markets and the volume of new speculative supply delivered across Liverpool and Bankstown still being absorbed.



³ Norwest/Bella Vista, Baulkham Hills and Castle Hill

⁴ Penrith and Blacktown

⁵ Liverpool and Bankstown

Retail

Australia's traditional 'bricks and mortar' retail sector has been facing headwinds for the greater part of the past decade as weak wage growth and growing housing costs have placed pressure on consumer spending patterns. The continued growth of online retailing has also placed significant pressure on bricks and mortar retail, with many local retailers failing to compete. Non-discretionary retailers have been less impacted by these trends, with the major supermarkets recording strong growth over the past 3-4 years in response to sustained population growth.

Enclosed shopping centres across Greater Sydney had been experiencing decline in turnover and rentals in the 12 months to Q4 2019, with most major landlords reporting negative re-leasing transactions throughout the quarter.

Further, the retail sector is facing a challenging period following the onset of the COVID-19 pandemic and subsequent shutdowns. Recent ABS data has showed retail turnover grew markedly in recent months, underpinned by turnover growth in food retailing and household goods retailing. Discretionary forms of retailing have fallen sharply by contrast, with retail turnover in cafes and restaurants and clothing down by over 20%.

The fallout of the COVID-19 shutdowns in the retail sector will likely be firstly observed in a resetting of fixed annual increases in retail rents. The Federal Government's policy on commercial leasing is expected to place pressure on returns for landlords for the remainder of 2020. Vacancies are expected to increase over the coming 12 months, notwithstanding their historically high levels in enclosed centres at around 2.5% prior to the outbreak.

Non-discretionary retail assets are expected to remain highly attractive to investors, particularly in prime locations, as these have historically represented a safe investment haven from broader economic downturns.

Mixed-Use and Residential

In line with the broader Greater Sydney area, the Western Sydney residential market witnessed phenomenal growth over the good part of the last decade. Over the five years to Q1 2019, all LGAs within the Western City District have recorded median house price growth well above the Greater Sydney average.

Affordability is the primary driver in the Western Sydney market, though significant infrastructure investment has also fuelled purchaser interest (particularly in the North West and South West Growth Areas). The issue of affordability is driving market demand for medium density typologies (townhouses and low-rise apartments), particularly around train stations and in high retail/ urban amenity areas where existing housing values are high.

Comparatively, market demand for higher-density housing in Sydney's outer west remains modest given the availability and relative affordability of low and medium-density housing options. The 'trade off' value associated with smaller housing typologies (i.e. apartments) is not yet sufficient enough to elicit a major shift in purchaser preferences. For instance, if a 3-bedroom detached dwelling is available for \$800,000, it is unlikely a 3-bedroom unit will yet be able to achieve similar pricing.

Whilst there are examples of new apartment development being progressed in the outer west (e.g. Edmondson Park, Oran Park, Rouse Hill), there success is underpinned by proximity to new and/or established retail centres and transport infrastructure. Overall, the value proposition of low and medium-density housing compared to higher-density formats remains more compelling for most buyers in Sydney's outer west.

Industrial

Greater Sydney's industrial market has performed strongly over the past 24 months, buoyed by strong growth in the logistics and e-commerce sectors coupled with strong population growth demanding urban services. This has coincided with historic supply pressures, resulting in fierce competition for industrial property and strong rental and land value appreciation.

Whilst the economic repercussions of COVID-19 and resultant recession being felt across Australia make the outlook for many property sectors uncertain, market conditions in the industrial sector are expected to remain strong due to:

- Large scale transport infrastructure projects underway and in the pipeline stimulating industrial activity.
- Further uptake in the use of e-commerce platforms by consumers and businesses, driving demand for freight and logistics. This trend is expected to be exacerbated in a post-COVID economy.
- Stable population growth across Greater Sydney driving demand for urban services which meet local population needs (e.g. waste recycling, automotive services, utilities, small scale manufacturing).



- Further growth in internet usage driving demand for data storage in large, purpose-built facilities (i.e. data centres).
- Major new industrial land releases and development activity in Western Sydney, particularly the Outer West.

These strong tailwinds have resulted in significant investment interest into industrial assets across Greater Sydney in recent years, as institutional investors and real estate trusts seek to increase their exposure to the industrial sector (predominantly freight and logistics). This investment focus is expected to continue and strengthen over the short-term.

Impact of COVID-19

The economic impact of the COVID-19 outbreak on the Australian economy cannot be understated. The COVID-19 pandemic is causing the largest contraction in domestic economic activity since the Great Depression, with the Australian economy experiencing its largest quarterly fall on record in Q2 2020 by 7% (Commonwealth of Australia, 2020).

Unlike recessions of previous decades where economic impacts were widespread and affected all industries, the COVID-19induced recession is unique in that its impact is being felt differently across sectors. Whilst some industries have been significantly impacted due to operating restrictions (i.e. aviation, hospitality), others have experienced a marked uptick in demand (freight and logistics, grocery retailing, health care, etc).

Forecasts by the Commonwealth Treasury indicate Australia's domestic economy is expected to face historically soft conditions over the coming two years to 2021/22⁶. Key forecasts include:

- **Population growth** is expected to slow considerably, falling from 1.4% in 2018-19 to 1.2% in 2019-20 and just 0.6% in 2020-2021, reflecting the lowest rate of annual growth since 1916-17. This is expected to be driven by a fall in fertility rates and a dramatic decline in net overseas migration. Future migration levels remain uncertain over the short-term.
- **Unemployment** is forecast to continue to rise, reaching 9.25% in Q4 2020 before declining to around 8.75% over the course of 2020/21. Unemployment is expected to remain stubbornly high over the short to medium term as has historically been observed in previous recessions.
- Household consumption will fall by 1.25% in 2020/21, reflecting the impacts of containment measures with significant declines in incomes, wealth and consumer confidence and consumer spending.
- New business investment (non-mining) is forecasted to decline by 25.5% in 2020-21 as businesses seek to preserve cash in times of high uncertainty. Business solvency is also identified as a key risk given around two thirds of businesses have reported falls in revenue. Dwelling investment is also forecasted to decline significantly, falling by 16% in 2020-21 following cancellations and delays in residential development.

A full list of these forecasts carried out by the Commonwealth Treasury are appended to this report at Appendix 3.

Impact on Property Markets

The full impact of the COVID-19 induced recession across Australia's various property markets is still playing out. Similar to its impact on major industries, the impact of COVID-19 on key property markets/sectors differs markedly.

For instance, significant growth in online retailing has resulted in a major uptick in demand for industrial property, whilst sales and leasing activity in the traditional retail sector has declined significantly.

A brief overview of the potential impacts of COVID-19 on the major property sectors expected to be observed in the Aerotropolis is provided overleaf in Table 1.1.

⁶ As economic impacts resulting from the COVID-19 induced recession are changing weekly, any forecasts are almost certainly out of date when they are released. These forecasts were the latest available at the time of writing.





Source: Atlas

⁷ Dark warehouses automate material processing and handling, making use of robots and pickers. The involvement of workers is reduced. ⁸ Dark kitchens are commercial kitchens where food preparation occurs solely for the purpose of home delivery.



Market Activity

This section carries out an overview of market activity in each of the key sectors expected in the Study Area using an analysis of comparable precincts. The findings of this analysis is used to inform the feasibility modelling.

Commercial

The closest office markets proximate the Aerotropolis are those of Penrith (9km north of the Northern Gateway) and Liverpool (16km east of the Aerotropolis Core). These markets are examined to gauge the likely price points achievable for new office accommodation in the Aerotropolis.

Penrith City Centre

The **Penrith** office market is relatively small, comprising some 100,000sqm of office floorspace with half a dozen low rise office buildings comprising the majority of investment grade office space. The market is underpinned by a mix of government occupiers, non-government organisations (NGOs) and social services providers.

Office rents in the Penrith City Centre are amongst the most affordable in Western Sydney with A-grade gross face rents typically ranging from \$300/sqm to \$350/sqm of net lettable area. These rates have remained largely unchanged since 2017, a reflection of limited new modern stock brought to market and modest levels of demand. Very few leasing deals have been observed over the past 12 months due to a lack of supply – the majority of available stock being small (sub-100sqm) strata-titled suites. Anecdotal evidence from local leasing agents suggests vacancies are sub-5% following a fall in available stock in early 2019 where vacancies were recorded at over 6% (Knight Frank, 2019).

Similar to the leasing market, limited commercial office sales activity has been observed in the Penrith City Centre - most sales being of older style buildings acquired for mixed-use redevelopment.

There are two DA approved office developments currently in the pipeline, comprising some 16,000sqm of office floorspace which could be delivered in the coming 2-3 years. These include:

- **46-50 Belmore Street**: a proposed 8-storey office building with ground floor retail space and seven levels of commercial office space comprising 10,400sqm. The site was purchased by a local developer in mid-2017 for around \$4,093,375, equating to just over \$350/sqm of proposed GFA.
- **304-306 High Street**: a proposed 6-storey office building with ground floor retail space and five office levels totalling 4,175sqm of office floorspace. Pre-leasing has commenced with asking gross rents of circa \$350/sqm to \$400/sqm of floor area.

Liverpool City Centre

Compared to the Penrith City Centre, **Liverpool** is a much larger and more established office market. Underpinned by a large cluster of government, health and NGO occupiers, the Liverpool City Centre is emerging as a tertiary education hub with several university campuses being established within the centre.

Office rents in the Liverpool City Centre have been steadily growing over the past two years with A-grade gross face office rents currently recorded in the order of \$420/sqm of floor area (Ray White Commercial, 2019). Liverpool has capitalised from tight market conditions in the Parramatta CBD where vacancy levels have been at historic lows, capturing spillover demand from a range of industries. The office vacancy rate was recorded at just under 8% in late-2019, though A-grade stock recorded a much lower rate of 4.5% (Ray White Commercial, 2019).

Sales activity has also been much stronger in the Liverpool City Centre compared to Penrith as investors and developers seek to capitalise on strong tenant demand and proximity to the future WSA. The largest sale in recent years has been that of 211 Northumberland Street in February 2020 for \$52.5 million. The 4-storey office building tenanted by Centrelink sold on a yield of 6.6% with the sale analysing to \$6,800/sqm of floor area. Whilst it is understood that the site is likely to be developed in the medium term, this sale is reflective of the level of confidence in Liverpool's commercial market.

There is a significant amount of office development in the pipeline as developers seek to capitalise on favourable market conditions. There are several office developments currently planned for delivery across the Liverpool City (ranging from 7 to 26 storeys) with the potential for over 100,000sqm of office space, further transforming Liverpool's market profile as it transitions to a major office market.



Some of the office pipeline development includes:

- **431 Macquarie Street:** a proposed 26-storey office building to comprise just over 11,000sqm of retail floorspace, a new civic art centre and 38,400sqm of commercial office floorspace. The site was purchased by a local developer for \$19m in March 2018, equating to circa \$380/sqm of proposed GFA.
- **277 Bigge Street and 11-23 Scott Street:** a series of low-rise commercial buildings and heritage-listed hotel progressively acquired over early 2018 to mid-2019 for approximately \$19,070,000 for construction of a 23-storey office tower comprising 24,233sqm of office floorspace and refurbishment of the existing hotel. This equates to just under \$500/sqm of proposed GFA.

Commercial rents and development site sale values observed in the Penrith and Liverpool City Centres provide a gauge for those expected to be initially achieved in the Aerotropolis.

Expectant rents and site values for the Aerotropolis are likely to closely align with those achieved in the Liverpool City Centre - gross office rents from \$400/sqm of floor area and site values in the order of \$350/sqm to \$500/sqm of potential floor area.

Mixed-Use and High-Density Residential

As a greenfield area, the Aerotropolis is expected to compete with Greater Sydney's other greenfield housing precincts, particularly the South West Growth Area and to a lesser extent the North West Growth Area.

Located immediately south of the Aerotropolis, the South West Growth Area (SWGA) comprises some 14 individual precincts and stretches across most of the Camden LGA with some precincts also falling within the Liverpool and Campbelltown LGAs. Initial planning identified a total planned supply of around **108,000 dwellings** across the SWGA upon buildout. With around 18,000 dwellings completed to date, the SWGA will remain a major source of new housing supply over the coming decades.

Demand for detached housing product is enduring in the SWGA; buyers (particularly First Home Buyers) showing a preference for detached housing irrespective of lot size. For instance, buying activity at Oran Park Town shows buyers have preferred small detached houses as opposed to equally sized attached (townhouse) product. That said, the market for attached housing is growing given the fragility of housing affordability in the SWGA.

Greater Sydney's other major greenfield area – the North West Growth Area (NWGA) – is located some 15km to the north of Aerotropolis. Comprising some 16 individual precincts, the NWGA has potential for some 84,000 dwellings upon buildout. Similar to the SWGA, only a fraction of these have been delivered to date at some 13,000 (DPIE, 2020).

Market acceptance for medium and high-density housing in the NWGA is greater than that witnessed in the SWGA – this being a reflection of the higher prices achieved for low-density product which is driving a greater affordability shift. That said, apartment developments in some of the NWGA's precincts (e.g. Schofields, Rouse Hill) have still experienced lengthy marketing periods given the still modest market for higher density living.

Emerging High-Density Typologies

Edmondson Park and Leppington are the only sub-markets in the SWGA which have progressed marketing for high-density housing. Whilst several smaller projects in Leppington have been marketed over the course of 2016-2017, the largest apartment project to date has been the mixed-use development 'Ed Square' in Edmondson Park.

'Ed Square' is a mixed-use development comprising 992 apartments and 892 terrace/town-homes directly opposite the Edmondson Park train station. The retail component at Ed. Square is set to be significant with 25,000sqm of retail floorspace comprising a full-line supermarket, 'eat street' dining precinct and cinema complex. Stage 1 (367 units and town-homes) of the development sold over the course of 2019 and attracted a mix of interest from FHBs, international investors and downsizers. Stage 2 is currently being marketed with a mix of apartments and town homes.

Prices achieved have been strong; one-bedroom apartments have achieved prices from \$490,000 to \$530,000 whilst twobedroom apartments have achieved prices from \$600,000 to \$680,000. One-bedroom town homes have achieved prices from \$560,000 whereas two and three-bedroom town homes have ranged from \$675,000 to \$730,000. Given these prices are comparable and, in some instances, *greater* than prices for house and land packages in many land estates across the SWGA, it is testament to the growing acceptance of higher-density housing. Critically however, these strong prices reflect the high amenity offering that will offered on-site and the close proximity to an existing train station.



High-density residential site values across the SWGA typically range from \$400/sqm to \$800/sqm of GFA potential. For instance, 35 Ingleburn Road, Leppington sold for some \$4.5m in January 2020 with the vacant site to be developed into 3 low rise residential flat buildings comprising 82 apartments. This sale equates to a sales rate of some \$675/sqm of GFA potential.

Slightly higher sale rates for high-density residential development opportunities are observed in the NWGA, reflective of the stronger price points achieved for apartment product therein. For instance, several recent sales in Rouse Hill and Marsden Park have achieved sale rates ranging from \$400/sqm to \$1,200/sqm of GFA potential.

The sale prices achieved for new apartment product and development opportunities in the SWGA are considered most comparable for those which could be initially expected in the Aerotropolis. The 'Ed. Square' development is a particularly comparable example.

As the Aerotropolis establishes a market profile and market demand for higher density living deepens, it is expected prices will increase in line with those currently observed in the NWGA (i.e. Rouse Hill).

Industrial

The Aerotropolis falls within the broader Western Sydney industrial market, specifically the Outer Central West⁹ (JLL, 2020). The strength of Greater Sydney's industrial market has been widely commented on as a combination of demand and supplyside factors have cumulatively resulted in rental and land value appreciation, falling incentives and yield compression.

The industrial precincts of Eastern Creek and Erskine Park are the closest established industrial precincts to the Aerotropolis. These precincts have recorded strong market and development activity over the past 3-4 years given their proximity to the M4 Motorway and availability of large, serviced blocks. Retail traders and freight and logistic operators have been particularly drawn to these precincts. The ongoing development of the Oakdale Industrial Estate in Kemps Creek (just north of the Aerotropolis) is considered a prime example of the forms of industrial developed initially expected in the Aerotropolis.

Rents for large warehouses and distribution centres (i.e. >20,000sqm in floor area) in these precincts typically range from \$110/sqm to \$120/sqm of floor area (gross). For instance, logistics operator Linfox secured a 21,000sqm warehouse in Erskine Park in mid-2019 for \$122/sqm of floor area (net). Smaller warehouses (1,000sqm to 3,000sqm floor area) achieve rents analysing from \$130/sqm to \$140/sqm of floor area, with small industrial suites (sub-1,000sqm) achieving gross rents of up to \$160/sqm of floor area.

Industrial land values across Eastern Creek, Kemps Creek and Erskine Park typically align with those observed in the broader Outer Central West industrial market, with sites from 1ha to 5ha ranging from \$675/sqm to \$725/sqm of site area. For instance, a small industrial site (2.46ha) at 13 Wonderland Drive in Eastern Creek sold in late-2019 for \$17.2 million, analysing to \$700/sqm of site area.

Larger industrial sites expectedly achieve lower sale rates when analysed on a dollar per square metre basis. Analysis of site sales across the Outer West in excess of 5ha are indicative of land values ranging from \$200/sqm to \$400/sqm of site area.

Rents and land values observed in the neighbouring industrial precincts of Kemps Creek, Eastern Creek and Erskine Park are considered directly comparable to those expected to be achieved for new industrial product in the Aerotropolis.

The proximity of the Aerotropolis to the WSA and new road infrastructure (M12 Motorway, Outer Sydney Orbital) will likely over time see premium prices emerge in the Aerotropolis.

Competitive Context

Market activity in the Aerotropolis does not occur in a vacuum. Occupiers and investors are expected to consider other opportunities across Greater Sydney while evaluating investment opportunities in the Aerotropolis. Capital is mobile and will gravitate to the investment that provides the most return for the assumed risk.

The competitive context of different land uses in unique as are the challenges and opportunities for different land uses in the Aerotropolis. Understanding the competitive context of different land uses in the Aerotropolis is critical when assessing the likely take-up of development opportunities in the initial precincts and Study Area.

⁹ The Outer West Industrial Market (as defined by JLL) comprises the industrial precincts of Eastern Creek, Erskine Park, Michinbury, Wetherill Park, Arndell Park, Moorebank, Smithfield, North Penrith, St Marys, Glendenning and Jamisontown.



Commercial

The Liverpool and Penrith City Centres are expected to be the primary competitors for future commercial and business park development in the Aerotropolis over the coming decade. The Liverpool City Centre in particular will compete with the Aerotropolis for occupier and investor interest with some 100,000sqm of commercial floorspace expected.

A SWOT analysis of the commercial office prospects of the Study Area is carried out in Table S1.2.

Table S1.2: SWOT Analysis, Commercial Office Development in Aerotropolis

Strengths	Weaknesses
Proximity to the WSA	Distance from major knowledge worker labour markets and
New public transport infrastructure Large lot sizes to accommodative to 'campus' style office buildings Significant public and private investment momentum Whole-of-government focus on supporting the Aerotropolis	executive beit
	Lack of direct rail access – will require interchange at St Marys or modal change at Liverpool
	Time to build brand and market profile
	Limited existing north-south linkages with the NWGA and SWGA $% \mathcal{W}_{\mathcal{W}}$
Opportunities	Threats
Leverage proximity and relationship with university sector	Growth of Liverpool, Parramatta and Norwest
Large skilled labour pools in the NWGA and SWGA	Entrenchment of home-working post COVID-19
Major occupiers will attract clustering of similar industries	Certain industrial uses can detract from the attractiveness of a
Greenfield development which can be curated for high amenity	commercial precinct
Build upon growing commercial profile of Liverpool City Centre	Major companies and institutions do not follow through on MOUs

Source: Atlas

Commercial development in the Aerotropolis will be challenging on many fronts though the Aerotropolis does benefit from:

- Significant level of infrastructure investment, including a new metro rail line;
- Active investment attraction programme being coordinated by the Investment Attraction Office;
- Proximity to a significant future resident population;
- Greenfield development opportunities which can be curated for high amenity.

High-Density Residential

Ongoing greenfield development in the SWGA coupled with future development expected in the Greater Penrith to Eastern Creek Investigation Area (upon rezoning and release) will be the primary competitors for residential development in the Aerotropolis. There is significant remaining planning capacity in both precincts; there is a remaining planned supply of just over 90,000 dwellings in the SWGA whilst the GPECIA is identified as having capacity for some 61,000 dwellings¹⁰.

From a precinct-specific lens, the areas of South Creek West (30,000 potential dwellings) and Lowes Creek Marylands (just under 7,000 dwellings) are expected to be the primary competitors of the initial precincts in the short to medium-term. Both precincts are held in majority ownership with precinct planning well advanced.

A SWOT analysis of residential uses in the Study Area is carried out in Table S1.3.

Table S1.3: SWOT Analysis, Residential Development in Aerotropolis

Strengths	Weaknesses		
New public transport infrastructure	Proximity to the WSA and associated aircraft noise		
Proximity to major employment opportunities	Distance from major retail centres		
Proximity to vocational and tertiary education facilities	Limited starting employment opportunities		
Opportunities	Threats		
Greenfield development which can be curated and of high-amenity	Further releases in growth areas to the north and south		
Strong environmental endowments lend themselves to 'green' lifestyle	Softer population growth in the short to medium term		

Source: Atlas



¹⁰ Based on the 17 individual release areas and urban renewal precincts within the GPECIA.

The viability of high-density residential development in the Aerotropolis will take time to emerge. Importantly, the fundamental requirements for such uses are apparent, including:

- New metro rail infrastructure providing a high-level of accessibility to other centres across Western Sydney;
- Proximity to significant employment opportunities in the Aerotropolis (at build-out);
- Large landholdings providing the ability for astute master planning and development staging;
- Significant planned green and urban amenity.

Industrial

Established and emerging industrial precincts surround the Study Area and will compete for occupier interest and investment. Competition in the short-term will be largely influenced by the remaining quantum of serviced and zoned industrial land in these neighbouring precincts. Of key competing precincts identified¹¹, there is some 319ha of zoned and serviced industrial land which will compete with the Aerotropolis in the short-term.

Over the longer term, these competing precincts collectively comprise over 1,150ha of zoned unserviced industrial land. The timing and cost of carrying out servicing in these precincts will affect the competitiveness of these precincts. In addition, there are numerous other industrial precincts in the pipeline. The largest of these precincts is the Western Sydney Employment Area¹² (218ha) immediately north of the Aerotropolis.

Additionally, Camden Council are investigating the potential for employment corridors on the southern border of the Aerotropolis along The Northern Road and Bringelly Road. Furthermore, the Study Area will also *to an extent* compete with the recently rezoned Mamre Road precinct *within* the Aerotropolis, which comprises some 780ha of industrial land.

It is important to recognise that until the Aerotropolis begins to reach a critical mass of residents, the Study Area will only generally attract large floorplate industrial users (freight and logistics, transport-based businesses). Smaller, urban services type operators will not likely seek accommodation in the Aerotropolis until a significant local population has been established that will sustain local service-based industrial users.

Despite the significant volume of competitor industrial precincts nearby, the Aerotropolis has several distinct advantages:

- Proximity to the WSA will naturally drive demand from freight and logistics operators with air freight synergies.
- A natural location for industrial uses to service construction activity in the SWGA and NWGA.
- Accessibility to the future Outer Sydney Orbital will be a major drawcard for freight and logistics operators.
- Access to the large labour pool via the Sydney Metro WSA and FAST busway corridor.
- Land affordability and availability of large land parcels.
- High level of amenity facilitated through the precinct planning process.

Accordingly, industrial uses are expected to be the 'first movers' in the Aerotropolis and will compete strongly with neighbouring precincts.

¹¹ Competing precincts identified included Moorebank and Moorebank Defence Lands, Ropes Creek, Eastern Creek and Former Wonderland, South of Sydney Water Pipeline Employment Area, Erskine Park, Mamre West and WSEA (North), Huntingwood and Arndell Park, Yarunga/Prestons and Marsden Park.
¹² Area outside the formal Aerotropolis boundary.



Implications for Study Area

The foregoing market analysis provides the gauge for the level of market demand and potential price points for various land uses expected in the Study Area. Market findings will be applied in the feasibility modelling undertaken to assess the capacity of development to tolerate a SIC.

Table S1.4 provides a summary of analysed site values in markets considered broadly comparable to the Study Area.

Table S1.4 Summary	of Analy	sed Site V	alues in Cor	nparable N	Aarkets
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Broad Land Use	Site Values (\$/sqm GFA)		Comments	
Categories Low		High		
Commercial	\$400	\$500	Commercial site values will be broadly comparable to those observed in the Liverpool City Centre and may achieve premiums as the profile of the Aerotropolis grows and solidifies.	
High Density Residential	\$400	\$800	High-density residential and shop top housing site values will broadly align with those observed in the neighbouring SWGA.	
Industrial (>5ha)	\$200/sqm site area	\$400/sqm site area	Industrial site values will likely be in line with those observed in the	
Industrial (1-5ha)	\$600/sqm site area	\$800/sqm site area	⁻ broader Outer West region with the potential for premiums given proximity to new road infrastructure and the WSA.	

Source: Atlas

Key findings from the market analysis include:

Commercial Land Uses

- The Liverpool City Centre, and to a lesser degree the Penrith City Centre, are expected to be the Aerotropolis' main competitors from a commercial office market perspective.
- Rents and site values achieved in the Liverpool City Centre are likely gauge for that likely to be observed in the Aerotropolis, with rents from \$400/sqm of floor area and site values from \$350/sqm to \$500/sqm of GFA potential.
- Significant commercial development planned in the Liverpool City Centre will compete with the Aerotropolis for occupier and investor interest, particularly over the short-term in the lead-up to the completion of the WSA in 2026.

Mixed Use and High-Density Residential Land Uses

- The South West Growth Area will primarily compete with the Aerotropolis for housing demand.
- Market appetite for high-density residential uses (i.e. apartments) across the South-West remains modest given the value proposition provided by low and medium-density typologies.
- Apartment prices achieved in Edmondson Park are considered highly comparable to those expected in the Aerotropolis.
- Development site sales in the SWGA and NWGA are considered the 'bookends' for site values in the Aerotropolis, ranging from \$400/sqm to \$1,200/sqm of GFA potential.

Industrial

- Ongoing market and development activity in the neighbouring precincts of Kemps Creek/Eastern Creek and Erskine Park is considered a reliable gauge for future industrial activity in the Aerotropolis in the initial period post-rezoning.
- Industrial uses are expected to be the 'first movers' in the Aerotropolis and will compete strongly with neighbouring precincts.



Development Feasibility Testing Assumptions

Feasibility modelling has been undertaken to examine the tolerance of different development typologies to a SIC.

Development Typologies and Yields

Based on the proposed land uses within the Study Area, a series of development typologies are selected to approximate the built form that could eventuate in the Study Area based on the SEPP and <u>draft</u> precinct plans. The identification of development typologies is generic in nature and is for the purposes of testing potential contributions impact.

The development typologies selected are shown in Table S2.1 by zone and location inside or outside Station Precincts.

Table S2.1: Develo	pment Type	es Tested. In	itial Precincts
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Study Area	Zone	Development Typology	Notional Site Area (sqm)	Notional FSR	Parking
Aerotropolis Cor	e/ Badgerys C	Creek			
		Office buildings	2,000	3.5:1	Basement
Station Provinct	MVH	Office buildings	2,000	2.5:1	Basement
Station Precinct	IVIAU	Mixed use development (incl. shop top housing)	2,000	2.5:1	Basement
		Residential flat buildings	2,000	1.9:1	Basement
Station Precinct	ENT	Business park	2,000	1.3:1	Basement
Outside Station		Warehousing	20,000	0.7:1	At-grade
Precinct Industrial park		Industrial park	10,000	0.8:1	At-grade
Northern Gatewa	iy				
		Office buildings	2,000	3.0:1	Basement
Station Duppingt	MVII	Office buildings	2,000	1.8:1	Basement
Station Precinct MXU	IVIXU	Mixed use development (incl. shop top housing)	2,000	1.8:1	Basement
		Residential flat buildings	2,000	1.8:1	Basement
Outside Station		Warehousing	20,000	0.7:1	At-grade
Precinct Industrial park		Industrial park	10,000	0.8:1	At-grade
Agribusiness Pred	cinct				
Outside Station		Warehousing	20,000	0.5:1	At-grade
Precinct	ENT/ AGB	Industrial park	20,000	0.7:1	At-grade

MXU - Mixed Use, ENT - Enterprise, AGB - Agribusiness Source: Atlas

We highlight that development types tested are <u>not</u> urban design or capacity tested. They are generic in nature and for the purposes of testing the impact of potential SIC rates.

Parking rates from the Liverpool and Penrith development control plans are adopted for the purposes of estimating parking requirements in each development typology. New parking controls could in the future apply in the Study Area, however for the purposes of the current testing existing parking ratios are applied.

Table S2.2: Parking Requirements

Land Use	Liverpool DCP (Aerotropolis Core)	Penrith DCP (Northern Gateway)
Commercial		
Business/ Office	1 per 35sqm LFA	1 per 40sqm GFA
Retail	1 per 20sqm LFA	1 per 30sqm GFA
Multi-dwelling Housing		
1 bedroom	1.0	1.0



Land Use	Liverpool DCP (Aerotropolis Core)	Penrith DCP (Northern Gateway)
2 bedroom	1.5	1.5
3 bedroom	2.0	2.0
Visitor	0.25	0.2
Residential Flat Building		
1 bedroom	1.0	1.0
2 bedroom	1.5	1.0
3 bedroom	2.0	2.0
Visitor	0.25	0.2
Industrial		
Warehouse/ Distribution Centre	1 per 75sqm LFA	1 per 100sqm GFA
General Industrial	1 per 75sqm LFA	1 per 75sqm GFA

LFA - lettable floor area, GFA - gross floor area Source: Liverpool DCP 2008, Penrith DCP 2014

Revenue Assumptions

Efficiency ratios are used to convert GFA to net saleable area (NSA) - 85% (residential) and 90% (commercial and industrial).

Revenue assumptions for commercial and industrial floorspace are then applied to the converted saleable areas.

Residential revenue assumptions are based on a hypothetical unit and size mix as outlined in Table S2.3.

Table S2.3: Shop Top Housing Average Unit Size and Mix

Unit Type	Mix (%)	Average NSA* (sqm)
1 bedroom	25%	60
2 bedroom	70%	80
3 bedroom	5%	110

 $^*\mathrm{NSA}$ was calculated using a hypothetical efficiency ratio of 85% Source: Atlas

Average revenue assumptions adopted for each development typology are based on the findings of the market appraisal undertaken in Schedule 1 and shown in **Table S2.4**.

Table S2.4: Average Revenue Assumptions

Land Use	Average Rent Rates	Average Sale Values
Non-residential (excluding GST)	Gross Rents	End Sale Values
Commercial	\$475/sqm to \$525/sqm	\$6,000/sqm to \$7,000/sqm
Retail	\$625/sqm to \$650/sqm	\$8,000/sqm to \$9,000/sqm
Industrial*	\$125/sqm to \$160/sqm	\$1,500/sqm to \$2,000/sqm
Residential (including GST)	End Sale Values	Equivalent Rates (\$/sqm internal area)
1-bedroom unit	\$450,000 to \$500,000	\$7,500/sqm to \$8,333/sqm
2-bedroom unit	\$575,000 to \$625,000	\$7,188/sqm to \$7,813/sqm
3-bedroom unit	\$700,000 to \$750,000	\$6,363/sqm to \$6,818/sqm

*where industrial development is initially to low density, surplus hardstand areas are assumed to be revenue-generating Source: Atlas

Other revenue assumptions:

- 75% of apartments are pre-sold prior to construction and the balance sold on completion at a rate of 4-8 units per month.
- GST is included on the residential sales but excluded on non-residential sales.



- Marketing and legal costs are assumed at 1% and 0.5% respectively of gross sales revenue.
- Sales commission on sales included at 2.5% of gross residential sales and 1.5% of non-residential sales.

Cost Assumptions

Cost assumptions are generic in nature and based on experience and industry cost publications.

- Legal and due diligence costs assumed at 0.5% of land cost and is assumed to be paid on exchange in Month 1.
- The site is assumed to be appropriately zoned with design and development planning occurring immediately upon settlement.

Building areas are calculated by applying a generic 110%-115% ratio to gross floor area (GFA) against which construction build costs are applied.

Construction build costs assumed are shown in Table S2.5.

Table S2.5: Build Cost Assumptions

evelopment Typology Build Costs (\$/sqr		
Mixed Use zone		
Commercial low-rise	\$2,300 to \$2,500	
Commercial mid-rise	\$2,500 to \$2,750	
Commercial high-rise	\$3,250 to \$3,750	
Retail	\$1,800 to \$2,000	
Residential mid-rise	\$2,300 to \$2,500	
Residential balconies	\$800	
Parking (basement)	\$50,000 per space	
Enterprise zone		
Warehousing	\$800/sqm to \$1,000/sqm	
Industrial park	\$1,000/sqm to \$1,200/sqm	
Parking (at-grade)	\$5,000 per space	

*applied to gross building area (110%-115% GFA), excludes lead-in/ estate major works, uncovered areas, professional fees, statutory charges, contingencies Source: Atlas (various)

Other cost assumptions:

- Professional fees at 11% of construction cost expensed as follows:
 - ° 6.5% pre-construction (during design and DA documentation).
 - ° 4.5% pro-rated with construction.
- Construction contingency of 5% of construction cost.
- Site costs and lead-in services works at 1% of construction cost respectively.
- Statutory fees and charges:
 - ° DA, CC and long service levy at statutory rates.
 - ° Section 7.12 contributions at 6.5% of the cost of development in Initial Precincts.
- Holding costs including land tax, Council and water rates.

Other cost assumptions:

- Developer equity used for land purchase cost with remaining costs debt funded with interest capitalised monthly (nominal 6% per annum)
- Finance establishment cost of 0.35% of peak debt.



Hurdle Rates and Performance Indicators

Target hurdle rates are subject to perceived risk of a project (planning, market, financial and construction risk). The higher the project risk, the higher the hurdle rate. The following performance indicators are relied upon:

- Development Margin profit divided by total development costs (including selling costs).
- Discount rate refers to the project internal rate of return (IRR) where net present values of an investment is zero.
- Residual Land Value is arrived at by assessing the maximum land value a developer is willing to pay based on both hurdles of development margin and discount rate being met.

The following benchmark hurdle rates are assumed.

Table S2.6: Benchmark Hurdle Rates

Development Typology Commercial and Residential						
	Feasible	Marginal	Not Feasible	Feasible	Marginal	Not Feasible
Development Margin	>22%	18%-22%	<18%	>18%	16%-18%	<16%
Project IRR	>20%	18%-20%	<18%	>18%	16%-18%	<16%

Source: Atlas



Generic Feasibility Testing Outcomes

Aerotropolis Core

Table S3.1 and Table S3.2 shows the outcomes of iterative feasibility testing inside and outside the Station Precinct.

A SIC of \$500,000/ha NDA could potentially be charged in the Mixed Use zone (enabled by higher permitted densities) and \$200,000/ha NDA in the Enterprise zone.

Land uses who 'value' proximity to train services will be willing to pay to locate within Station Precincts.

- A 2% cost of development SIC (in the Mixed Use zone where development is flexible and more intense) would align to investment as market demand deepens.
- In the Enterprise zone a lower 1% cost of development is applied due to expected lower densities.

Table S3.1: Generic Feasibility Testing Outcomes, Aerotropolis Core/ Badgerys Creek (Station Precinct)

Description	Mixed Use Zone				Enterprise Zone
	Office Buildings	Office Buildings	Mixed Use	Residential Flat Buildings	Business Park
Notional Site Area (sqm)	2,000	2,000	2,000	2,000	2,000
Notional FSR	3.5:1	2.5:1	2.5:1	1.9:1	1.3:1
Gross Floor Area (sqm)	7,000	5,000	5,000	3,800	2,600
Assumed Cost of Land (\$/ha)	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000
Avg. Net Revenue (\$/sqm GFA)*	\$7,903	\$7,206	\$6,260	\$6,012	\$6,728
Avg. Construction Cost (\$/sqm GFA)^	\$5,045	\$4,507	\$4,020	\$3,786	\$4,252
SIC Tier 1 (\$/ha NDA)	\$500,000	\$500,000	\$500,000	\$500,000	\$200,000
SIC Tier 2 (% cost of development)	2%	2%	2%	2%	1%
Development Margin	18.3%	19.8%	17.4%	19.3%	18.9%
Project Internal Rate of Return	22.5%	23.4%	25.9%	32.5%	24.6%

Table S3.2: Generic Feasibility Testing Outcomes, Aerotropolis Core/ Badgerys Creek (Outside Station Precinct)

Description	Enterprise Zone			
	Warehouse	General Industrial		
Notional Site Area (sqm)	20,000	10,000		
Notional FSR	0.7:1	0.8:1		
Gross Floor Area (sqm)	14,000	8,000		
Assumed Cost of Land (\$/ha)	\$1,500,000	\$1,500,000		
Avg. Net Revenue (\$/sqm GFA)*	\$1,820	\$2,215		
Avg. Construction Cost (\$/sqm GFA)^	\$1,186	\$1,340		
SIC Tier 1 (\$/ha NDA)	\$200,000	\$200,000		
SIC Tier 2 (% cost of development)	Not applicable			
Performance Indicators				
Development Margin	15.9%	19.7%		
Project Internal Rate of Return	16.9%	21.3%		

*net of selling costs

^applied to gross building area (110%-115% GFA), excludes cost of land, lead-in/ estate major works, uncovered areas, professional fees, statutory charges, contingencies, interest expense

Measured against adopted hurdle rates, the testing indicates Feasible and Feasible to Marginal outcomes.



Northern Gateway

Table S3.3 and **Table S3.4** shows the outcomes of iterative feasibility testing and SICs that meet target hurdle rates in the Northern Gateway, inside and outside the Station Precinct.

A SIC of \$500,000/ha NDA could potentially be charged in the Mixed Use zone (enabled by higher permitted densities) and \$200,000/ha NDA in the Enterprise zone.

Similar to the Aerotropolis Core, land uses who 'value' proximity to the new Metro stations will conceivably be willing to pay for the opportunity to locate within Station Precincts. A percentage cost of development SIC charge would align to development investment in the Station Precincts as market demand matures and deepens.

Based on current parking standards (under the Penrith DCP), the Northern Gateway has better tolerance to a SIC than the Aerotropolis Core and Badgerys Creek.

Testing outcomes in the Northern Gateway also affirm that development at higher densities (FSR 3:1) is less viable than at lower densities (as evidenced by lower performance indicators).

Description	Mixed Use Zone			
	Office Buildings	Office Buildings	Mixed Use	Residential Flat Buildings
Notional Site Area (sqm)	2,000	2,000	2,000	2,000
Notional FSR	3.0:1	1.8:1	1.8:1	1.8:1
Gross Floor Area (sqm)	6,000	3,600	3,600	3,600
Assumed Cost of Land (\$/ha)	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000
Avg. Net Revenue (\$/sqm GFA)*	\$7,787	\$7,158	\$6,168	\$5,767
Avg. Construction Cost (\$/sqm GFA)^	\$4,792	\$4,231	\$3,750	\$3,518
SIC Tier 1 (\$/ha NDA)	\$500,000	\$500,000	\$500,000	\$500,000
SIC Tier 2 (% cost of development)	2%	2%	2%	2%
Performance Indicators				
Development Margin	18.9%	22.0%	22.1%	21.9%
Project Internal Rate of Return	20.4%	24.3%	30.1%	30.4%

Table S3.3: Generic Feasibility Testing Outcomes, Northern Gateway (Station Precinct)

Table S3.4: Generic Feasibility Testing Outcomes, Northern Gateway (Outside Station Precinct)

Description	Enterprise Zone			
	Warehouse	General Industrial		
Notional Site Area (sqm)	20,000	10,000		
Notional FSR	0.7:1	0.8:1		
Gross Floor Area (sqm)	14,000	8,000		
Assumed Cost of Land (\$/ha)	\$1,500,000	\$1,500,000		
Avg. Net Revenue (\$/sqm GFA)*	\$1,820	\$2,215		
Avg. Construction Cost (\$/sqm GFA)^	\$1,170	\$1,319		
SIC Tier 1 (\$/ha NDA)	\$200,000	\$200,000		
SIC Tier 2 (% cost of development)	Not applicable			
Performance Indicators				
Development Margin	16.8%	20.0%		
Project Internal Rate of Return	17.6%	21.6%		

*net of selling costs

^applied to gross building area (110%-115% GFA), excludes cost of land, lead-in/ estate major works, uncovered areas, professional fees, statutory charges, contingencies, interest expense

Measured against adopted hurdle rates, the testing indicates Feasible and Feasible to Marginal outcomes.



Agribusiness Precinct

Table S3.5 shows the outcomes of the iterative testing and SICs that meet target hurdle rates in the Agribusiness Precinct.

A SIC at \$200,000/ha NDA could potentially be charged.

Table S3.5: Generic Feasibility Testing Outcomes, Agribusiness Precinct

Description	Agribusiness/ Enterprise Zone		
	Warehouse/Logistics	Warehouse/Logistics	
Notional Site Area (sqm)	20,000	20,000	
Notional FSR	0.5:1	0.7:1	
Gross Floor Area (sqm)	10,000	14,000	
Assumed Cost of Land (\$/ha)	\$1,000,000	\$1,000,000	
Avg. Net Revenue (\$/sqm GFA)*	\$1,933	\$1,820	
Avg. Construction Cost (\$/sqm GFA)^	\$1,074	\$1,170	
SIC Tier 1 (\$/ha NDA)	\$200,000	\$200,000	
SIC Tier 2 (% cost of development)	Not applicable		
Performance Indicators			
Development Margin	23.4%	33.1%	
Project Internal Rate of Return	17.2%	31.1%	

*net of selling costs

^applied to gross building area (110%-115% GFA), excludes cost of land, lead-in/ estate major works, uncovered areas, professional fees, statutory charges, contingencies, interest expense



Appendices
State Environmental Planning Policy - Western Sydney Aerotropolis (Aerotropolis SEPP)

Table A1.1: Zone Objectives

Zone	Zone Objectives
Mixed Use	 To integrate a mixture of compatible land uses in accessible locations. To promote business, office, retail, entertainment and tourist uses. To promote a high standard of public amenity and convenient urban living. To provide for residential and other accommodation that includes active non-residential uses at street level. To ensure an appropriate transition from non-urban land uses and environmental conservation areas in surrounding areas to urban land uses in the zone.
Enterprise	 To encourage employment and businesses related to professional services, high technology, aviation, logistics, food production and processing, health, education and creative industries. To provide a range of employment uses (including aerospace and defence industries) that are compatible with future technology and work arrangements. To encourage development that promotes the efficient use of resources, through waste minimisation, recycling and re-use. To ensure an appropriate transition from non-urban land uses and environmental conservation areas in surrounding areas to employment uses in the zone. To prevent development that is not compatible with or that may detract from the future commercial uses of the land. To provide facilities and services to meet the needs of businesses and workers.
Agribusiness	 To encourage diversity in agribusiness, including related supply chain industries and food production and processing that are appropriate for the area. To encourage sustainable and high technology agribusiness, including agricultural produce industries. To enable sustainable agritourism. To encourage development that is consistent with the character of Luddenham village. To maintain the rural landscape character and biodiversity of the area.
Environmental and Recreation	 To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values. To protect the ecological, scenic and recreation values of waterways, including Wianamatta-South Creek and its tributaries. To provide a range of recreational settings and activities and compatible land uses. To protect and conserve the environment, including threatened and other species of native fauna and flora and their habitats, areas of high biodiversity significance and ecological communities.

Source: WSPP (2020b)



Table A1.2: Prohibited Land Uses, Mixed Use Zone

Airport Transport Facility	General Industry	Semi-detached dwelling
Airstrips	Heavy Industrial Storage Establishment	Sewage System
Boat building and repair facilities	Heavy Industry	Timber yard
Boat launching ramps	Helipads	Transport depots
Boat sheds	Highway service centres	Truck depots
Camping grounds	Intensive livestock agriculture	Turf farming
Caravan parks	Jetties	Warehouse or distribution centres
Charter and tourism boating facilities	Marinas	Waste or resource management facility
Correctional centres	Mooring pens	Water Treatment Facilities
Crematoria	Moorings	Wharf or boating facilities
Depots	Mortuaries	
Dual occupancy	Open cut mining	
Dwelling houses	Port facilities	
Exhibition homes	Rural industry	
Exhibition villages	Rural supplies	
Extractive industries	Rural workers dwelling	
Forestry	Secondary dwelling	

Source: WSPP (2020b)

Table A1.3: Prohibited Land Uses, Enterprise Zone

Air transport facility	Exhibition villages	Mortuaries
Airstrips	Forestry	Open cut mining
Camping grounds	Heavy Industrial Storage Establishments	Residential Accommodation
Caravan parks	Heavy Industry	Rural Industry
Crematoria	Helipads	Turf farming
Exhibition homes	Intensive livestock agriculture	

Source: WSPP (2020b)



Table A1.4: Prohibited Land Uses, Agribusiness Zone

Airstrips	Helipads	Residential accommodation
Amusement centres	Hotel or motel accommodation	Restricted premises
Boat building and repair facilities	Intensive livestock agriculture	Sawmill or log processing works
Caravan parks	Jetties	Serviced apartment
Centre-based Child care centres	Mooring pens	Sex services premises
Crematoria	Moorings	Specialised retail premises
Depots	Mortuaries	Stock and sale yard
Exhibition homes	Open cut mining	Storage Premises
Exhibition villages	Port facilities	Turf Farming
Extractive industries	Recreation facilities (indoor)	Vehicle sale or hire premises
Forestry	Recreation facilities (major)	Waste or resource management facilities
Heavy Industrial Storage	Recreation facilities (outdoor)	Water recreation structures
Heavy Industry	Registered clubs	Wharf or boating facilities

Source: WSPP (2020b)

Table A1.5: Prohibited Land Uses, Environmental and Recreation

Air Transport Facility	Hardware and building supplies	Restricted premises
Airstrips	Heavy Industrial Storage Establishment	Rural Industry
Amusement centres	Helipads	Service stations
Backpackers accommodation	Highway service centres	Sex services premises
Boat building and repair facilities	Hospital	Specialised retail (bulky goods)
Boat launching ramps	Hotel or motel accommodation	Timber yard
Boat sheds	Industrial facilities	Transport depots
Camping grounds	Industrial retail outlets	Truck depots
Caravan parks	Industry	Turf Farming
Charter and tourism boating facilities	Intensive Livestock Agriculture	Vehicle body repair workshops
Childcare centres	Jetties	Vehicle repair stations
Correctional centres	Medical Centre	Vehicle sales or hire premises
Depots	Mooring pens	Veterinary hospitals
Educational Establishment	Moorings	Warehouse or distribution centres
Electricity generating works	Mortuaries	Waste or resource management facility
Entertainment facilities	Office premises	Water Treatment Facilities
Exhibition homes	Open cut mining	Wholesale supplies
Exhibition villages	Port facilities	
Extractive Industries	Public administration buildings	
Forestry	Residential accommodation	
Freight Transport facilities	Respite day care centres	

Source: WSPP (2020b)



State Environmental Planning Policy - Western Sydney Employment Area (WSEA SEPP)

Table A2.1: IN1 General Industrial Zone Objectives and Permitted Land Uses, WSEA SEPP

Zone	IN1 General Industrial
Zone Objectives	 To facilitate a wide range of employment-generating development including industrial, manufacturing, warehousing, storage and research uses and ancillary office space. To encourage employment opportunities along motorway corridors, including the M7 and M4. To minimise any adverse effect of industry on other land uses. To facilitate road network links to the M7 and M4 Motorways. To encourage a high standard of development that does not prejudice the sustainability of other enterprises or the environment. To provide for small-scale local services such as commercial, retail and community facilities (including child care facilities) that service or support the needs of employment-generating uses in the zone.
Permitted without Consent	Nil.
Permitted with Consent	Building identification signs; Business identification signs; Depots; Environmental facilities; Environmental protection works; Food and drink premises; Freight transport facilities; Garden centres; Hardware and building supplies; Industrial retail outlets; Industrial training facilities; Industries (other than offensive or hazardous industries); Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (indoor); Roads; Service stations; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres.
Prohibited.	Any development not specified as 'permitted without consent' or 'permitted with consent'.

Source: WSEA SEPP



Domestic Economy Forecasts (2020-2021)

Table A3.1: Key Domestic Economy Forecasts (2020-2021)

	Outcomes ^(b)	Fore	casts
	2018/19	2019/20	2020/21
Real gross domestic product	2.0	- 1/4	-2 1/2
Household consumption	2.0	-2 1/2	-1 1/4
Dwelling investment	0.0	-10	-16
Total business investment ^(c)	-0.9	-6	-12 1/2
By industry			
Mining investment	-9.4	4	9 1/2
Non-mining investment	1.8	-9	-19 1/2
Private final demand ^(c)	1.0	-3 1/2	-4
Public final demand ^(c)	4.4	5	4 1/2
Change in inventories ^(d)	-0.2	0	0
Gross national expenditure	1.6	-1 1/2	-1 3/4
Exports of goods and services	4.0	-1 1/2	-6 1/2
Imports of goods and services	0.3	-8	-6
Net exports ^(d)	0.8	1 1/4	- 1/4
Nominal gross domestic product	5.3	2	-4 3/4
Prices and wages			
Consumer price index ^(e)	1.6	- 1/4	1 1/4
Wage price index ^(f)	2.3	1 3/4	1 1/4
GDP deflator	3.3	2 1/4	-2 1/4
Labour market			
Participation rate (per cent) ^(g)	66.0	63.4	64 3/4
Employment ^{(f)(h)}	2.5	-4.4	1
Unemployment rate (per cent) ^(g)	5.2	7.0	8 3/4

(a) Percentage change on preceding year unless otherwise indicated.

(b) Calculated using original data unless otherwise indicated.

(c) Excluding second hand asset sales between the public and private sector.

(d) Percentage point contribution to growth in GDP.

(e) Through the year growth rate to the June quarter.

(f) Seasonally adjusted, through the year growth rate to the June quarter.

(g) Seasonally adjusted rate for the June quarter.
 (i) The forecasts are underpinned by price assumptions for key commodities: iron ore spot price assumed to decline to US\$55 per tonne free on board (FOB) by the end of the December quarter 2020; metallurgical coal spot price assumed to remain at US\$110 per tonne FOB; and thermal coal spot price assumed to remain at US\$54 per tonne FOB.

Note: The forecasts for the domestic economy are based on several technical assumptions. The exchange rate is assumed to remain around its recent average level – a trade weighted index of around 60 and a \$US exchange rate of around 69 US cents. Interest rates are assumed to move broadly in line with market expectations. World oil prices (Malaysian Tapis) are assumed to remain around US\$34 per barrel. Population growth is assumed to be 1.2% in 2019/20 and 0.6% in 2020 21.

Source: ABS cat. no. 5206.0, 5302.0, 6202.0, 6345.0, 6401.0, unpublished ABS data and Treasury.



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