[redacted]

From: system@accelo.com on behalf of [redacted]
Sent: Friday, 2 November 2018 10:29 AM
To: [redacted]
Subject: Submission Details for company [redacted]

Confidentiality Requested: no

Submitted by a Planner: no

Disclosable Political Donation:

Agreed to false or misleading information statements: yes

Name: Edward Green
Organisation: [redacted]
Govt. Agency: No
Email: [redacted]

Address:
[redacted]

Content:
Please find cover letter and submission document attached.

IP Address: - 59.100.204.214
Submission: Online Submission from company [redacted]
https://majorprojects.accelo.com/?action=view_activity&id=291920

Submission for Job: #9552
https://majorprojects.accelo.com/?action=view_job&id=9552

Site: #0
https://majorprojects.accelo.com/?action=view_site&id=0

This email is missing attachments because they were too large to send. Please contact [redacted] to retrieve them, or reply to this email.

[redacted]

2 November 2018

Director, Aerotropolis Activation
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Dear Sir

Western Sydney Aerotropolis Land Use & Infrastructure Implementation Plan

Please find attached Ingham Property Group's formal submission in response to the public exhibition of the Western Sydney Aerotropolis Land Use & Infrastructure Implementation Plan – Stage 1.

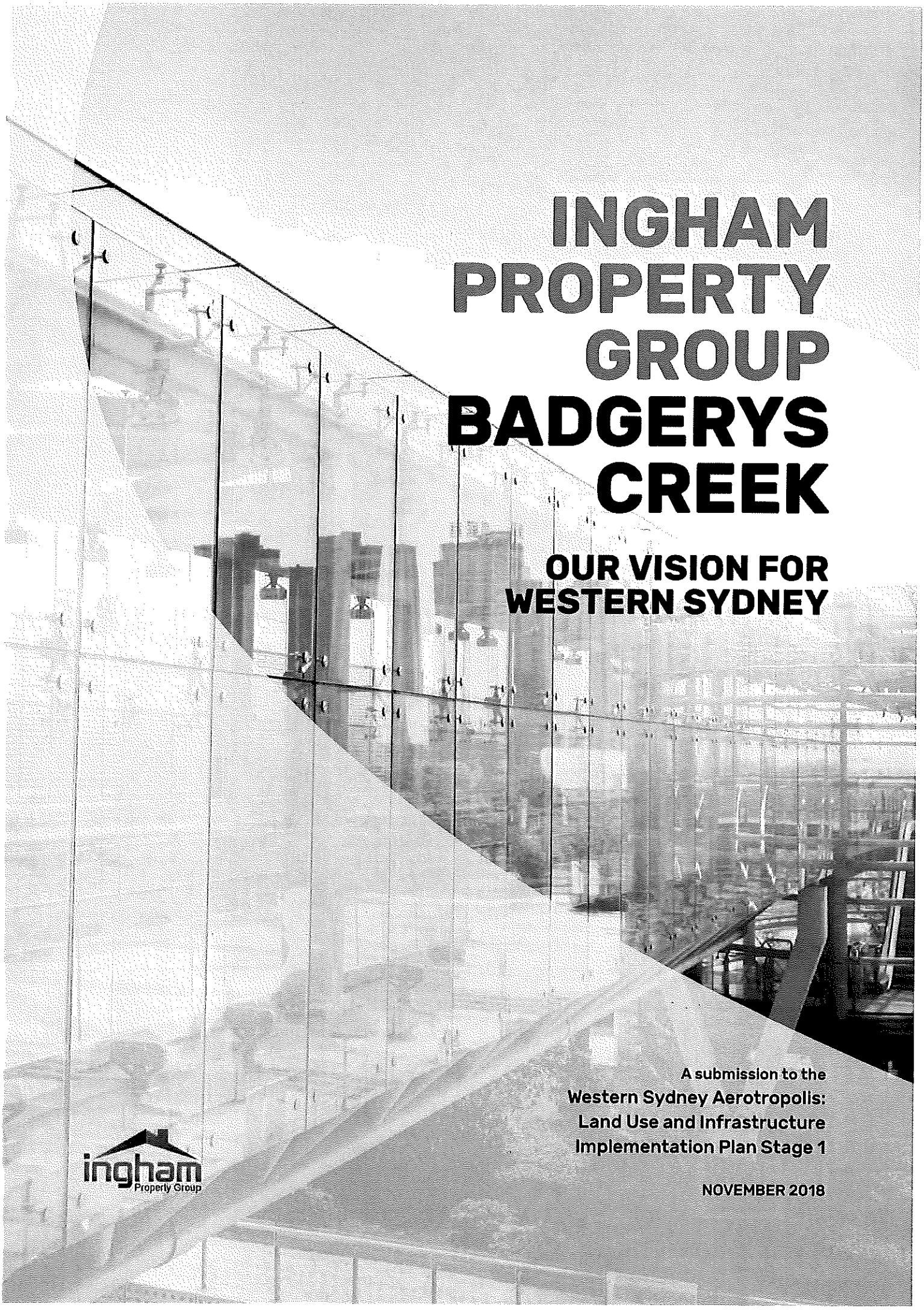
Ingham Property Group being a major stakeholder in the Aerotropolis Core Precinct would like to take this opportunity to congratulate the NSW Department of Planning for the diligent work undertaken to inform the release of the Draft LUIIP.

We look forward to working collaboratively with the Department and key Government agencies throughout the next stage of the precinct planning process for the Aerotropolis Core.

Please do not hesitate to contact the undersigned in relation to this matter.

Yours faithfully

[redacted]



INGHAM PROPERTY GROUP

BADGERYS CREEK

OUR VISION FOR WESTERN SYDNEY

A submission to the
Western Sydney Aerotropolis:
Land Use and Infrastructure
Implementation Plan Stage 1

NOVEMBER 2018

ingham
Property Group

CONTENTS

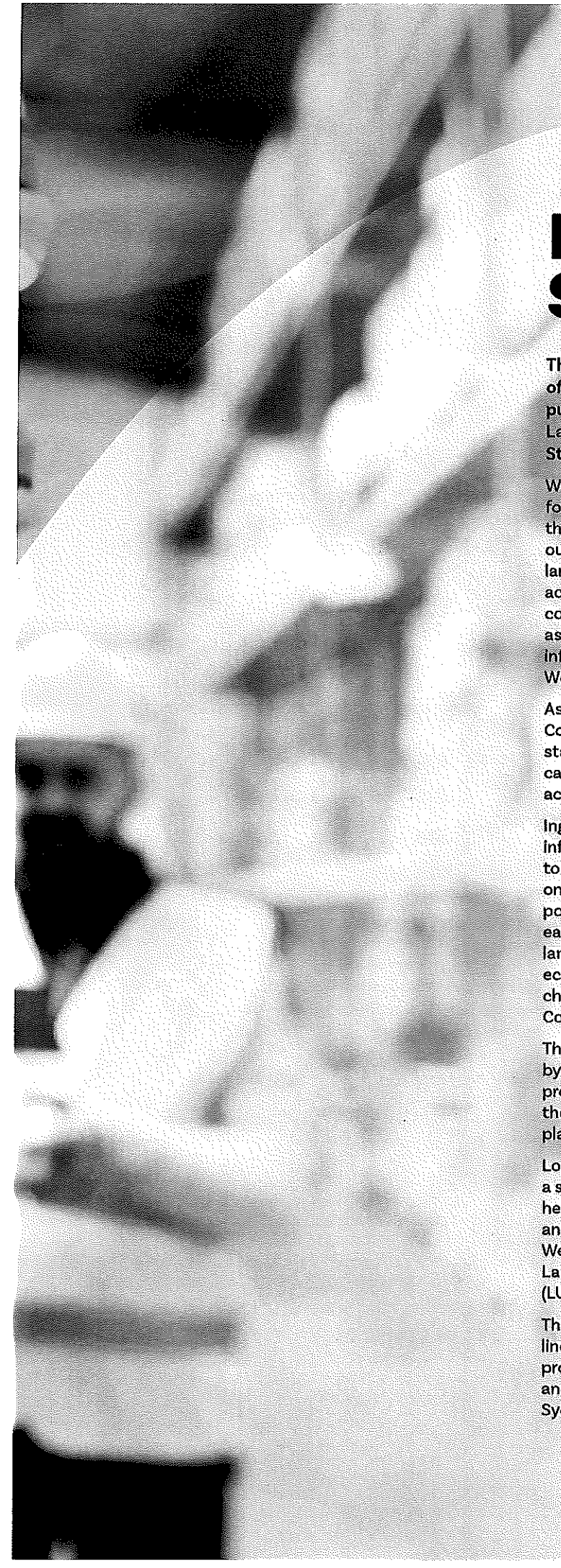
Prepared by

URBIS

In collaboration with

SCT Consulting

AECOM



EXECUTIVE SUMMARY

This submission has been prepared by Urbis on behalf of Ingham Property Group (Ingham) in response to the public exhibition of the Western Sydney Aerotropolis Land Use and Infrastructure Implementation Plan - Stage 1 (the Draft LUIIP).

We congratulate the NSW Department of Planning (DPE) for the extensive work undertaken to inform the release the Draft LUIIP. This submission takes the opportunity to outline a vision and recommendations on how Ingham's landholding is well positioned to deliver on the early activation aspirations for the Aerotropolis Core, while concurrently accounting for the medium to long term aspirations for this precinct as a key connector (i.e. through infrastructure, employment and land use mix) to the Western Sydney Airport lands.

As one of three significant landowners in the Aerotropolis Core, Ingham is seeking to work with key government stakeholders in providing the 'early activation' required to catalyse the development of the Airport and its supporting activities.

Ingham supports DPE's acknowledgment that sequenced infrastructure investment necessitates a flexible approach to zoning, noting the effect major transport upgrades have on land use location and intensity. The Ingham site is ideally positioned to support early infrastructure delivery, and early activation on site through employment generating land uses. The Ingham vision is one that is 'future-proofed', economically and structurally, and accounts for the changing role and function of the site in the Aerotropolis Core over time.

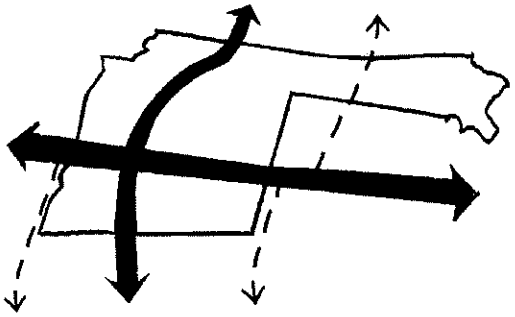
This submission articulates a vision that is underpinned by the objectives of the LUIIP, Region and District Plans. It proposes a sensible and efficient approach that leverages the potential of Government investment in Sydney's planned 24/7 airport.

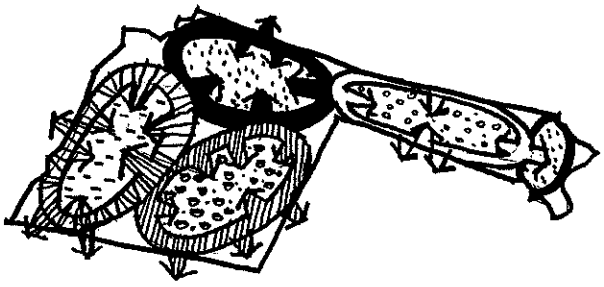
Located at 475 Badgerys Creek Road, the subject site is a substantial single land holding with a total area of 182 hectares. The site adjoins the new Western Sydney Airport and also forms part of the Aerotropolis Core under the Western Sydney Airport Growth Area, as identified in the Land Use and Infrastructure Implementation Plan (Stage 1) (LUIIP Stage 1).

The following submission proposes a vision for the site in line with city-shaping components of the LUIIP Stage 1, and proposes recommendations for levering land use, transport and employment opportunities afforded by the Western Sydney Airport.

THE VISION

The future vision for the Ingham Badgerys Creek site is underpinned by the following four key strategies.





01

GOOD CONNECTIVITY UNLOCKS THE 30-MINUTE CITY

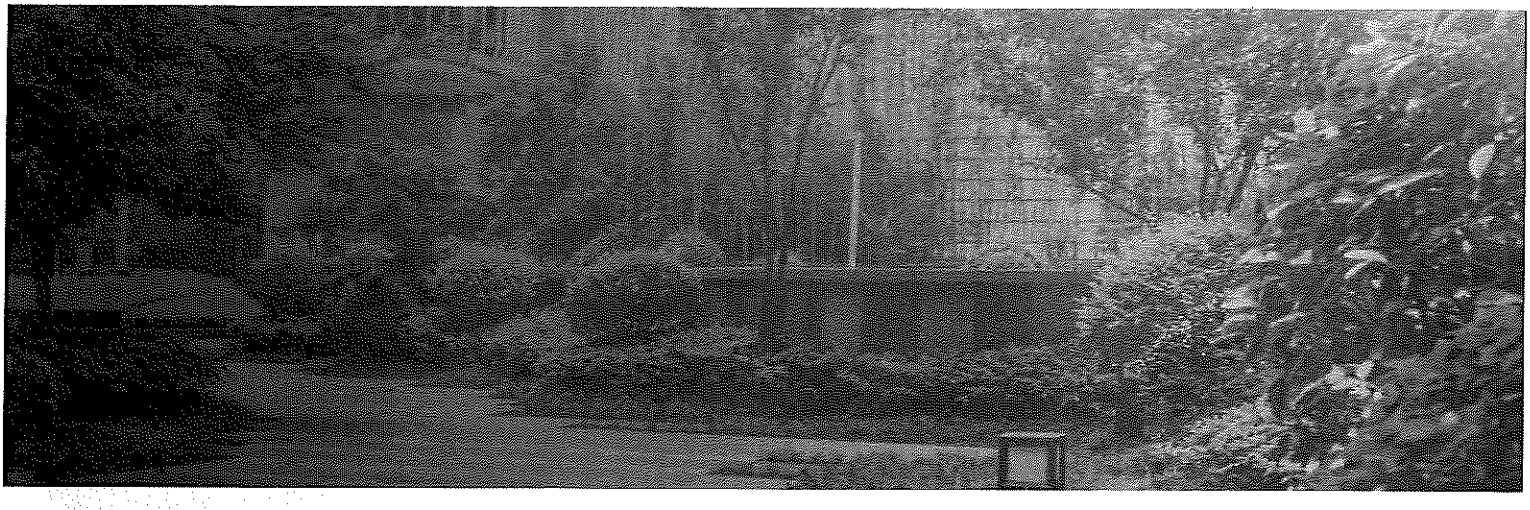
The success of the Western Sydney Parkland City will be underpinned by good connections to existing and future centres and residential areas.

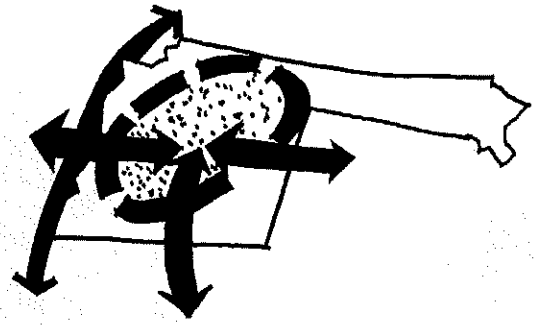
A direct east west public transport corridor between Liverpool and Western Sydney Airport is an important connection that will link workers and jobs between the thriving Liverpool CBD and the Aerotropolis Core and the Western Sydney Airport. The connection will follow the Hoxton Park Road / Fifteenth Avenue corridor, part of which already caters for the Liverpool to Parramatta Bus Transitway. The new connection, which could be designed to accommodate autonomous buses can have a direct and bus-only character west of Badgerys Creek Road. This east west connection will be reinforced with a north - south transport corridor linking Elizabeth Drive to the Northern Road with key interchanges at the Fifteenth Avenue extension and the proposed rail station at the Aerotropolis Core.

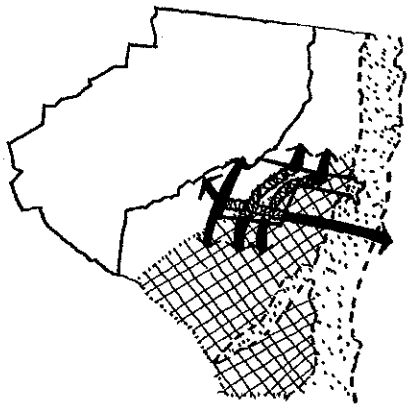
02

EVOLVE THE EMPLOYMENT OFFER

We envisage the site developing into a major business park supporting the Western Sydney Airport (WSA) as public transport and infrastructure is delivered to the area. We propose an urban structure that can be fragmented over time as land uses change in intensity. We will support Smart Cities technology from the commencement of the project to ensure that we attract leading-edge businesses.







03

A CATALYST SITE FOR EARLY ACTIVATION

As landowners of a single consolidated site of some 182 hectares, Ingham is uniquely positioned to collaborate with adjoining landowners and key government partners to deliver early activation of the Aerotropolis Core. This includes protecting key transport corridors and ensuring quality urban design outcomes for employment and residential areas are delivered over time.

04

MIXED USES TO SUPPORT THE AEROTROPOLIS

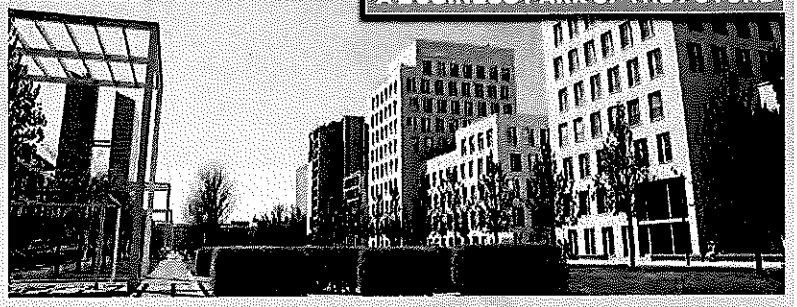
In addition to the employment uses, the site will cater for:

- Open spaces in the form of parks, recreation areas and riparian corridors.
- A mix of dwellings ranging from terraces to low scale apartment buildings close to public transport nodes.
- A small convenience centre to cater for the employment population in the first stages and transform into a neighbourhood centre as the densities and mix of uses increase.

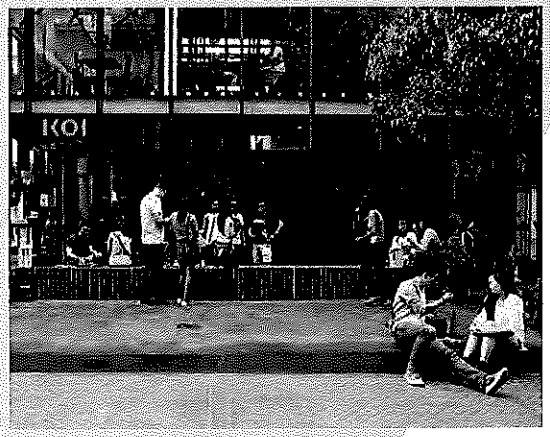
Ingham envisages an integrated precinct that is strongly connected to a 30-minute city. It offers an adaptable urban structure that supports an evolution of land uses from agriculture and industrial to business park complimentary with residential uses.

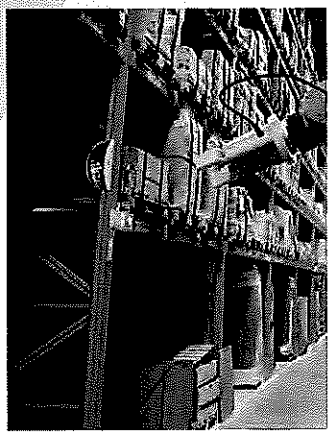
From that start, the site is set apart as a precinct that boldly envisages the future with smart city initiatives to attract leading businesses.

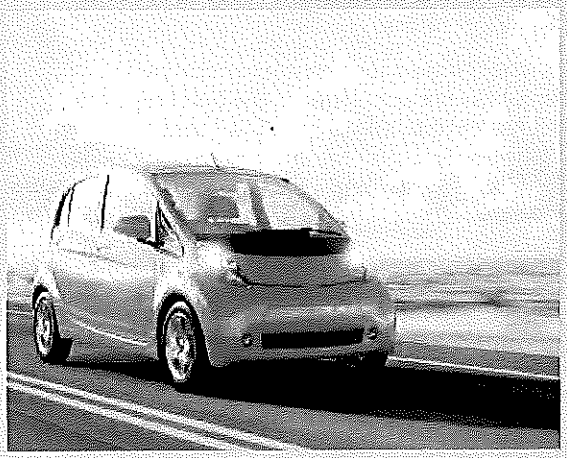
A BUSINESS PARK OF THE FUTURE

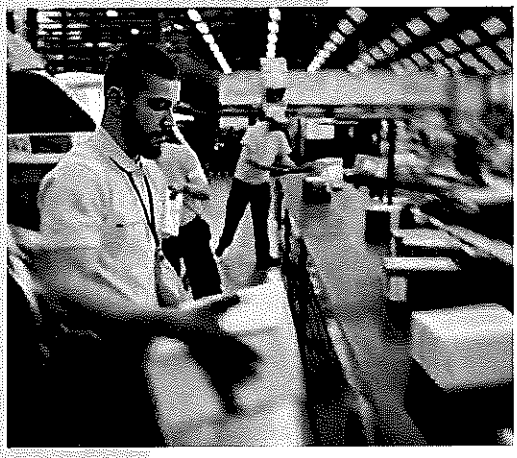


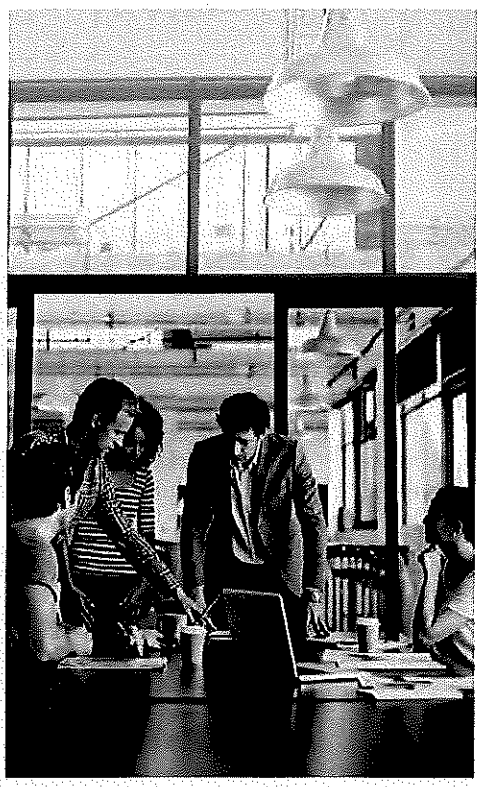
SMART CITY TECHNOLOGIES

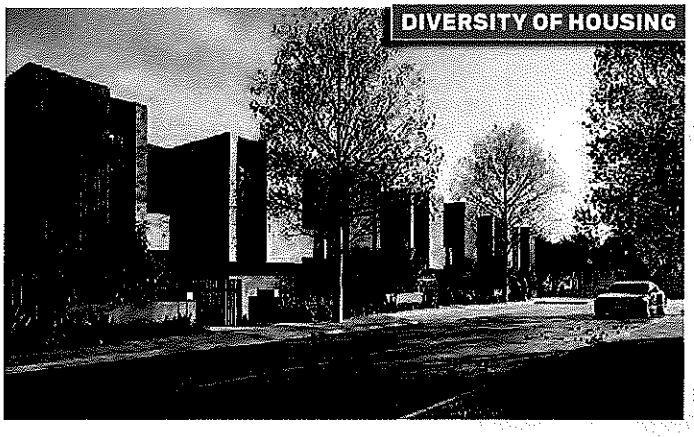




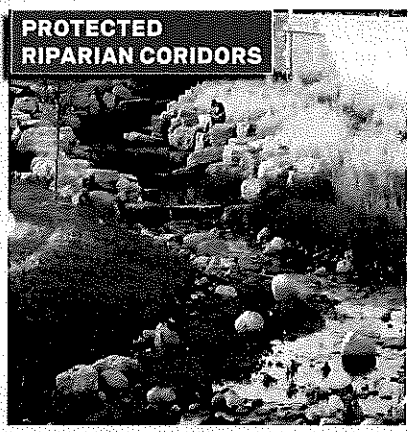




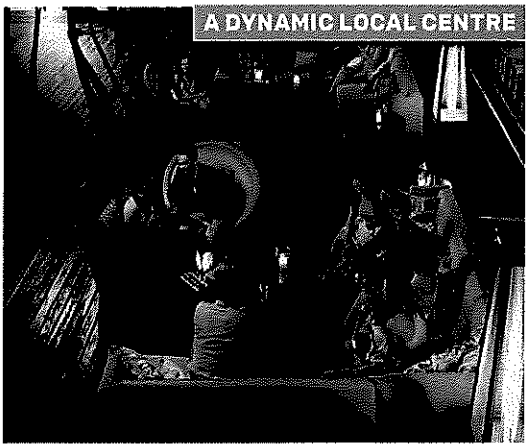




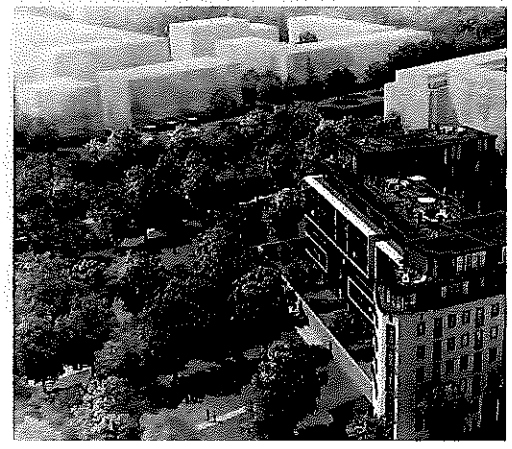
DIVERSITY OF HOUSING



PROTECTED RIPARIAN CORIDORS



A DYNAMIC LOCAL CENTRE



THE INGHAM FAMILY STORY

The Ingham Property Group was founded in 2013 but the history of the Ingham family goes back many years.

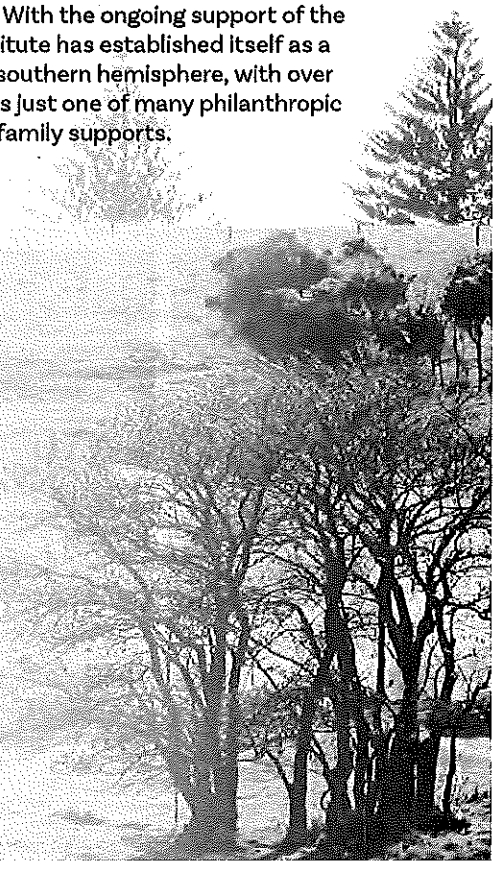
The family business, Inghams Enterprises, was founded in 1918 when Walter Ingham Sr. purchased 42 acres of bush land in Casula, Western Sydney as a gift to his 18-year-old son, Walter Ingham. Walter Jr. embarked on a fruit and vegetable farming venture, eventually moving into the poultry business. Starting with just one cockerel and six hens, his flock quickly grew to 1,000 birds. On his death in 1953, his two sons, Jack and Bob took over the small breeding operation and built it into the largest producer of chickens and turkeys in Australia.

In 1961, the company built its first processing plant at Hoxton Park, in Western Sydney. By the early to mid-1960s, new styles and techniques of packaging and processing led to the company's involvement in the rapid process of expansion and development of the poultry industry. Ingham became a household name throughout Australia. It was during this expansion, that the Ingham family acquired their 182 hectares of land at Badgerys Creek.

Figure 1 Photo of Bob and Jack Ingham

The Inghams Enterprises company was sold to private equity, TPG Capital in 2013. At this time, Bob's children - Lyn Ingham, Debbie Kepitis, Robby Ingham and John Ingham formed Ingham Property Group (Ingham) and retained seven prime properties throughout Australia with the intention to develop these into a long-term income producing property business. Five of these assets having an area of some 700 hectares are located in South West Sydney, at Badgerys Creek, Casula, Appin, Tahmoor and Hoxton Park, establishing Ingham Property Group as a major property developer in NSW.

The Ingham family have supported many charitable causes over the years in the South Western area of Sydney. Bob and Jack Ingham offered to help Liverpool hospital create a research institute. After many years of negotiations with the appropriate authorities, they were able to see their efforts create the Ingham Institute for Applied Medical Research next door to the Liverpool hospital. With the ongoing support of the Ingham family the Institute has established itself as a research leader in the southern hemisphere, with over 400 researchers. This is just one of many philanthropic initiatives the Ingham family supports.



OUR BUSINESS VISION

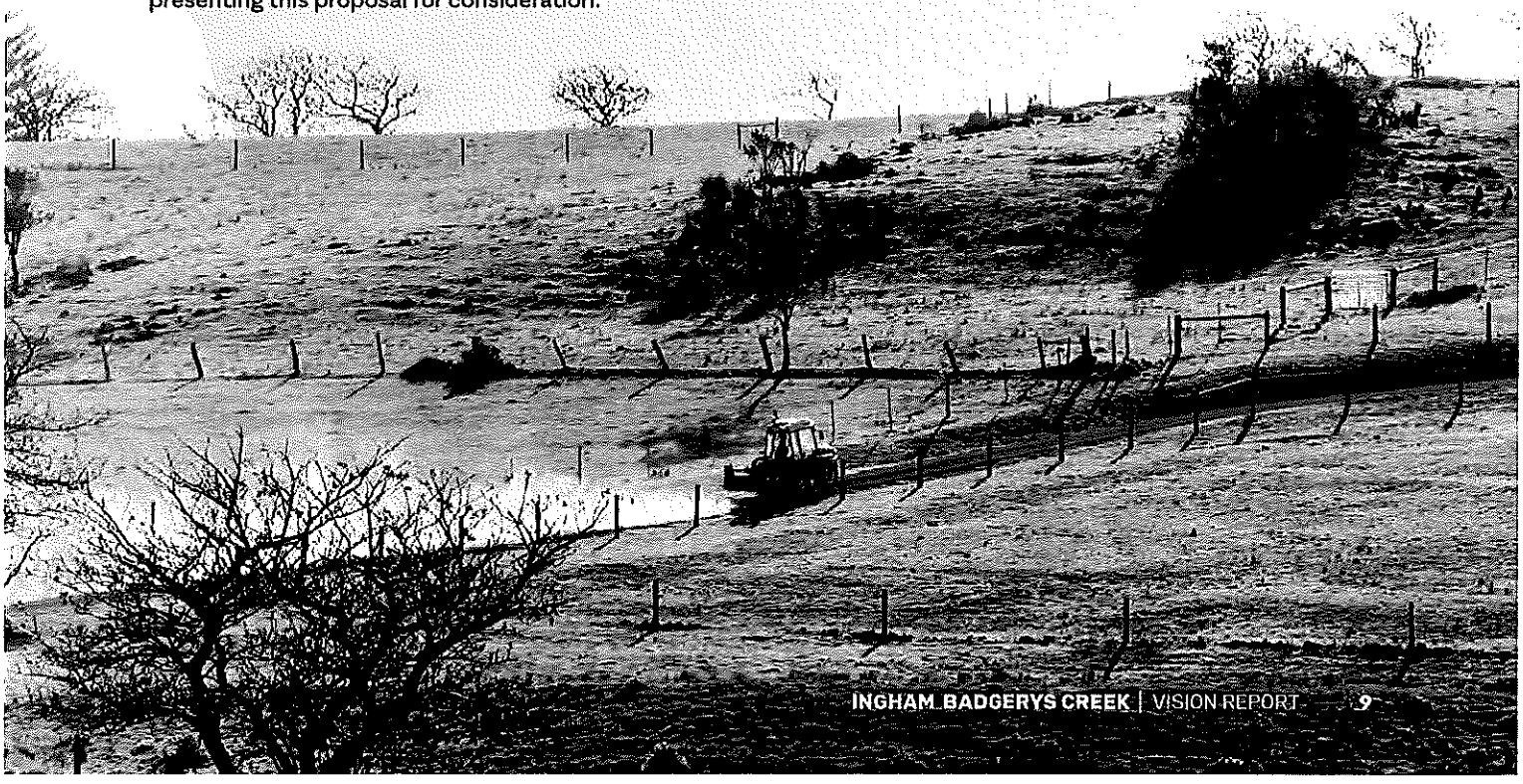
Ingham Property Group (Ingham) holds a significant portfolio of strategic assets with immediate, medium and long term development potential across New South Wales, Queensland and Western Australia.

The Directors of Ingham Property Group resolved that the portfolio will be developed to :

- Optimise the value of the assets with due consideration to the right planning outcome;
- Build income producing assets to hold for the long term; and
- Continue the Ingham property business for the long term.

The Ingham NSW asset of 475 Badgerys Creek is ideally suited for the key activation of the future Western Sydney Airport. Ingham is committed to working collaboratively and in partnership with State Government to bring the vision to reality.

The Ingham Property Group has much pleasure in presenting this proposal for consideration.



THE SITE

The Ingham site is located at 475 Badgerys Creek Road, and has the following features:

- A total area of 182 hectares, under single ownership;
- Approximately one kilometre of frontage to Badgerys Creek Road;
- A common boundary with the future Western Sydney Airport; and
- The site is located within the future Aerotropolis Core.


FIFTEENTH AVENUE EXTENSION
FIFTEENTH AVENUE
TO LIVERPOOL CBD

PART A

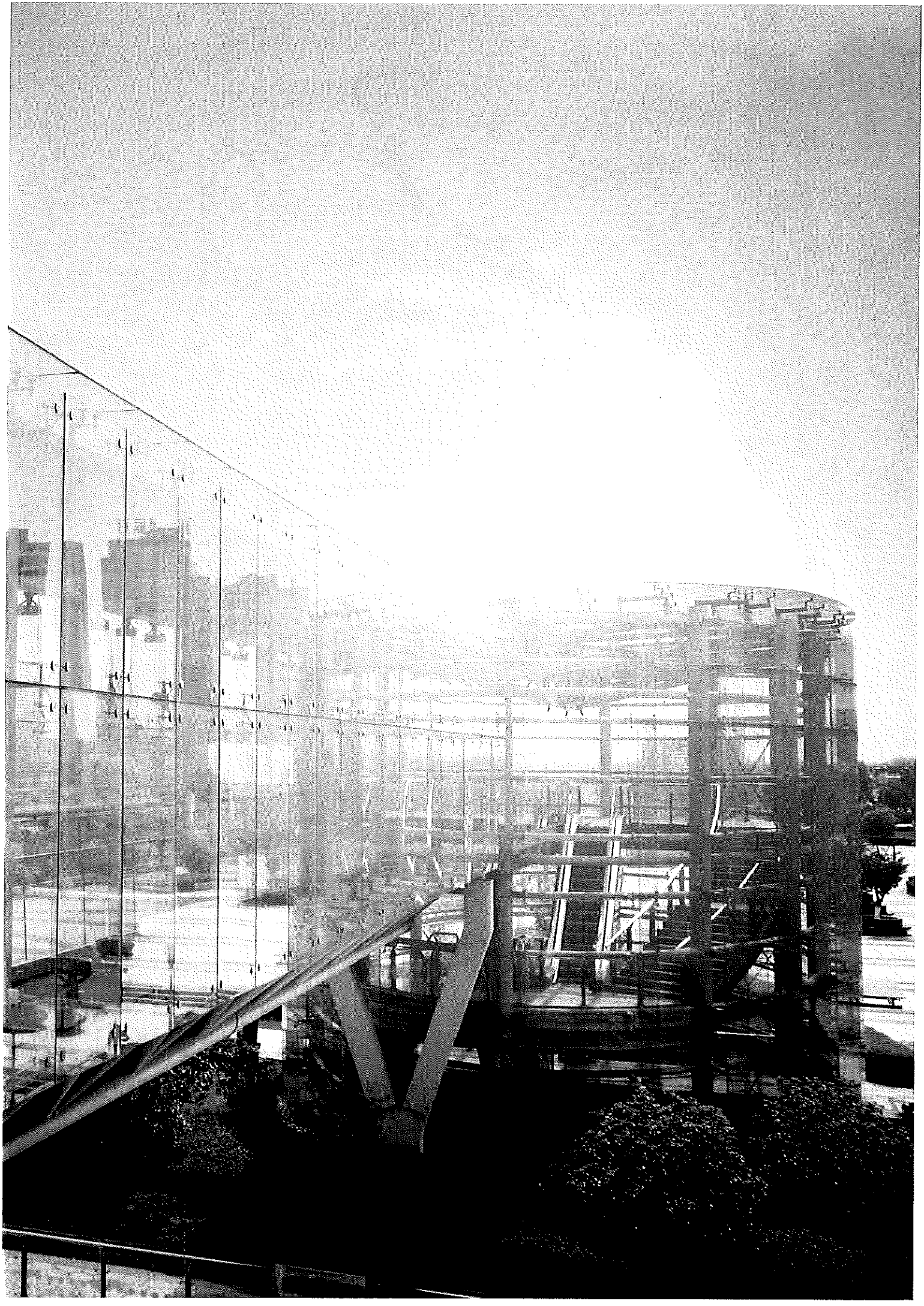
PLANNING AND SITE CONTEXT

Ingham, as a significant single-landowner, is seeking to assist DPE in realising the early activation of the Aerotropolis Core through employment generating land uses.

The structure plan outlined in this document accounts for early, short and long term development scenarios, as key infrastructure is delivered. The structure plan also highlights the importance of strategic transport reservations in delivering an orderly pattern of development.

The vision meets the objectives of the Region and District Plans and respects the environmental principles outlined in the LUIIP. Ingham would like to continue collaborating with Government to realise the Western Sydney Airport vision, and make certain that the early activation of the Aerotropolis Core is delivered in collaboration with the immediately adjoining key single ownership landholdings south of the Ingham site.

This is a unique opportunity for government where land fragmentation will not impact on early delivery of employment land uses and infrastructure connections, sited at the doorstep to the Western Sydney Airport site, and within close proximity to existing and proposed intermodal hubs.



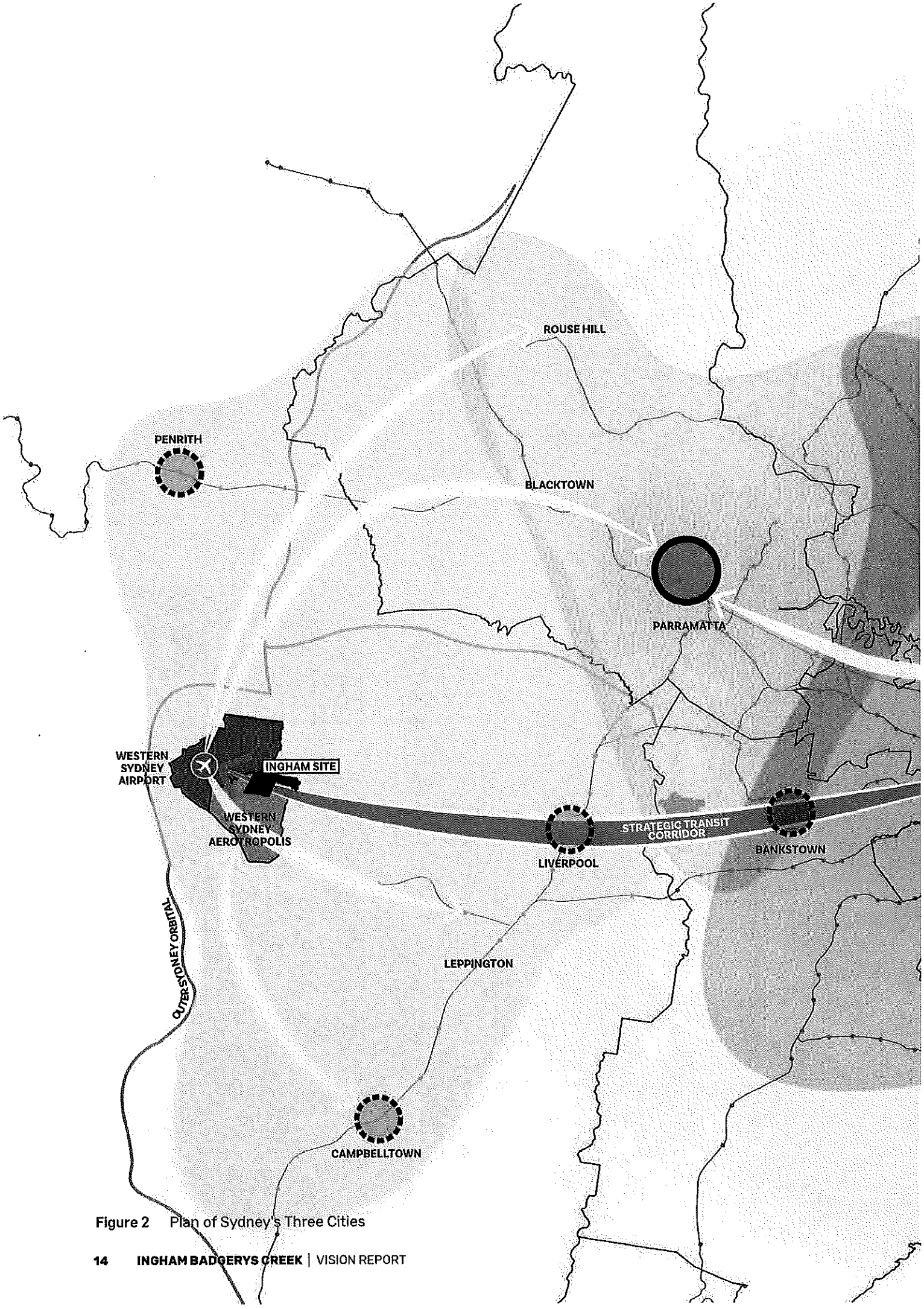
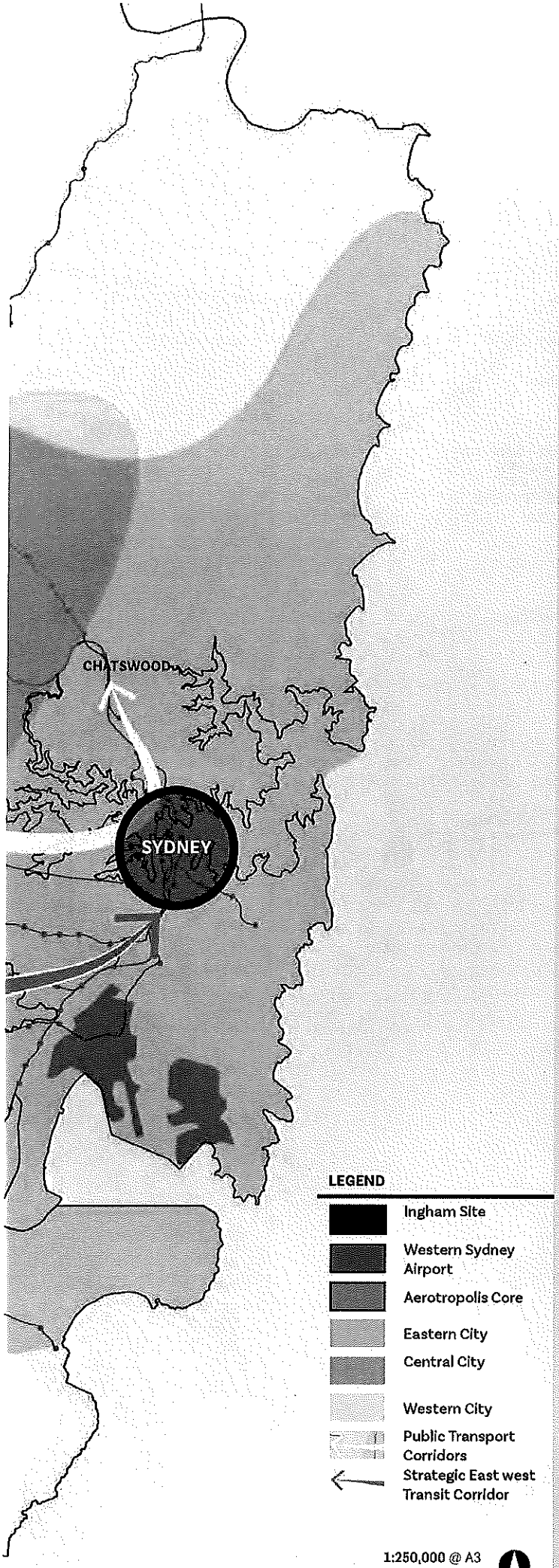


Figure 2 Plan of Sydney's Three Cities



REGIONAL OVERVIEW

A METROPOLIS OF THREE CITIES

Ingham supports the collaboration between DPE, the Greater Sydney Commission (GSC) and Transport for NSW (TfNSW) in delivering a coordinated three-city vision underpinned by commitments to key infrastructure.

The vision supports the GSC's ambition to re-imagine the Western Parkland City through the delivery and retention of globally significant jobs over the next 40 years. The economic analysis undertaken in support of this submission has considered a range of possible employment uses as the role and function of the Aerotropolis Core evolves over time.

Ingham will collaborate with local and international businesses to facilitate the early activation of the Aerotropolis Core and strengthen the economic competitiveness of the Western Parkland City in response to the stated objectives of the GSC and DPE.

This vision has also considered the opportunity single ownership provides in maximising the delivery of improved rail and road connections, having regard to the Western Sydney Rail Needs Scoping Study and the Future Transport Strategy 2056. At a high level, the vision for the Ingham site is underpinned by the following principles:

- Leveraging the proposed east west connection between Liverpool CBD and the Airport terminal via Fifteenth Avenue.
- Respecting the South Creek Corridor and its tributaries.
- Retaining existing north south connections where possible (Badgerys Creek and Lawson Roads) to future proof the road structure.

The success of the 30-minute city is underpinned by good connectivity, for the Western City this means building on Government's commitment to the Sydnenham to Bankstown Metro with a major future connection continuing to Liverpool CBD and ultimately the Airport.

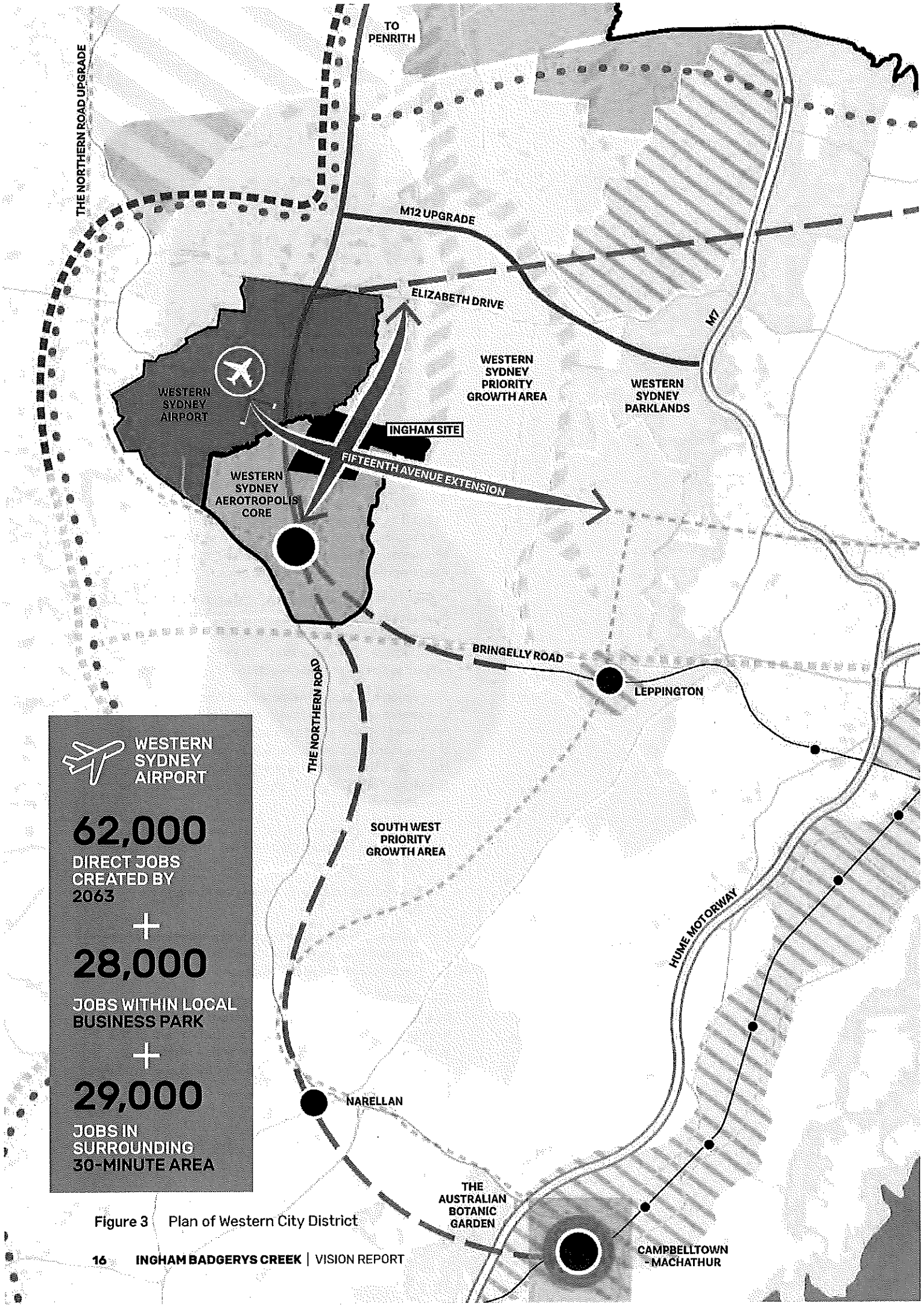
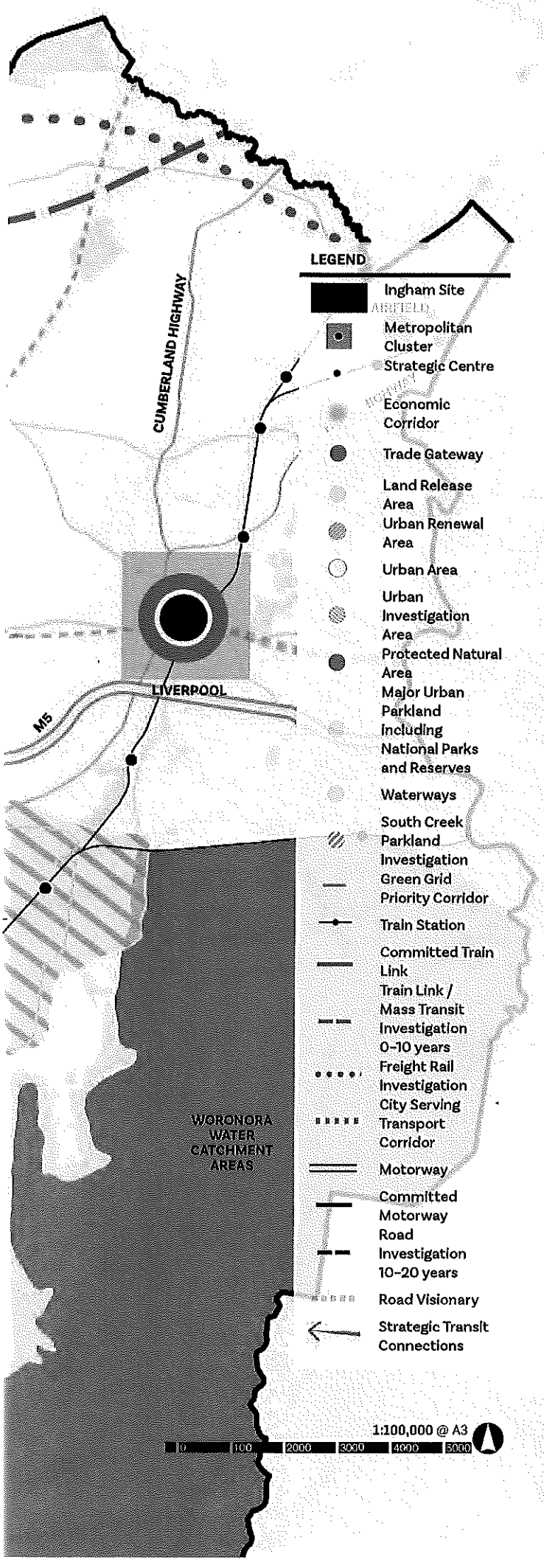


Figure 3 Plan of Western City District



DISTRICT OVERVIEW

WESTERN CITY DISTRICT PLAN

The Ingham site is uniquely positioned to deliver the short and longer term jobs growth envisaged under the Western City District Plan and will support the role and function of the 'Western Economic Corridor'.

The vision presented here for the Ingham site establishes a land use and transport structure that enables a liveable, productive and sustainable Western Parkland City. The vision and structure proposed by Ingham delivers on the following key elements of the Western City District Plan:

- Will deliver, in the immediate term, more jobs to the Western City District.
  - Recognises the need for freight and logistics services close to the Western Sydney Airport.
  - Identifies key connections and a road structure that will facilitate a transition in land use intensity (and employment diversity) over time.
  - Allows appropriate land use transitions and respects environmental constraints.
- Proposes to support the delivery of a rapid transit connection from Liverpool CBD to the Western Sydney Airport, supporting the vision for a 'Metropolitan Cluster'.
- Seeks to enhance connectivity, capitalising on existing road corridors, proposing an orderly development strategy that provides a strong return on Government investment.

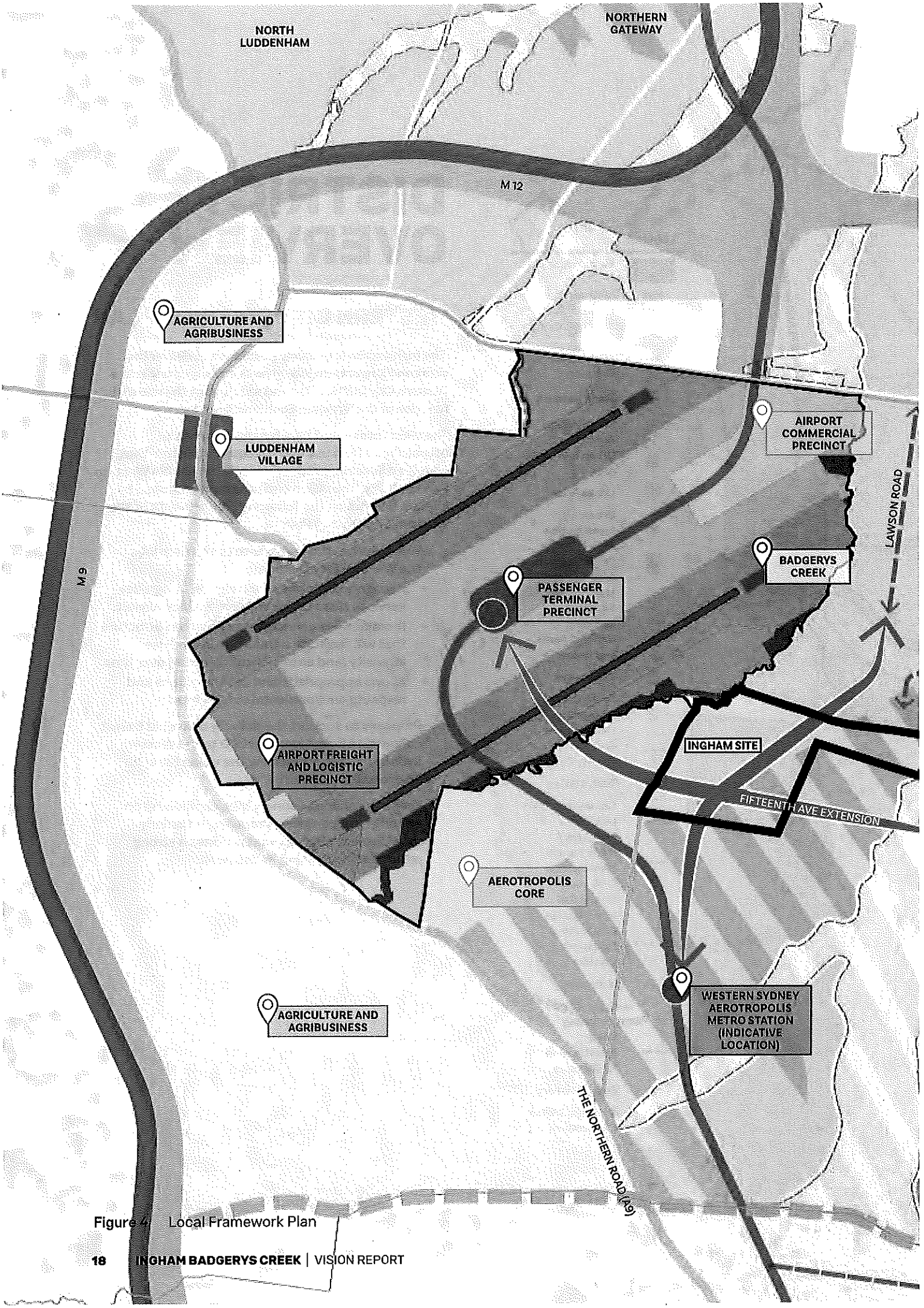
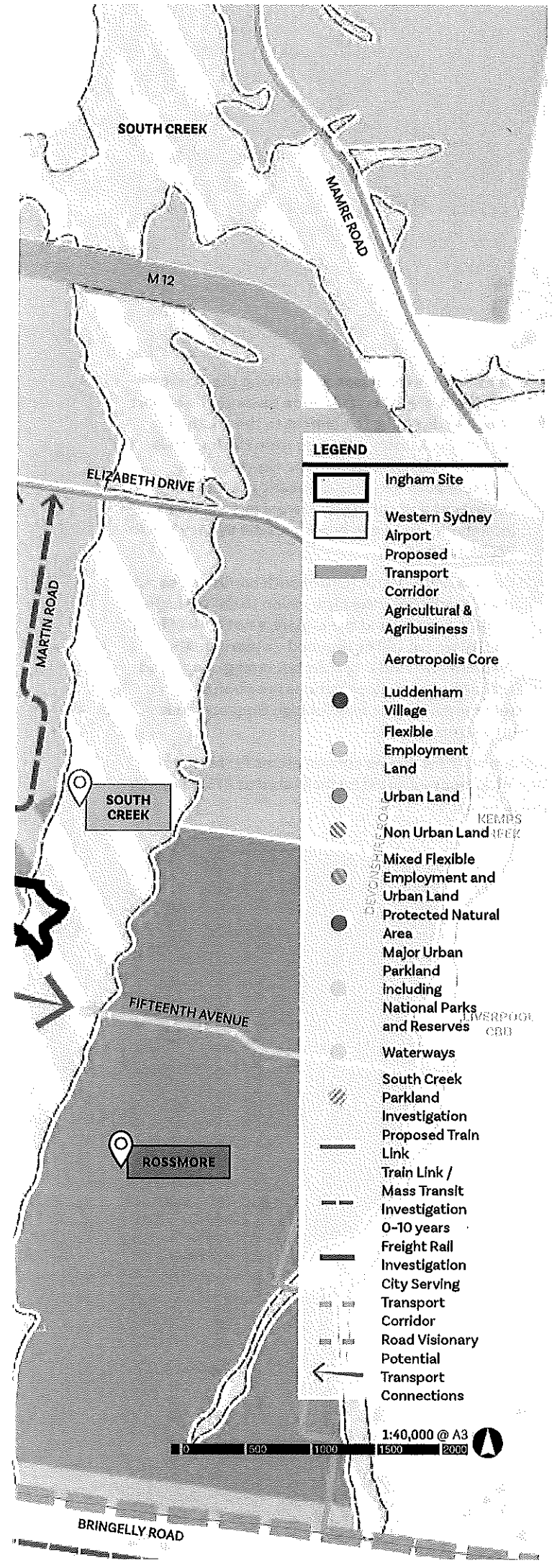


Figure 4 Local Framework Plan



LOCAL PLANNING FRAMEWORK

WESTERN SYDNEY AIRPORT - LUIIP

As a significant single ownership landholding, the Ingham site presents a crucial opportunity to unlock the development potential of the Aerotropolis Core. Given the site directly adjoins the Airport lands and can be serviced quickly and feasibly, Ingham are seeking to provide early activation through employment generating uses.

With the realisation of the long term land use functions and aspirations for the Aerotropolis Core, these early scale and typology of employment uses will graduate in scale and intensity over time and need to be safeguarded through a sensible urban structure and planning framework. Because of this, Ingham wishes to reiterate:

- Support for the flexible and adaptable planning framework that has been proposed.
- The opportunity to provide an extension of Fifteenth Avenue through the Ingham site, given:
  - The extension is far easier to deliver through few large land holdings; and
  - It is crucial to the realisation of strategic objectives, including the viability of higher order employment uses.
- The importance of leveraging (through retention) existing road connectivity, including:
  - To Elizabeth Drive via Martin Road and Lawson Road; and
  - To The Northern Road via Badgerys Creek Road enabling access for the short term employment. We note the role and function of Badgerys Creek Road may change as the Aerotropolis evolves.

Ingham also acknowledges the strategic studies currently being undertaken in concert with the LUIIP finalisation (Agri-port feasibility, North South Rail investigations and Utility/Servicing Strategy). As the findings of these studies will play a key role in future precinct planning, Ingham requests the opportunity to review these in collaboration with DPE.

TRANSPORT OPPORTUNITIES

BUS OPPORTUNITIES

Ingham strongly support the delivery of a north-south rail line that is aligned with the operation of the airport. Connectivity to Leppington is strongly supported as it facilitates travel between the two airports in advance of a faster connection to Parramatta. Connection to Macarthur is also supported.

The location of the Fifteenth Avenue T-Way extension from Liverpool to Western Sydney Airport has not been identified in detail in the LUIIP (Stage 1). Ingham strongly supports rapid bus connectivity as it would facilitate early activation of land uses surrounding WSA and building momentum towards the Aerotropolis vision.

Providing an east west alignment for Fifteenth Avenue direct to WSA via the Ingham's site with a longer term bus tunnel to interchange with the airport provides a directness of connection that benefits the broader community. A direct alignment reduces travel time and improves 30 minute city access for Liverpool to the airport. This design would have lower amounts of curvature in the alignment and promote a more rapid system that could carry more passengers into the future.

The concept of a T-Way extension from Parramatta to Liverpool to WSA is also strongly supported and Ingham would welcome discussions for how our site could facilitate early delivery of this infrastructure.

The approximate location of the Western Parkland City Bus Interchange is also strongly supported as it is a logical connection point between the Fifteenth Avenue Extension concept and the Sydney Metro WSA Line.

We have identified several connectivity options (not mutually exclusive) that we believe would strengthen the plan and should be considered in the next stage of planning:

- Deliver short term bus infrastructure and reservations that are consistent with a longer-term network which will enable early activation in support of the Aerotropolis vision;
- Deliver a bus to rail interchange that connects Fifteenth Avenue to the Sydney Metro WSA Line. This would maximise inter-connectivity between transport modes and support connection to the airport from Liverpool which is a strategic centre in the District Plan;
- Consider running buses direct along the current alignment of Fifteenth Avenue towards the airport and then diverging to connect to the southern part of the Aerotropolis Core from the Ingham's site as well as directly into the airport. A bus-only tunnel could address security hazards into the airport and could provide the highest quality interchange between buses and the Sydney Metro WSA Line; and
- Consider alternative north-south corridors east of the airport. Given the clear vision to deliver higher density uses around the airport, a network of high quality transit will be required - otherwise the Western Parkland City risks becoming congested in the long term. Reservations are strongly recommended not only for high frequency bus infrastructure.

Ingham would welcome conversations for how rapid bus infrastructure could be facilitated at 475 Badgerys Creek Road

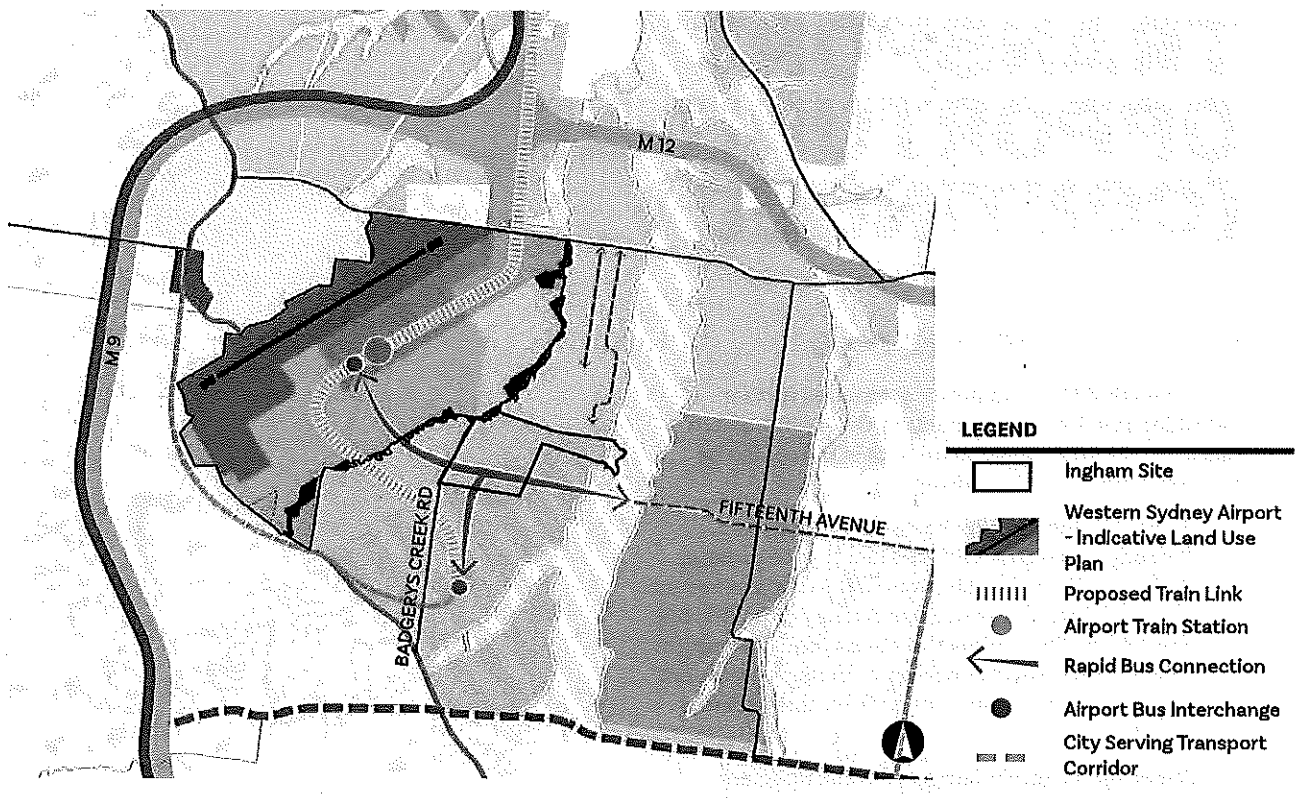


Figure 5 Short-Term Transport Opportunities (2026)

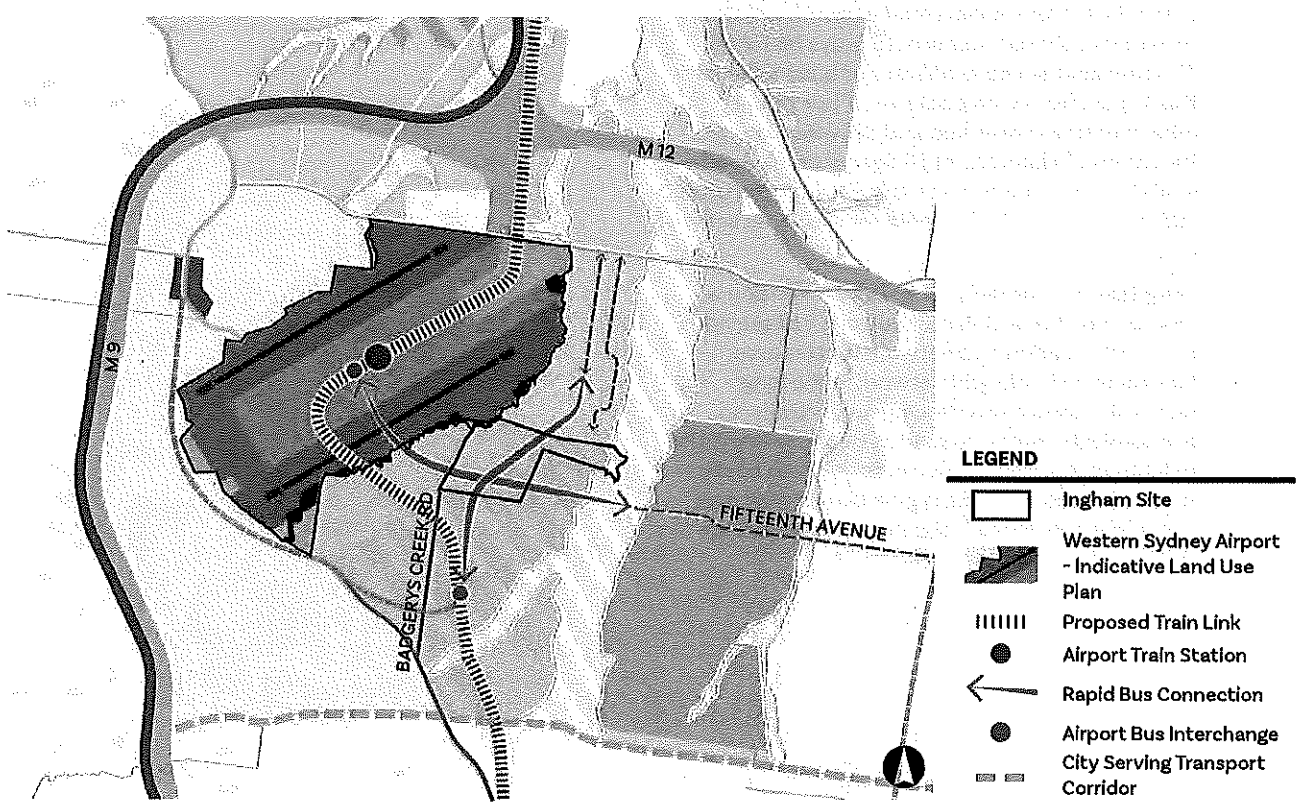


Figure 6 Long-Term Transport Opportunities (2046)

TRANSPORT OPPORTUNITIES (CONTINUED)

ROAD OPPORTUNITIES

It is noted that the road network requires further definition in subsequent stages of the LUIIP. Ingham has several suggestions for principles that could be incorporated into this planning:

- **Early** : The Ingham site has a unique prospect for early activation. With the location of the site, Badgerys Creek Road is proposed to be retained as an access point into Western Sydney Airport in the short term. This makes the site a unique offering in that it could provide ancillary activities to support the business development zone on the southern side of the airport;
- **Short Term :** Retain Badgerys Creek Road and deliver Fifteenth Avenue in the short term. This grid network delivers early options for drivers as an alternative to the M9 and M12, should there be delays in delivery. A local road network will also be required should these motorways be tolled. This also enables early delivery of bus routes to the Airport from Liverpool even if bus priority infrastructure is reserved and delivered later. Retention of elements of Badgerys Creek Road would also reduce costs to the SIC enabling more infrastructure to be delivered for the same scale of levy; and
- **Long Term** : A bus-only tunnel and extension of Lawson Road to a collector/sub-arterial provides the much-needed grid network for this area. Moving to a simple grid network in the long term will improve way-finding and provide an economical solution to road network delivery. Use of Lawson Road also reduces acquisition costs. And with many of these properties turning over in the long run, there is significant potential for delivery at no cost to Government.

A 24-HOUR AIRPORT

LAND USE CONSIDERATION

In considering the appropriate land uses in the immediate, short and longer terms - Ingham acknowledges the importance of preserving the role and function of the proposed 24/7 airport. Ingham's intent is to deliver short term activation through employment generation. This will evolve as further amenity is afforded to the area through planned infrastructure investment.

Ingham has investigated national and international precedents, together with consulting industry partners, to understand the spatial requirements for specific uses. As expanded upon in Part C of this report, the structure plan established under this vision proposes an urban structure that safeguards the evolution of land-uses - with short and long term scenarios considered.

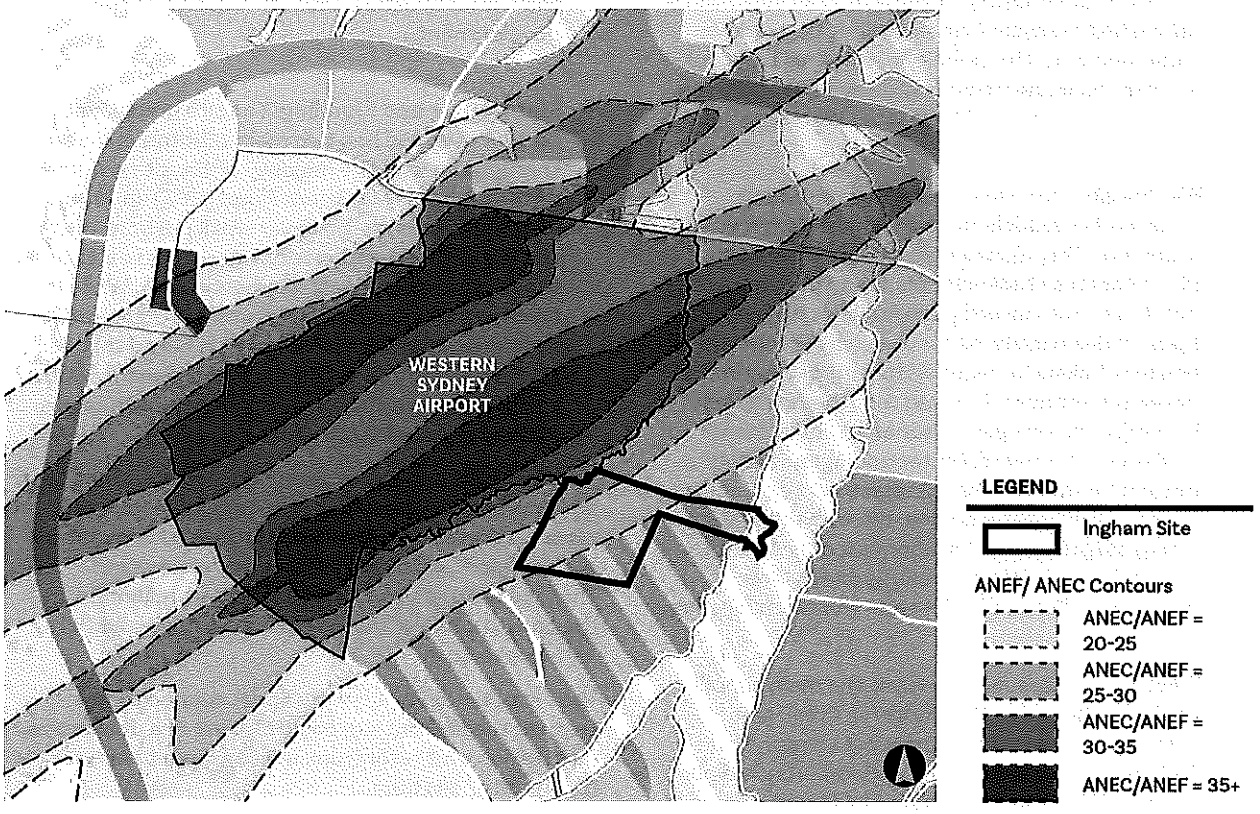


Figure 7 Western Sydney Aerotropolis overlayed with ANEF/ANEC Contours

UTILITIES AND STORMWATER

Infrastructure planning is crucial to ensure the development is adequately serviced with utility infrastructure and stormwater infrastructure. The current site use is low-density primary production land which has limited connections to the type of utility and stormwater infrastructure that would be required for high density redevelopment. However due to the size and location of the site it would be an ideal site for the use of decentralised utility and stormwater systems.

A summary of the current utility infrastructure is contained below; a full report of the existing infrastructure is located within Appendix A. A plan of the existing utility infrastructure is contained overleaf.

- **Potable Water**: Drinking water is provided by Sydney Water and supplied through a combination of the Sydney Water Warragamba, Prospect South and Orchard Hills Water Delivery Systems. Supply is limited to a single DN150 water main; initial stages of the development will likely require storage tanks and alternative supply options such as stormwater harvesting / recycled water to limit the potable water demand. The viability of any final build out is reliant on an Aerotroplis wide system and trunk main being developed by Sydney Water.

- **Wastewater**: No waste water infrastructure is currently available for the Ingham Badgerys Creek site. The Sydney Water Growth Servicing Plan indicates studies for planned improvements details are not currently available for review. Decentralised systems for re-using recycled water onsite will likely be required to support any initial development but it is noted that these will likely be subject to stringent discharge requirements by the Environmental Protection Agency (EPA) to protect South Creek and Badgerys Creek. Similar to the potable water advice, the viability of the future stages of any development are contingent on provision of either a trunk Sydney Water wastewater line or district wide treatment system.

- **Electrical**: Endeavour Energy is the main supplier of electricity within the Badgerys Creek area with supply points from the West Liverpool, Sydney West or Regentville networks. Endeavour Energy's 2017 Distribution Annual Planning Report indicates substantial upgrades to the electrical infrastructure in the Western Sydney Priority Growth Area. There is likely sufficient capacity for any initial development but later stages will require the construction of the planned Endeavour Energy upgrades and potentially the construction of new feeder cables.

- **Gas**: Gas servicing the Badgerys Creek Area is provided by Jemena through a combination of high pressure and reticulation mains running across Ingham's site. It appears the current network may be suitable for any initial development but further large mixed-use development may require amplification of the trunk gas lines.

- **Data and Telecommunications**: The only telecommunication provider within the Badgerys Creek area is Telstra. NBN is responsible for the roll-out of the fibre network to new developments up to a certain point and it is up to the developer to coordinate with NBN to install the rest of the communication network required to their development.

- **Stormwater and Flooding**: The site is adjacent to South Creek and has two main tributaries that run through the site. The majority of the site is outside of the Probable Maximum Flood (PMF) and 100-year flood extends, however small portions of the site are within the fringes of these flood extends at the northwest and east site boundaries. While the Liverpool City Council DCPs provide requirements for stormwater infrastructure, it is noted that the EPA is currently updating the guidelines for South Creek to address better liveability in the Western Sydney Priority Growth Area.

For all utilities and stormwater services, the short term development is viable however it would require the construction of decentralised systems to overcome current gaps in external infrastructure servicing. The long term redevelopment would be reliant on the construction of utility services to cover the full Aerotroplis Core.

The introduction of new transport connections through the Ingham site could also serve a dual use as reticulation routes for trunk utility assets to service the Aerotropolis Core.

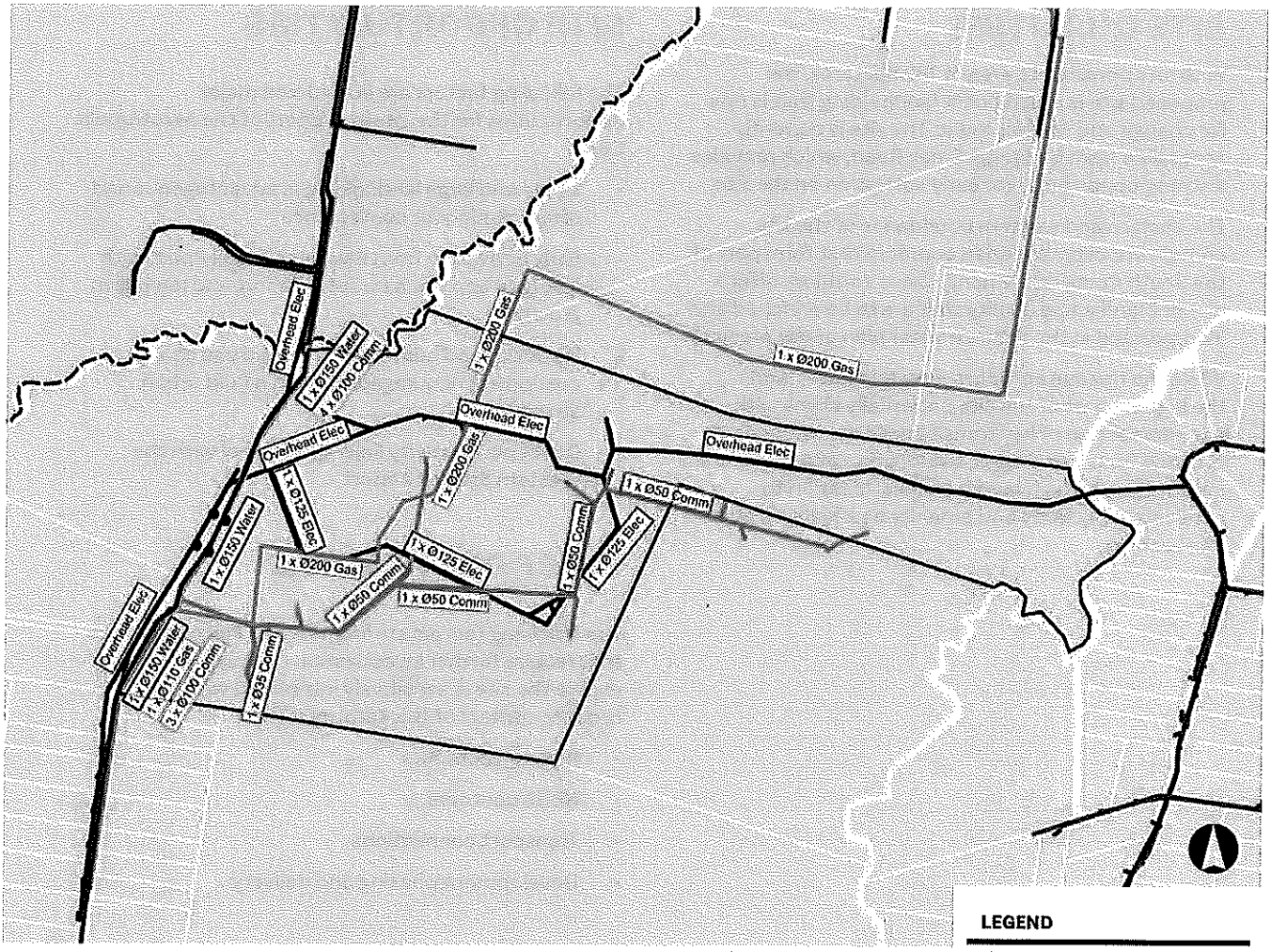


Figure 8 Preliminary Combined Services Plan

Table 1 Summary of External Services Availability

SERVICE	SHORT TERM	LONG TERM
Potable Water	Possible [1]	Upgrade required
Waste Water	Upgrade required	Upgrade required
Electrical	Possible [2]	Upgrade required
Gas	Yes	Yes
Data & Communication	Yes	Upgrade required
Stormwater	Upgrade required	Upgrade required

1 Short term availability is reliant on Sydney Water planned connections to WSA
2 Short term availability is reliant on planned electrical upgrades being delivered

SITE CONSIDERATIONS

SITE QUALITIES

With an approximate area of 182 hectares, the proposed site is a significant landholding that is ripe for change and development. The site is currently accessible from Badgerys Creek Road, which provides a strong opportunity for early activation on the site.

The eastern and western boundaries of the site contain important riparian corridors that form part of the South Creek catchment. These corridors offer a distinct landscape quality that are to be enriched and incorporated in the future master plan of the precinct.

While the riparian corridors sit within lower land, the highest part of the site potentially aligns with the intersection of key transit corridors. Under best practice for urban design, the location of a major intersection on high land is an ideal location to concentrate activity and amenity as a highly visible local centre.

SITE OPPORTUNITIES

The following factors are considered major opportunities for the site in support of the Aerotropolis Core.

- Single and large landholding is advantageous and offers significant convenience
- Early activation from Badgerys Creek Road, with a staged approach for future short and long term growth
- Flexibility and adaptability to land use changes over time, encouraged through a fluid urban structure
- Direct connectivity linking Liverpool with the Western Sydney Airport

SITE CONSTRAINTS

The following factors are identified as key constraints that require further investigation and planning to ensure the site is sensitively integrated with the broader context of the Aerotropolis.

- Riparian corridors
- Noise contours
- Transport connections
- Development phasing and delivery

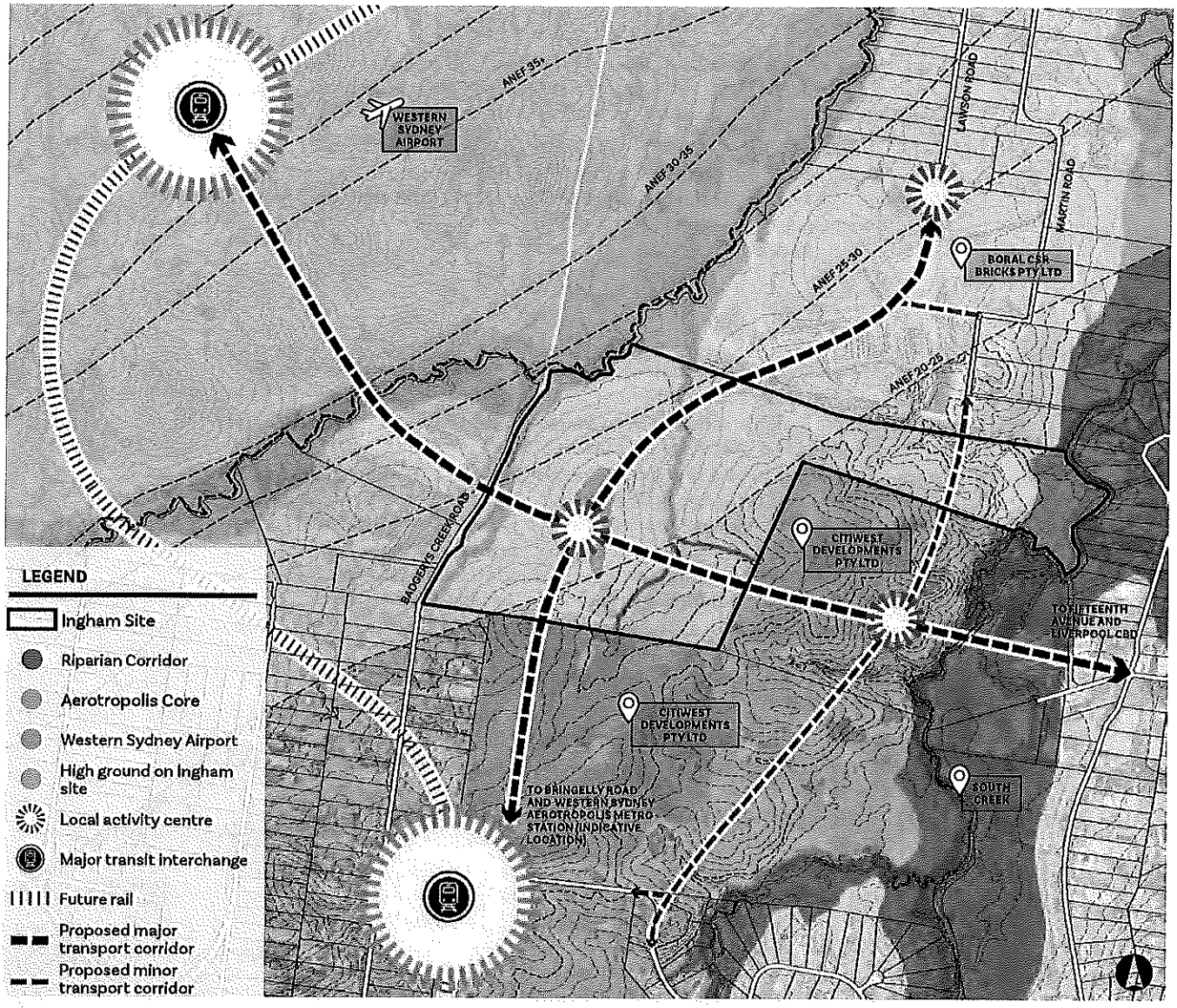


Figure 9 Site opportunities and constraints plan

PART B

FUTURE ROLE AND FUNCTION

SUMMARY AND IMPLICATIONS

Urbis have investigated the precedent for the land use transition of employment precincts, co-located with catalytic infrastructure in order to inform the early structure planning investigations for the Ingham site, as presented in Part C of this submission.

Case studies have been prepared on the following precincts, which had been identified as being most relevant to the short and long term aspirations for the Aerotropolis Core:

- Macquarie Park
- Fort Worth
- Fishermans Bend
- Eastern Creek

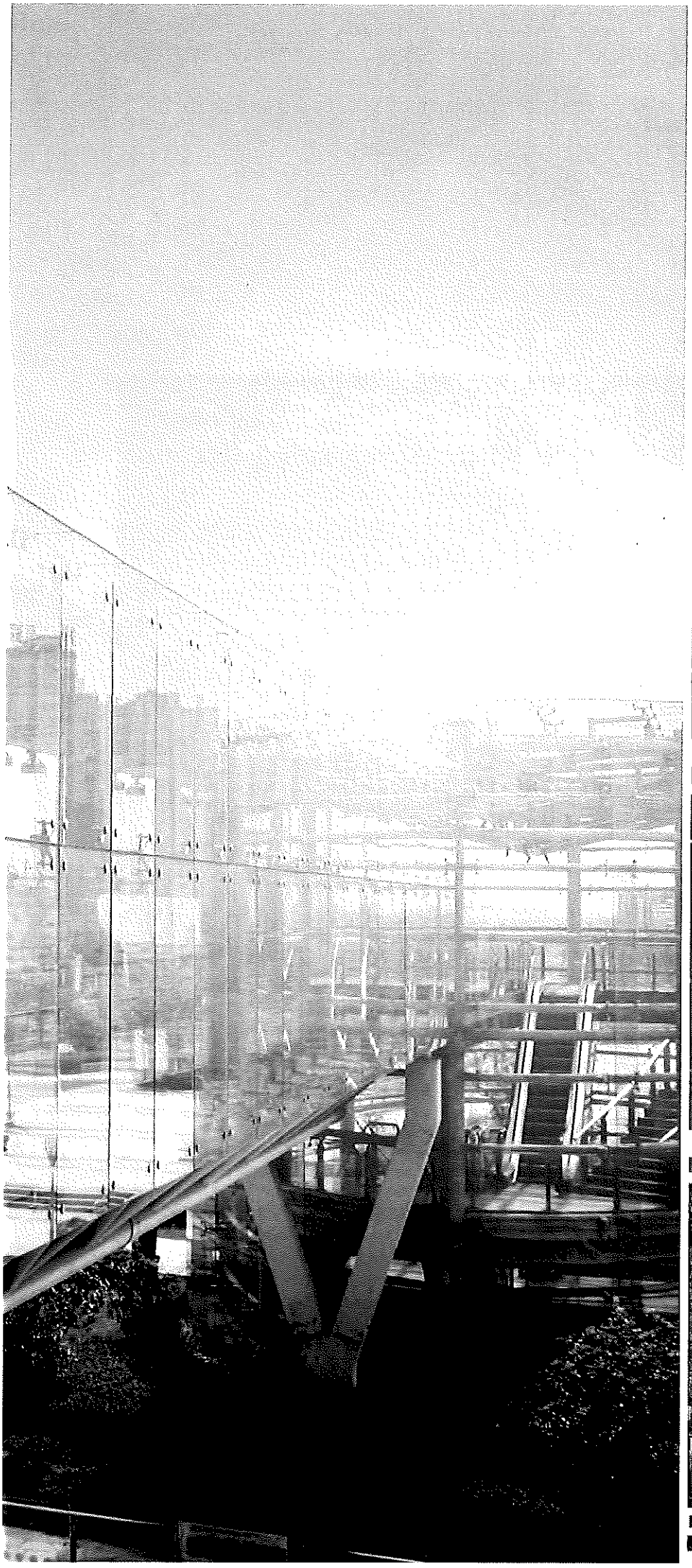
Land use transition from industrial to higher order employment has occurred across the first three case studies:

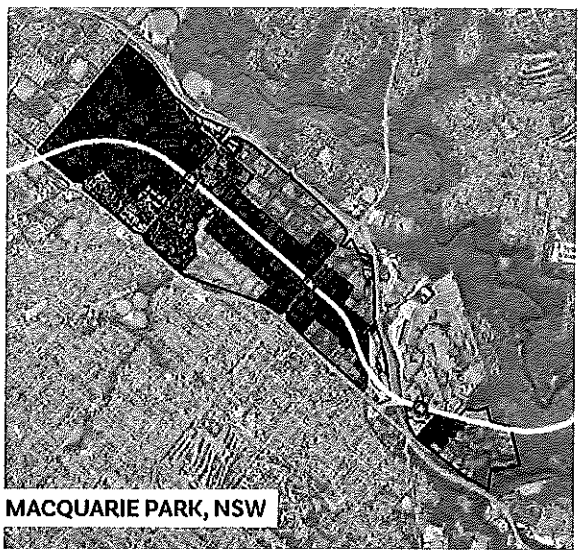
- Macquarie Park transitioned from a largely mixed industrial precinct to the 2nd largest NSW office precinct over a 50-year period
- Fort Worth began as a primarily industrial airport, with other land uses such as business parks, retail and residential evolving over time with market demand and infrastructure development
- Fishermans Bend is currently undergoing transition, with the State Government seeking to influence its role and function through the development of catalyst projects such as the old GM Holden site.

Eastern Creek demonstrates the nexus between infrastructure development and industrial land development. The Eastern Creek sequence of development illustrates that early activation of industrial development should be focused around key road infrastructure.

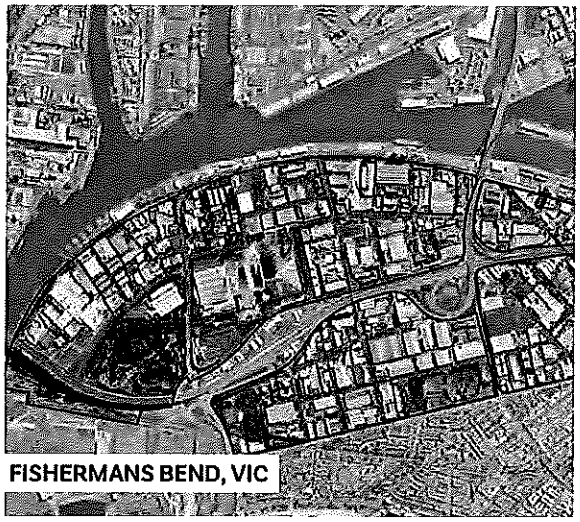
Key drivers of land use transition, and factors influencing these outcomes:

- All precincts were catalysed by infrastructure such as University, Airport, Motorways or a Port
- Leading road and transport infrastructure investment resulted in employment uplift, making the precincts more accessible to workers and businesses
- Fishermans Bend reflects a precinct that is still undergoing transition from industrial uses to a mixed-use precinct that includes higher density employment typologies:
  - Specific sites are being developed to catalyse this change, such as attracting the University of Melbourne as a major tenant, along with redeveloping the old General Motors Holden site
  - Essential infrastructure will be delivered through the Infrastructure Contributions Plan, which is being prepared for the four-capital city zoned precincts and is expected to be finalised by early-mid 2019.
- Macquarie Park illustrates that early development of industrial use can transition into higher density employment over time, as connectivity is improved and supporting retail and leisure/entertainment facilities added.
- Standalone office space occupied by corporate tenants in Macquarie Park and Fort Worth followed industrial development, once infrastructure and amenity were delivered. The initial development of Ingham's land holdings have the potential for industrial uses, that could transition to higher density employment alongside the delivery of commiserate infrastructure and amenity over the medium to long-term.

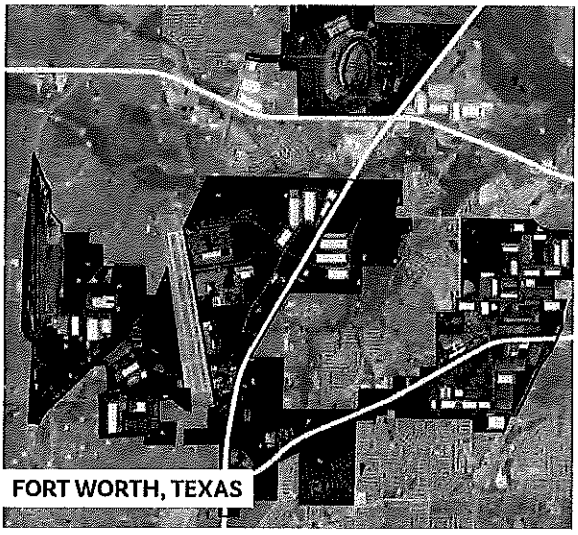




MACQUARIE PARK, NSW



FISHERMANS BEND, VIC



FORT WORTH, TEXAS

EASTERN CREEK, NSW

CASE STUDY

MACQUARIE PARK, NSW

KEY FINDINGS

- The key catalyst of development was the establishment of Macquarie University in 1964. Modelled on Stanford University and its industrial area, the land surrounding the University was rezoned to allow industrial businesses to co-locate with the University.
- CSIRO established itself in North Ryde in 1961, relocating its Division of Food Preservation from Homebush.
- The land use transition from its original industrial zonings to its existing business park / office development occurred over a 50-year time span, with the aid of additional retail services, infrastructure and policy support.
- Surrounding industrial land was rezoned to commercial and light industrial in 1982. The M2 opening in (1993), Lane Cove Tunnel (2007) and Epping to Chatswood Rail (2009) were also key in realising higher density employment.
- Proximity to the North Shore executive belt and other business parks, provided access to skilled workers and decision makers.
- The transition from industrial use illustrates that, for the subject site early development of industrial with links to Badgerys Creek airport can develop into higher density employment over time, improved connectivity and supporting retail and leisure/entertainment facilities will assist in simulating amenity and demand.

DEVELOPMENT SEQUENCE

YEAR	EVENT
1961	CSIRO relocated to North Ryde.
1964	1. Macquarie Universityestablished. 2. Rezoning of greenfield land to 'Macquarie Park Employment Area', allowing for industrial uses.
1970-1975	Biotechnology, pharmaceutical and science businesses seeking mixed warehouse and office space and proximity Macquarie University began taking up space.
1981	Macquarie Shopping Centre opened.
1982	Surrounding industrial land rezoned to allow commercial and light industrial use.
1985-1989	1. Traditional office tenants sought stand-alone office space (as opposed to mixed office-industrial space) such as American Express and Microsoft. 2. First large scale Macquarie Park office buildings opened including Goodman's Talavera Business Park (1985), Karimbla's Macquarie View Corporate Park (1988) and AMP's Thomas Holt Drive (1989).
1991	Goodman completed Catalyst Business Park.
1993	M2 opened in November 1993, linking Atarmon to Bella Vista and going through Macquarie Park.
1997	1. High volume of office developments completed including three more owned by Goodman, three owned by Stockland, and others including Challenger Life, Dexus, AMP and Macquarie University. 2. NSW Government's Action for Transport 2010 established Parramatta Rail Link including Macquarie Park, Macquarie University stations and North Ryde station.
2006-2009	1. Lane Cove Tunnel opened on the M2 increasing accessibility to Macquarie Park from the Lower North Shore and Sydney CBD. 2. Epping to Chatswood Rail Link opened. 3. Office stock almost double (2006-09), with major pre-commitments from business such as Optus (84,000 sq.m), Aristocrat, Hyundai, CA, Sonic Health Care and Medtronic.
2013	Civil works commenced on Lachlan's Line master planned community within North Ryde Station Precinct for over 5,000 residents, 2,700 apartments, retail, open space and pedestrian and cycle links to North Ryde Station.
2015	1. Macquarie Park is second largest office market in NSW with 850,000 sq.m. 2. Herring Road considered priority precinct under A Plan for Growing Sydney. 3. Macquarie University Station Precinct Plan included a B4 Mixed Use zoning of the 'academic core' of Macquarie University to integrate academia with business and industry on campus.
2017	Commonwealth and NSW Governments announced construction of a Macquarie Park Interchange connecting buses, trains and taxis to aid peak-hour commuters.

CASE STUDY

FISHERMANS BEND, VIC

KEY FINDINGS

- Fishermans Bend has a long history of industrial land use through its proximity to the Port of Melbourne and Yarra River.
- Road and bridge infrastructure cemented Fishermans Bend's importance with proximity to the CBD and Docklands, and connectivity to the western suburbs, Geelong and north to Melbourne Airport.
- Macroeconomic shifts in Melbourne have contributed to a sectoral shift in employment growth. Jobs within neighbouring precincts such as Docklands, Southbank, Melbourne CBD and St Kilda Road are focused on knowledge-intensive industries. Fisherman's Bend is gradually following a similar transition to higher density employment.
- The 2012 rezoning of Fishermans Bend to Capital City Zone generated large scale high-rise residential development applications. The rezoning threatened to crowd out higher density employment opportunities.
- A new planning Fishermans Bend Planning Framework was released in October 2018. The new framework put height and density limits on residential developments and provides a set of planning controls and policies to encourage a national employment and innovation cluster, surrounding amenity and infrastructure needs.

Two key catalysts at the state's disposal going forward are:

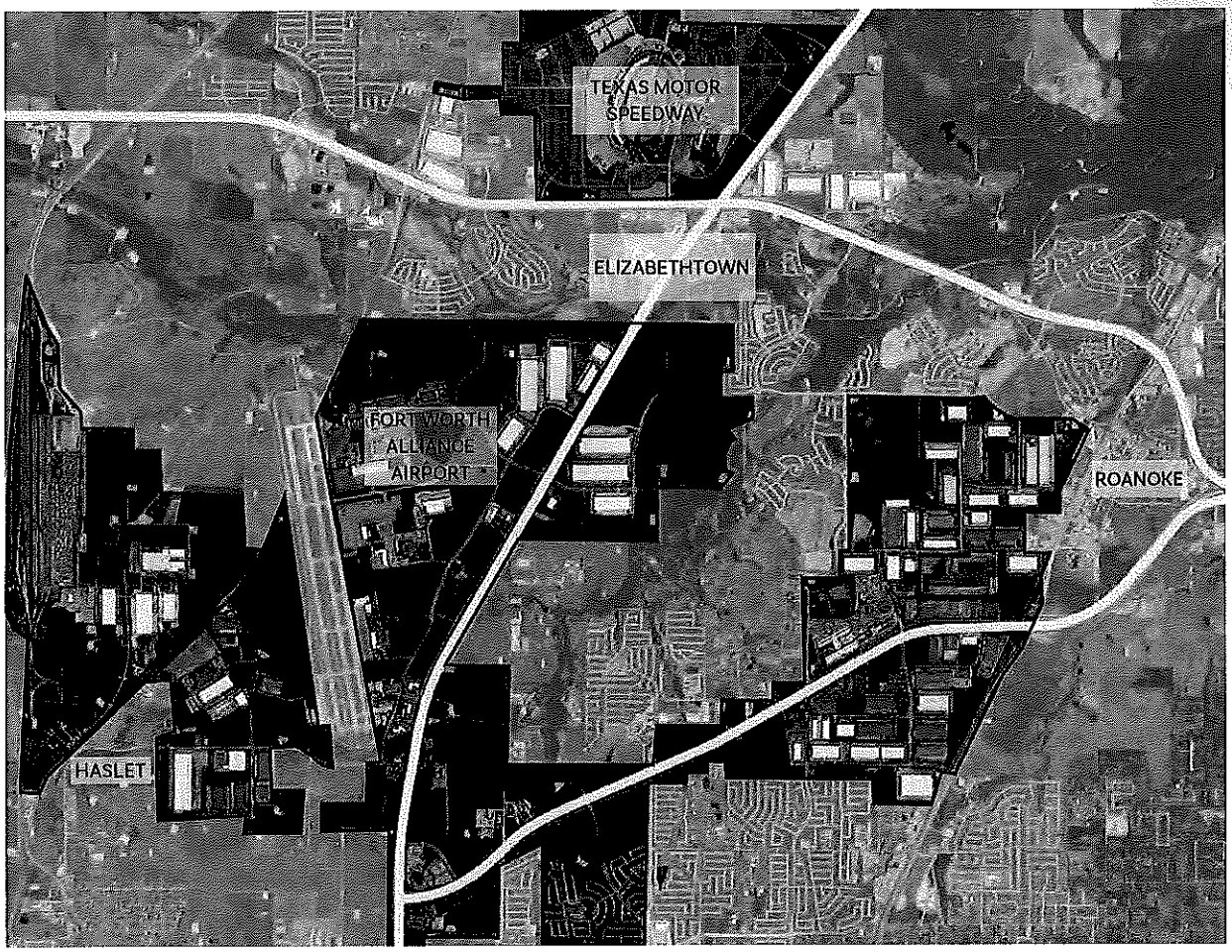
- Strategic development at the old General Motors Holden site (in the centre of the Employment Precinct) will lead a shift from industrial to innovation, tech, creative, design and advanced manufacturing industries. University of Melbourne is committed to 7 hectares from 2020.
- Firm timing and commitment to future infrastructure projects will encourage private land holders and firms to develop higher density land-use in the Employment Precinct.

DEVELOPMENT SEQUENCE

YEAR	EVENT
1840-1990	Fishermans Bend has been historically industrial and benefitted from large infrastructure projects on bridges, docks and widening of the Yarra River
1990-2010	Macro changes in Melbourne's economy reflected a transition from heavy reliance on manufacturing to the knowledge/service industry. The shift to a knowledge services-based economy caused agglomeration of services businesses in central city locations. This centred in the Melbourne CBD and spread to neighbouring specialised precincts like Parkville (health and education), Southbank (cultural), Docklands (offices), St Kilda Road (support offices). The proximity of Fishermans Bend to these central knowledge economies began to drive a similar transition to some higher density employment. The highest growing industries in Fishermans Bend between 1996 and 2012 were construction (~3,000 jobs), wholesale trade (~1,400), admin/support services (~1,000), and retail (~1,000). Comparatively, manufacturing jobs only grew by approximately 250 over that time period.
2012	Four precincts in Fishermans Bend rezoned Capital City Zone. Wider allowable land uses led to substantial number of development applications, particularly high-density, high-rise residential projects.
2014	High volume of residential development with 46 apartment towers approved or proposed from January 2014 to October 2015.
2015	Residential development proposals led to concerns of "crowding-out" opportunities to develop higher density/ value employment uses. New planning announced interim guidelines, scaling back the height and density of buildings, defining new rational and governance structure for the precinct, with a focus on developing key infrastructure, community services and protecting the Employment Precinct.
2016	Victorian Government purchased former General Motors Holden (GMH) site, located in the Employment Precinct. This site (7 hectares of which has been committed to by the University of Melbourne Engineering School) is a key catalyst for the Employment Precinct transformation from heavy industrial to higher density high tech, innovation, advanced manufacturing and creative services.
2018	New Fishermans Bend Framework released, replacing interim guidelines from 2016. The plan targets 80,000 jobs and 80,000 residents in the precinct by 2050. Planning controls supporting future high-density employment include major roads, infrastructure and minimum employment floor space in designated core areas.
2019 (Planned)	Essential infrastructure will be delivered through the Infrastructure Contributions Plan, which is being prepared for the four-capital city zoned precincts, and is expected to be finalised by early-mid 2019.
2020-2025 (Planned)	1. Northern tram corridor 2. General Motors Holden site redevelopment 3. Upgrade of the Westgate Punt. 4. Fishermans Bend education and community hub
2025+ (Planned)	Potential underground rail

CASE STUDY

ALLIANCE, FORT WORTH, TX



KEY FINDINGS

- Alliance Airport, the USA's first purely cargo and corporate aviation airport, is surrounded by 3,035 hectares of private land entitled for manufacturing, distribution, and office use.
- Public investment in transport infrastructure, specifically the Alliance Gateway Freeway in 1988, was vital to establishing the accessibility of the Alliance Centre.
- The first major tenants attracted to Alliance Centre had direct operational links with the airport, such as American Airlines (1989). The next tranche of development was the Alliance Gateway (1992), an industrial precinct servicing large scale distributors and warehouses.
- Corporate tenants in technology, research and business were attracted to Alliance following ancillary infrastructure (such as the intermodal transport centre in 1994) and retail amenity and services delivered in Alliance Crossing (1995).
- The current land use mix, while incorporating industrial, corporate tenants, also includes residential communities, health and retail services.

DEVELOPMENT SEQUENCE

YEAR	EVENT
1987	1,050-hectare parcel of land identified for potential regional airport, as Dallas-Fort Worth had exhausted supply of industrial land near existing airport infrastructure.
1988	State Highway 170 (Alliance Gateway Freeway) was designated in 1988, in a public private partnership between Texas Department of Transportation (TXDOT) and Hillwood Properties. Hillwood donated land and environmental studies, TXDOT invested $76m in infrastructure.
1989	The airport officially opened in December 1989.
1988 - 1991	Alliance Development Company acted in the role of a land developer. Focussed on land sales to private developers and attracting infrastructure development, before developing for its own account.
1989	Alliance Centre, an 730-hectare business complex with direct runway access was built surrounding the Alliance Airport. In conjunction with the City of Fort Worth, a tax exempt financing structure was used to attract American Airlines to Alliance Centre, constructing a maintenance/engineering base for 1,200 workers.
1992	Alliance Gateway (404 hectare industrial precinct) was opened as a site for large scale distributors, manufacturers, and warehouses midway between Alliance and Dallas-Fort Worth Airport.
1994	Westport at Alliance, an 450 hectare development was constructed on the Santa Fe Railway line including 67 km of rail, two fuelling stations and an intermodal transportation centre to handle large cargo and freight

YEAR	EVENT
1995	1. Construction of the Alliance Tech Centre with approx. 23,870 sq.m of office, distribution, light manufacturing or high-tech space all with high visibility and easy access to Interstate 35W. 2. Construction of Texas Motor Speedway in the far eastern edge of the Alliance Core. 3. Alliance Crossing was a 60-hectare precinct earmarked to develop retail and service amenities to corporate tenants and nearby residents. This included land purchased for a regional mall, which would later become Alliance Town Centre. Alliance Crossing Phase 1 was complete and fully occupied in 1995.
2000	Heritage opens as the first large-scale fully wired residential community in Texas.
2011	GE Transportation selected Fort Worth for its locomotive manufacturing facility.
2012	1. Texas Health Resources Harris Methodist Hospital and MOB opened 2012. 2. Amazon announces 102,200 sq.m industrial fulfilment facility at Alliance.
2013	1. HCA North Texas Hospital and Parkway Surgical & Cardiovascular Hospital opened 2013. 2. 306 unit SageStone Village breaks ground at Alliance Town Centre.
2014	Alliance Town Centre completed, including over 130,000 sq.m of retail, restaurant and amenity space.
2018	Hillwood Properties completed expansion of Fort Worth Alliance Airport, extending two runways and a taxiway. The expansion allows non-stop flights from Alliance to Europe, where aircrafts would previously have to refuel on the East Coast. This is expected to attract new cargo firms and jobs to Fort Worth.

CASE STUDY

EASTERN CREEK, NSW

KEY FINDINGS

- The Eastern Creek Industrial Precinct has a significant competitive advantage in its location at the intersection of two major motorways, the M4 Western Motorway and the Westlink M7. As a result of this location, planning policy has favoured the precinct, with clear strategic policy direction for the precinct to become a major freight, logistics and distribution hub in Western Sydney.
- Industrial development began in 2003 following the announcement of the construction of the Westlink M7. However, development up to 2005 was initially slow and was led by council planning initiatives, namely the Blacktown Council precinct plan for the Eastern Creek Business Park.
- The opening of the Westlink M7 was a catalyst for major development, with large-scale businesses such as Coles-Myer and Coca-Cola Amatil opening distribution centres in around 2007. There was also significant development of medium-sized warehouse and logistic centres across the precinct.
- The Western Sydney Employment Area (WSEA) SEPP in 2008 further identified the metropolitan-wide logistics role of the precinct, and other major businesses opened distribution centres by 2011.
- The announcement of plans for a major intermodal terminal at the precinct in the 2013 Draft Structure Plan for the WSEA and coincided with further investment to 2015.
- In recent years, there has been heavy investment in the area, particularly from Frasers, with international retail companies seeking warehouse facilities in Western Sydney due to the future Western Sydney Airport.

DEVELOPMENT SEQUENCE

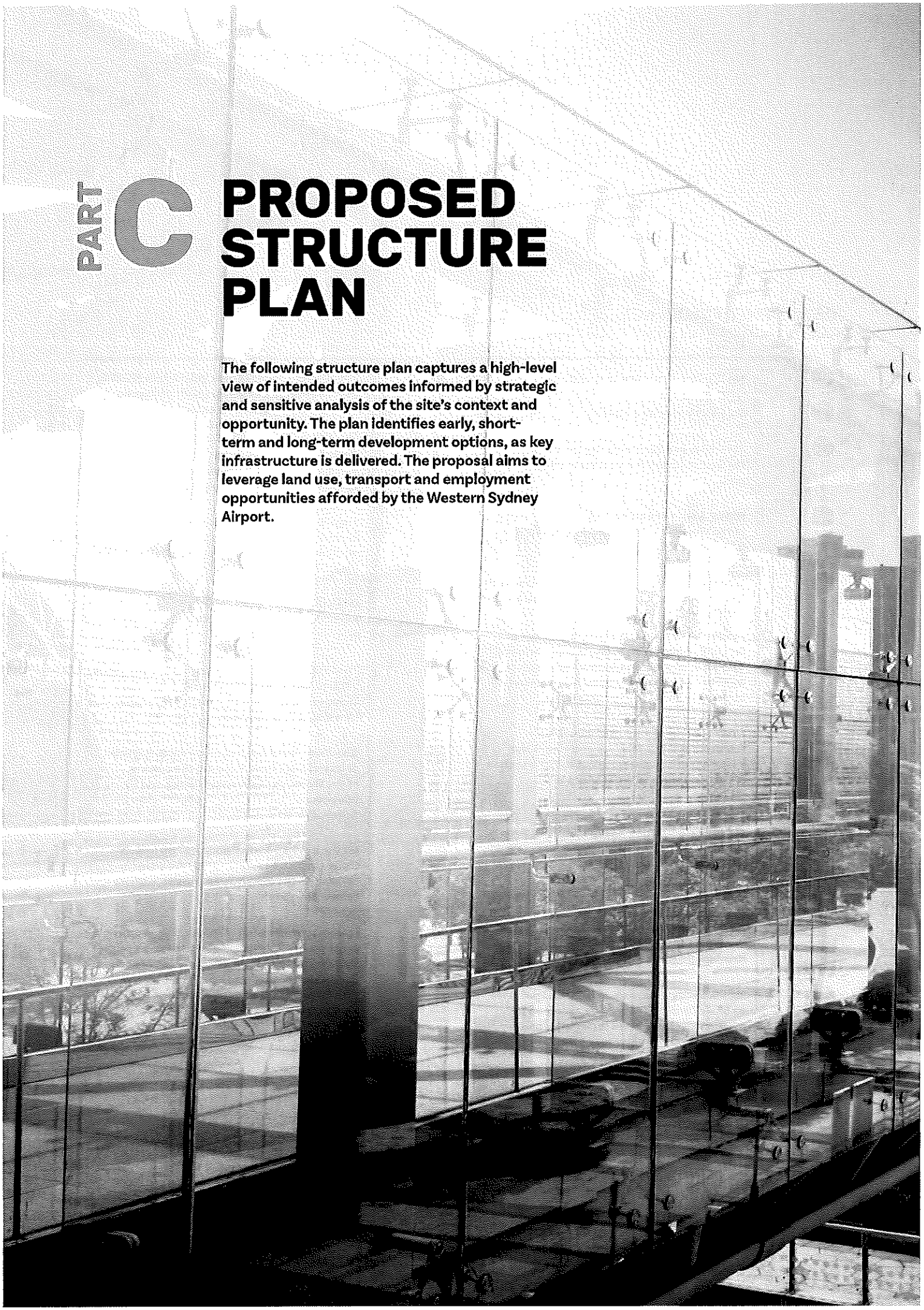
YEAR	EVENT
1993	M4 Western Motorway is opened
1997	M2 Hills Motorway is opened
1999	SEPP 59 is gazetted, rezoning the whole of the Eastern Creek Precinct for employment purposes.
2002	NSW government authorises the undertaking of the Westlink M7 construction, due for completion in 2005.
2004	Wonderland Theme Park ceases operation and the 59 ha site is bought by ING Industrial Fund and The PacLib Group. Blacktown Council establishes a precinct plan for the Eastern Creek Business Park (including the site of Wonderland Theme Park), with the objective of fostering employment-generating businesses and industry clusters.
2004 - 2005	First major development of industrial warehouses in the precinct occurred in the Eastern Creek Business Park at the intersection of Wallgrove Rd and Wonderland Dr.
2005	The Westlink M7 is opened, increasing accessibility to Eastern Creek from South West Sydney and linking through North West Sydney to the M2 Motorway.
2007 - 2008	Goodman develops M7 Business Hub, including major distribution centres including Coles NDC (67,000 sq.m), Coles CDC (40,000 sq.m), and Coca-Cola Amatil (49,000 sq.m). Goodman also develops 28,000 sq.m Myer Distribution Centre.
2007 - 2009	Significant development of industrial buildings on Shale Place and Clay Place, tenanted by medium-size businesses for logistics and warehousing.

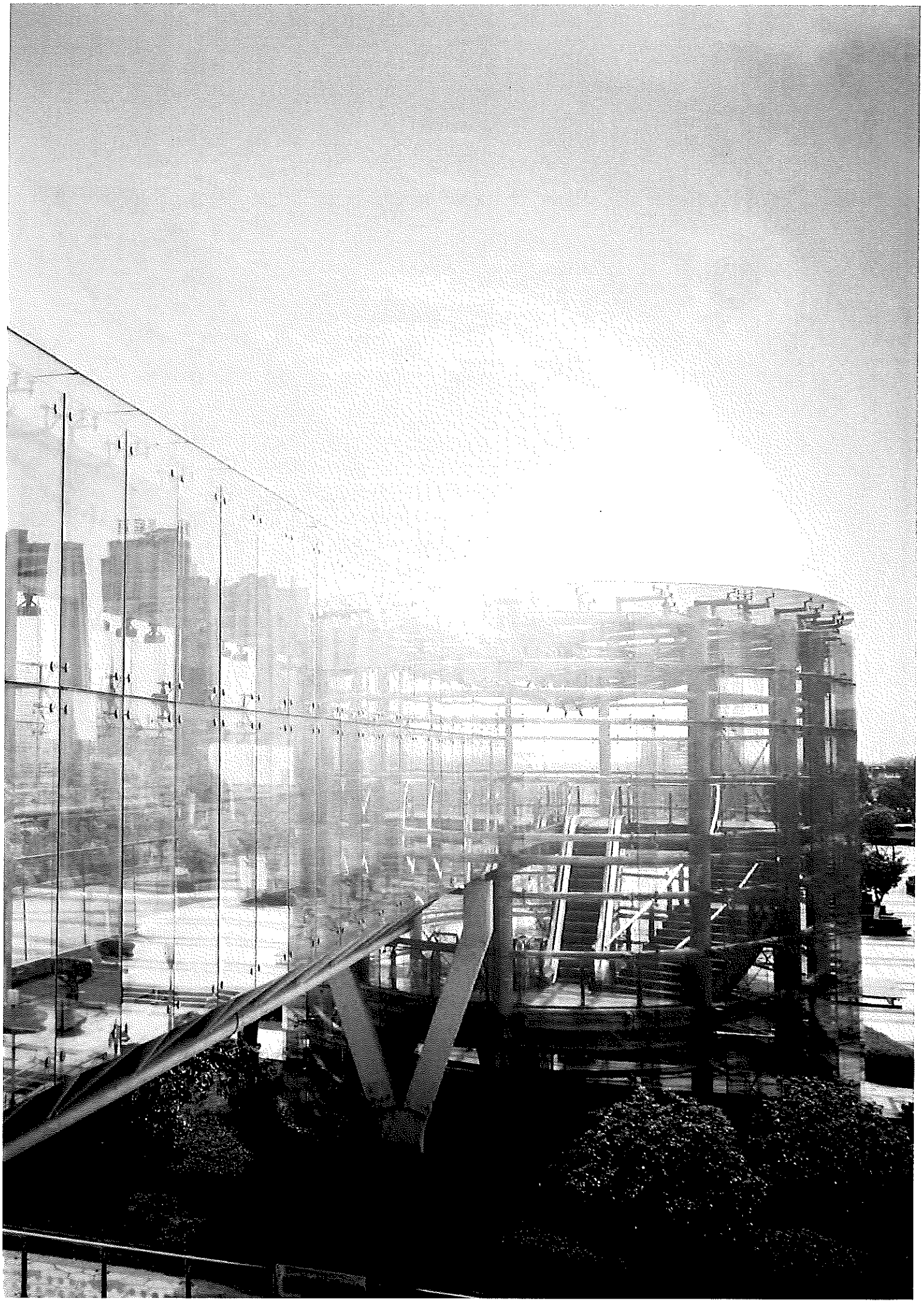
YEAR	EVENT
2008	The Western Sydney Employment Area (WSEA) SEPP is gazetted, extending and consolidating the area of land zoned for employment uses to the south west of the Eastern Creek Precinct. The SEPP includes zoning of the entire Eastern Creek Industrial Precinct as IN1 Light Industrial and encourages warehousing and distribution, light industry and freight transport facilities.
2010 - 2011	Major businesses establish primary distribution centres in the precinct, including Kmart (50,000 sq.m), Ingram (39,000 sq.m), and Best and Less (36,000 sq.m)
2012	Dial a Dump Industries begins operation of major Genesis recycling facility on 120-hectare site.
2013	The NSW Department of Planning & Infrastructure Draft Structure Plan for WSEA includes plans for a future major intermodal terminal at Eastern Creek.
2013 - 2015	Goodman undertakes significant development of Interchange Park, including the opening of the Bunnings Distribution Centre and E2 Warehouses (Bantex, Toll, Goodyear, Henry Schein, Frijcor)
2015	Mirvac begins construction on $200 million Calibre industrial estate - a 20,000 sq.m building on the 22ha quarantine site, with no tenant pre-commitment
2015 - 2018	Frasers progressively makes major investment in the precinct, developing large sites over six stages. They also begin construction of Eastern Creek Quarter retail and bulky goods centre with up to 50,000 sq.m of retail floorspace.

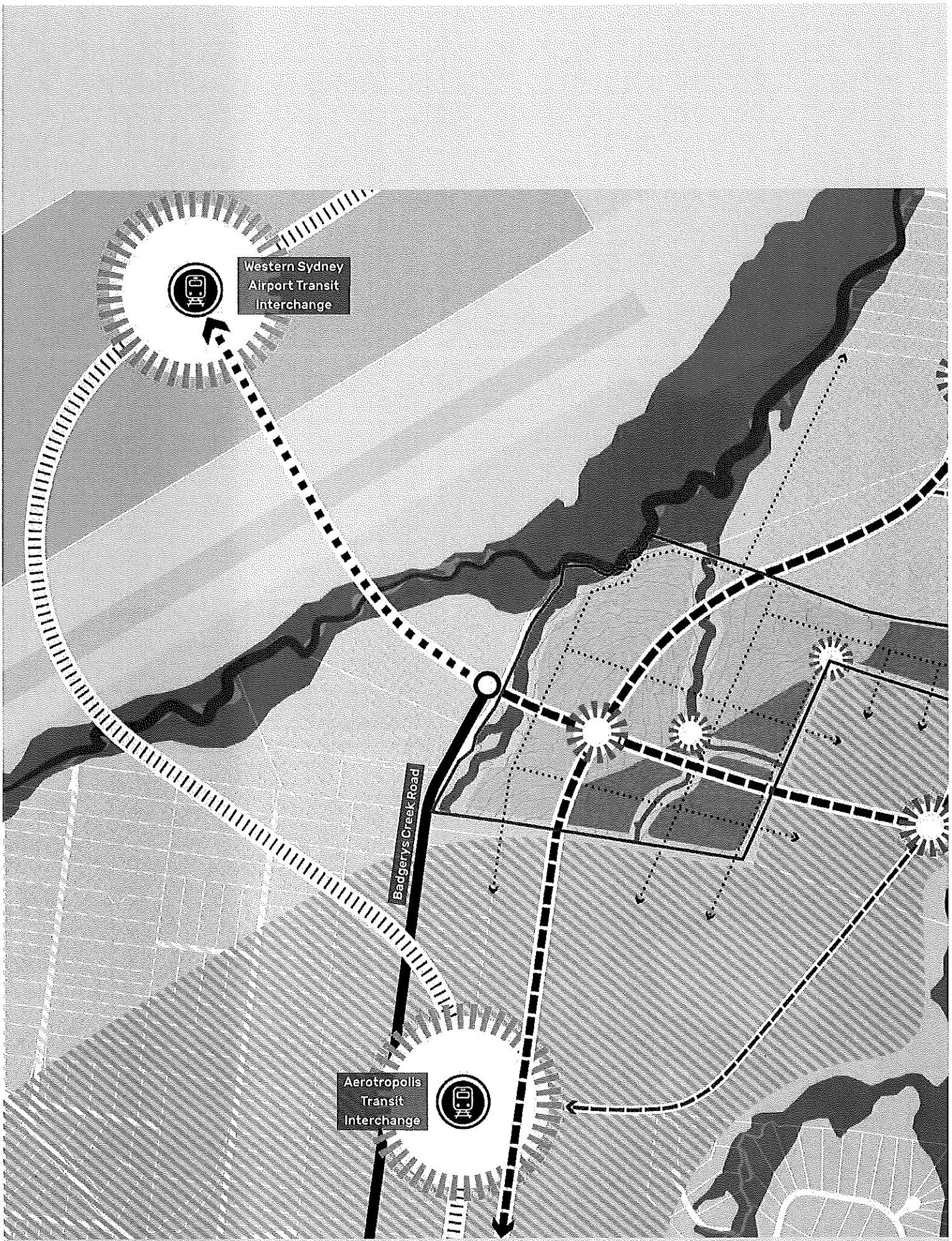
PART C

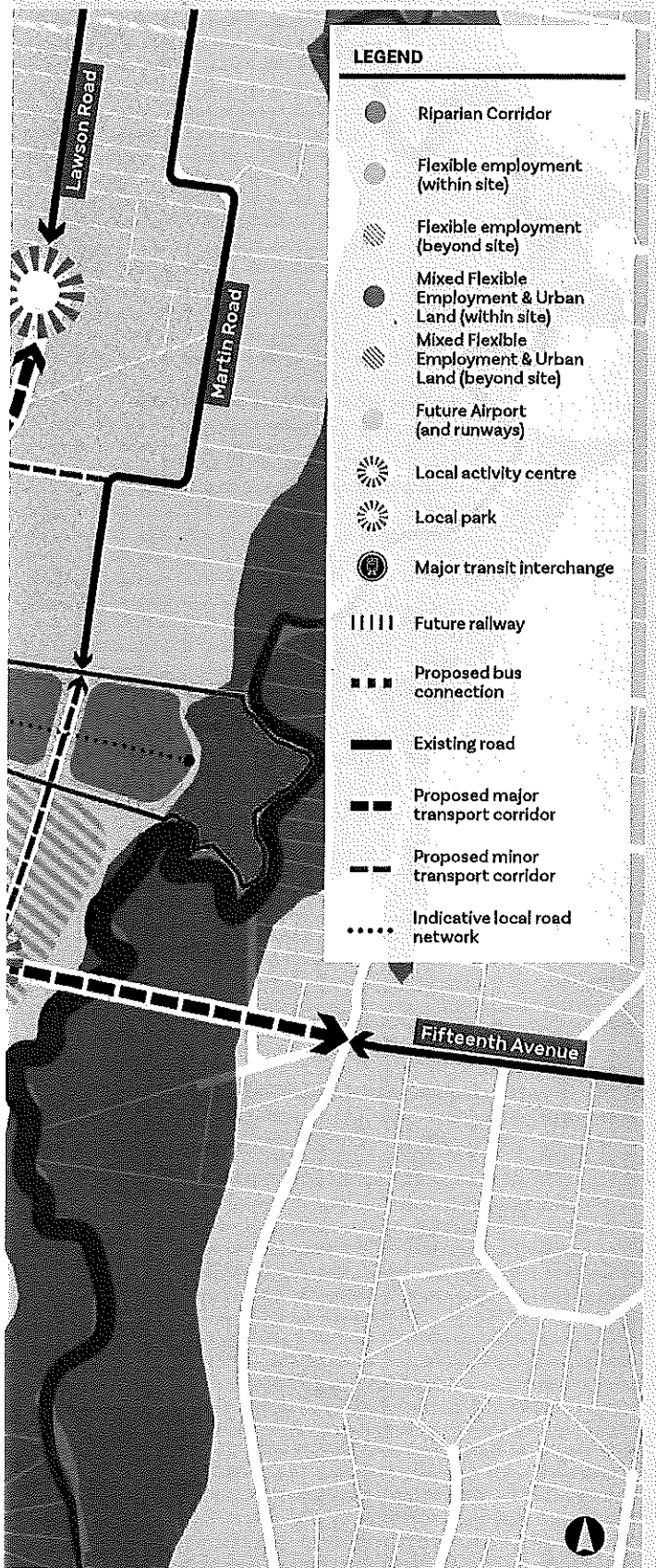
PROPOSED STRUCTURE PLAN

The following structure plan captures a high-level view of intended outcomes informed by strategic and sensitive analysis of the site's context and opportunity. The plan identifies early, short-term and long-term development options, as key infrastructure is delivered. The proposal aims to leverage land use, transport and employment opportunities afforded by the Western Sydney Airport.





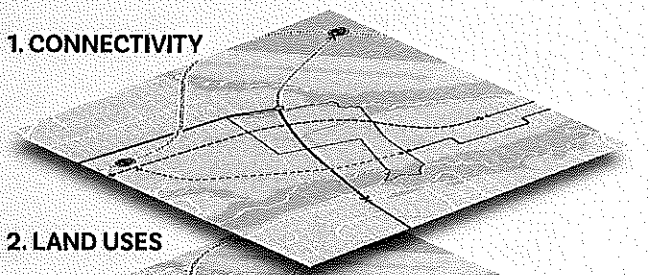

Western Sydney Airport Transit Interchange
Badgerys Creek Road
Aerotropolis Transit Interchange



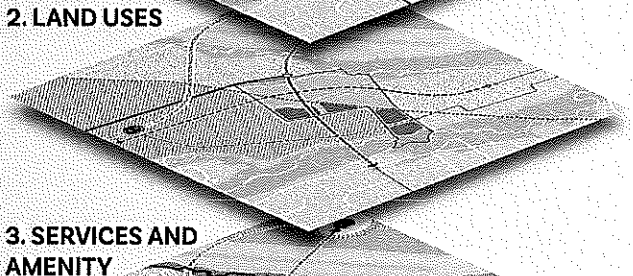
PROPOSED LONG TERM STRUCTURE PLAN

The adjacent structure plan captures a long-term vision for the site. The plan is underpinned by the following key urban strategies:

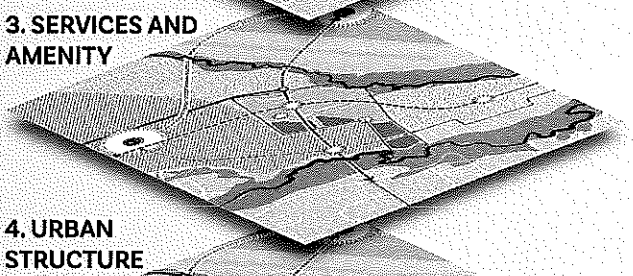
1. CONNECTIVITY



2. LAND USES

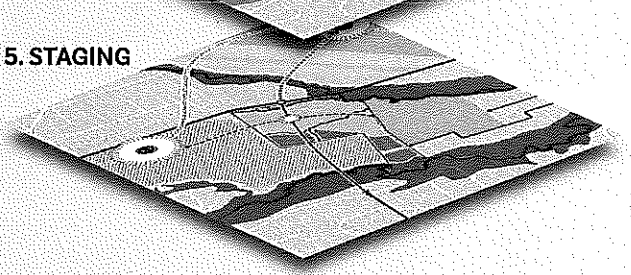


3. SERVICES AND AMENITY



4. URBAN STRUCTURE

5. STAGING

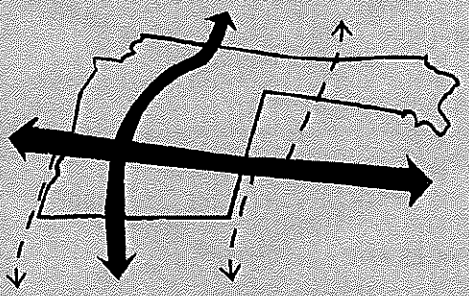


OVERARCHING PRINCIPLES

The proposed structure plan is underpinned by the following four principles that govern the development vision.

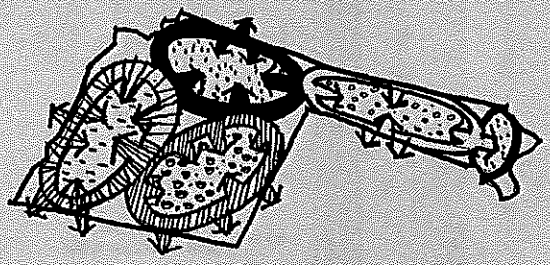
1 GOOD CONNECTIVITY UNLOCKS THE 30-MINUTE CITY

In line with the Western City District Plan, establish an east west public transport corridor to link Liverpool and Western Sydney Airport. Also provide a north south connection that directly links the Aerotropolis Core with major transit corridors to the north.



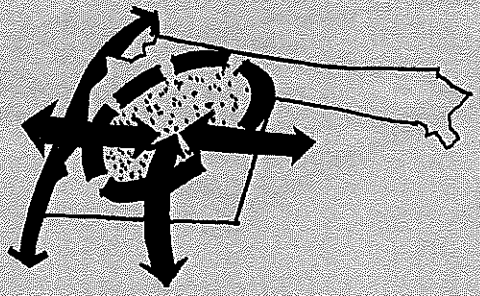
2 EVOLVE THE EMPLOYMENT OFFER

Establish a stable employment core that can grow and expand based on land use opportunities. Support long-term growth and land use evolution with an adaptable urban structure.



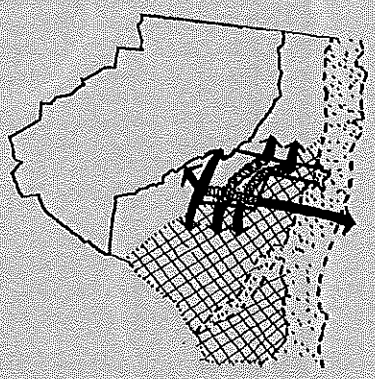
3 A CATALYST SITE FOR EARLY ACTIVATION

Maximise the site's unique opportunity under a single land owner to deliver immediate employment land uses and infrastructure connections at the doorstep to the Western Sydney Airport site, and within close proximity to existing and proposed intermodal hubs.



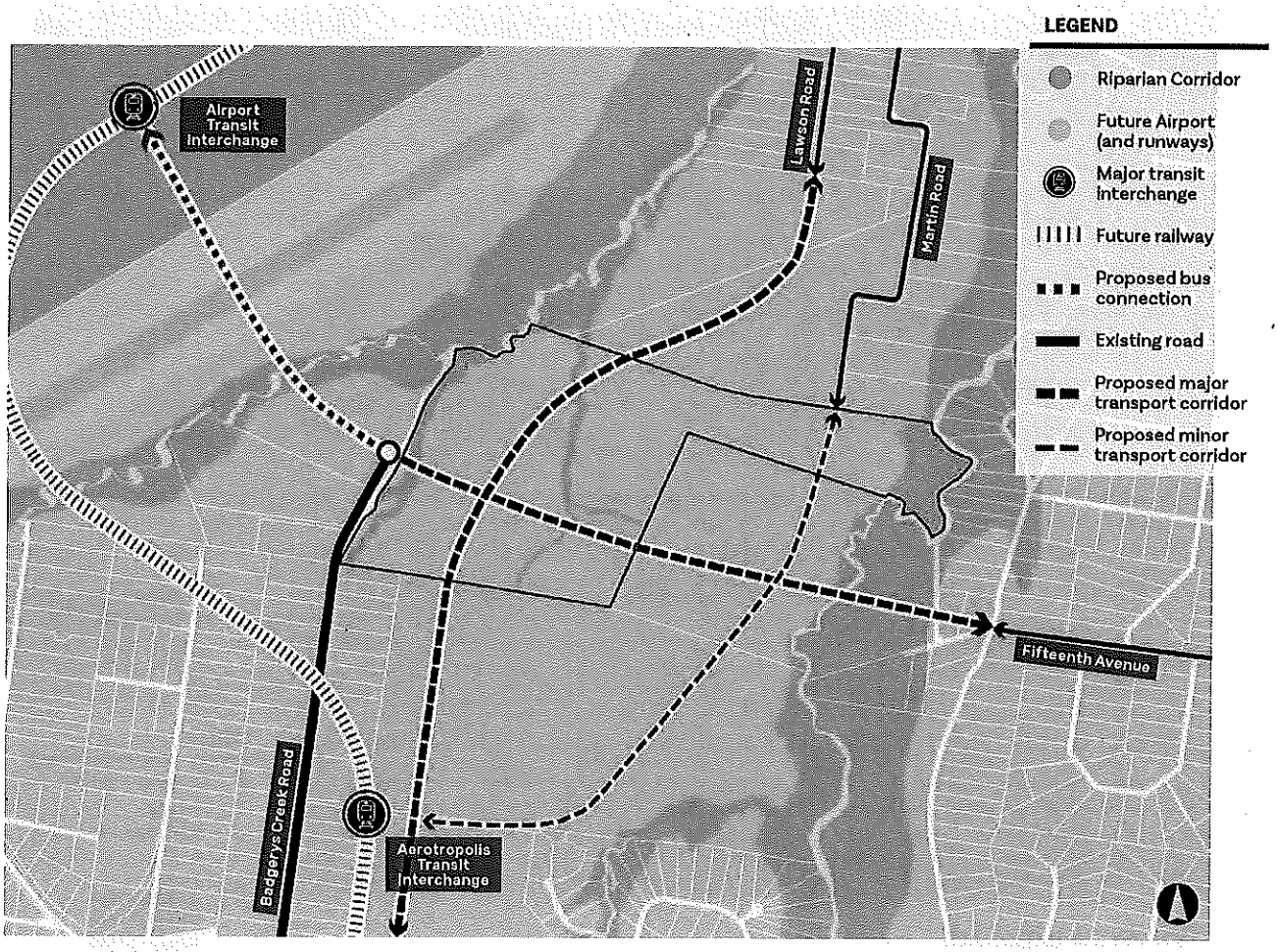
4 MIXED USES TO SUPPORT THE AEROTROPOLIS

Promote a diversity of uses that support the Aerotropolis and respond to both context and market needs. This includes provision for services, amenity, open space and housing diversity.



KEY DESIGN STRATEGIES

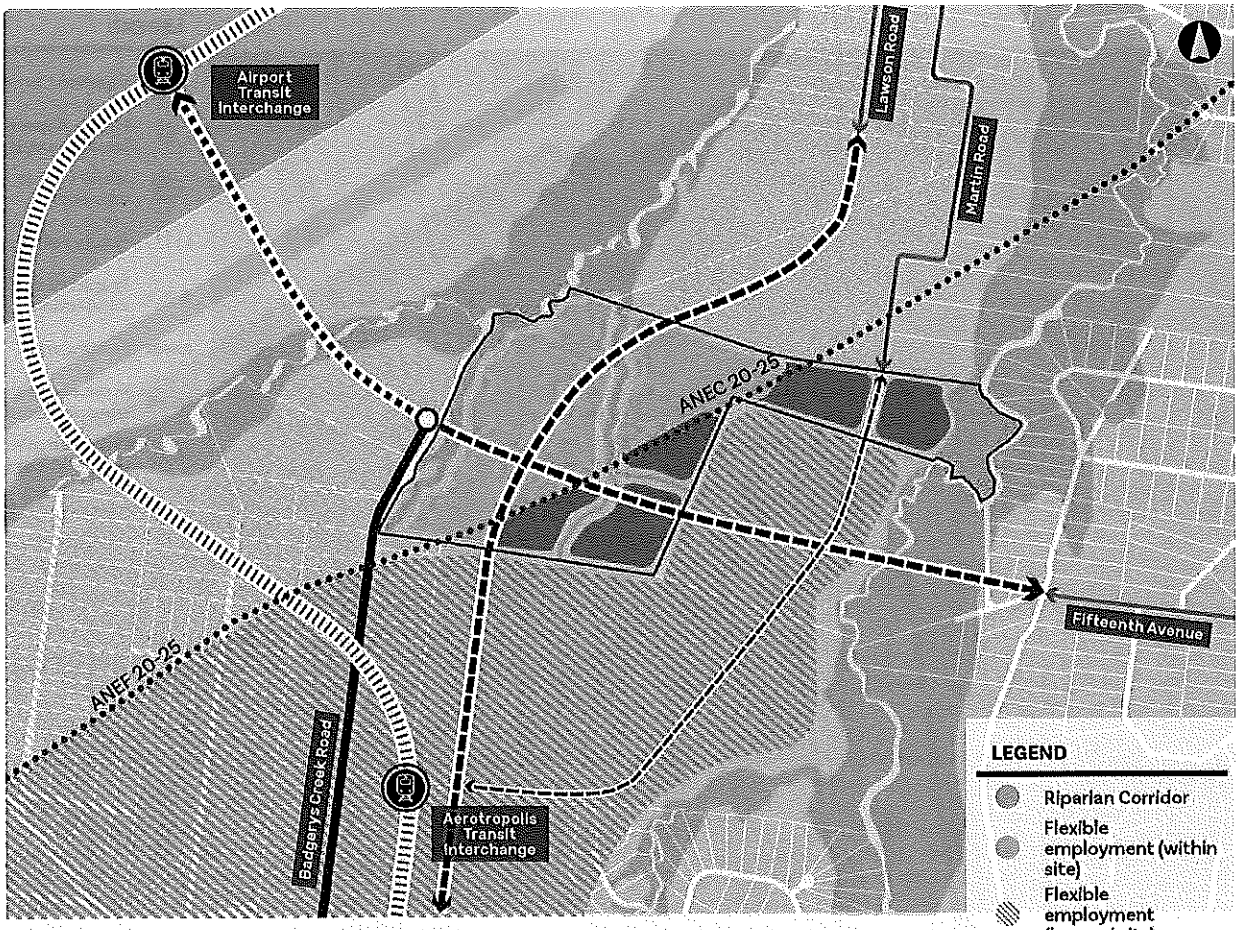
1. CONNECTIVITY



KEY MOVES & RATIONALE

- To establish an orderly urban structure, the vision seeks to reserve key transport corridors.
- It is proposed to create an east west connection from WSA to Liverpool CBD via Fifteenth Avenue and through the site. The road alignment shown above makes a logical connection between these two nodes, noting it reduces (in area) the requirement to build over flood prone land.
- In the short term, the key north south connections to/from the site will be via Martin Road and Badgerys Creek Road, which will link to Elizabeth Drive and The Northern Road, respectively.
- Ingham acknowledges the role and function of Badgerys Creek Road will change as the Aerotropolis evolves, however wishes to highlight the importance of its short term role in linking the early employment activation uses to key freight networks.
- The longer term scenario assumes adjacent landholdings will develop in-line with the intentions of the LUIIP and can facilitate a more streamlined link between the proposed Metro Station and Elizabeth Drive via Lawson Road.

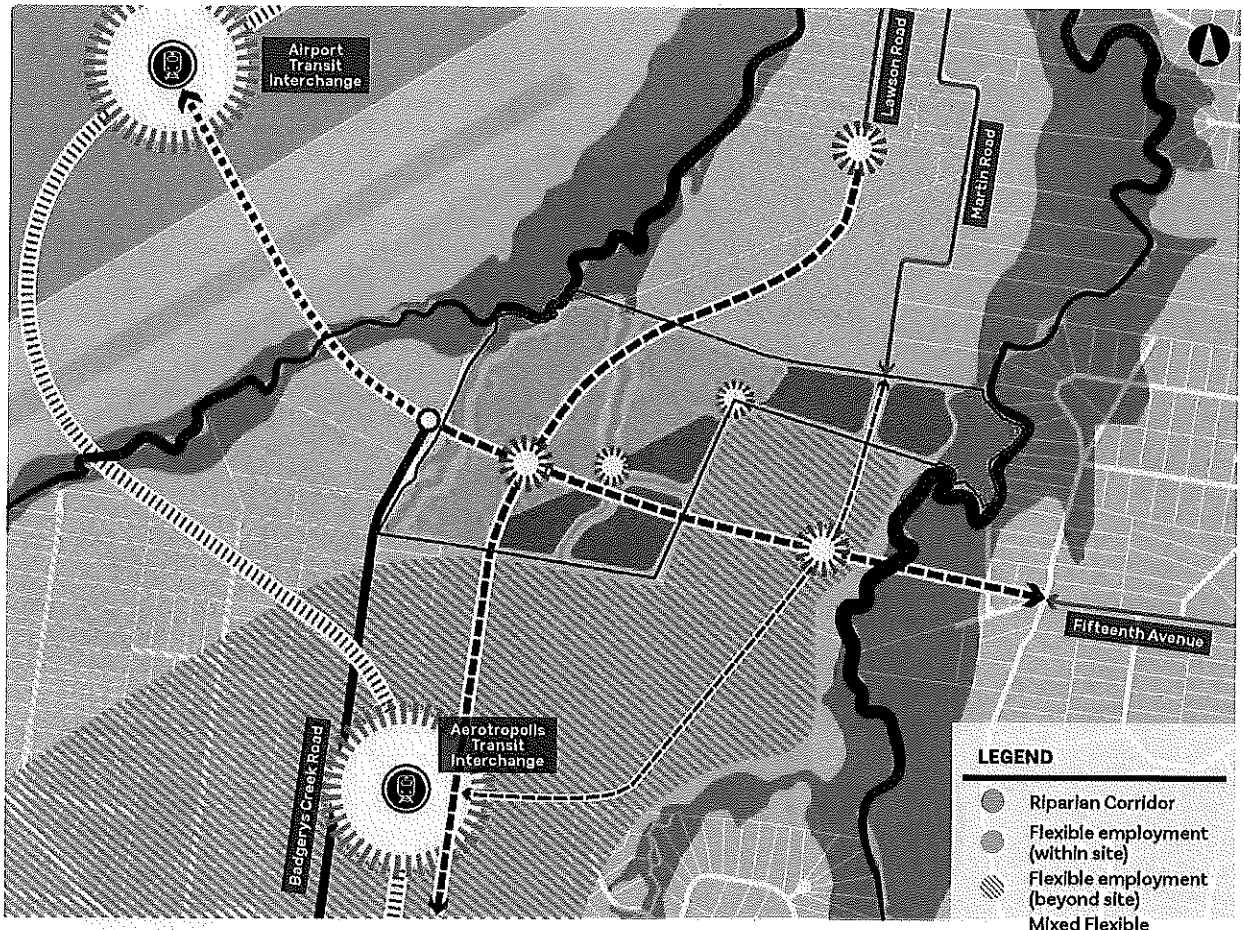
2. LAND USES



KEY MOVES & RATIONALE

- The vision recognises the importance of preserving the 24/7 role and function of the WSA and seeks to enable high employment generating uses within the 20-25 ANEC contour.
- It also recognises the importance of protecting the environmental amenity of the site, including South Creek and its tributaries.
- The guiding principle for the structure plan is to locate employment density around local centres and residential density near the amenity afforded by South Creek.
- The amenity afforded by infrastructure upgrades will drive the uplift in employment land intensity. In time, this will also enable residential uplift around local centres.

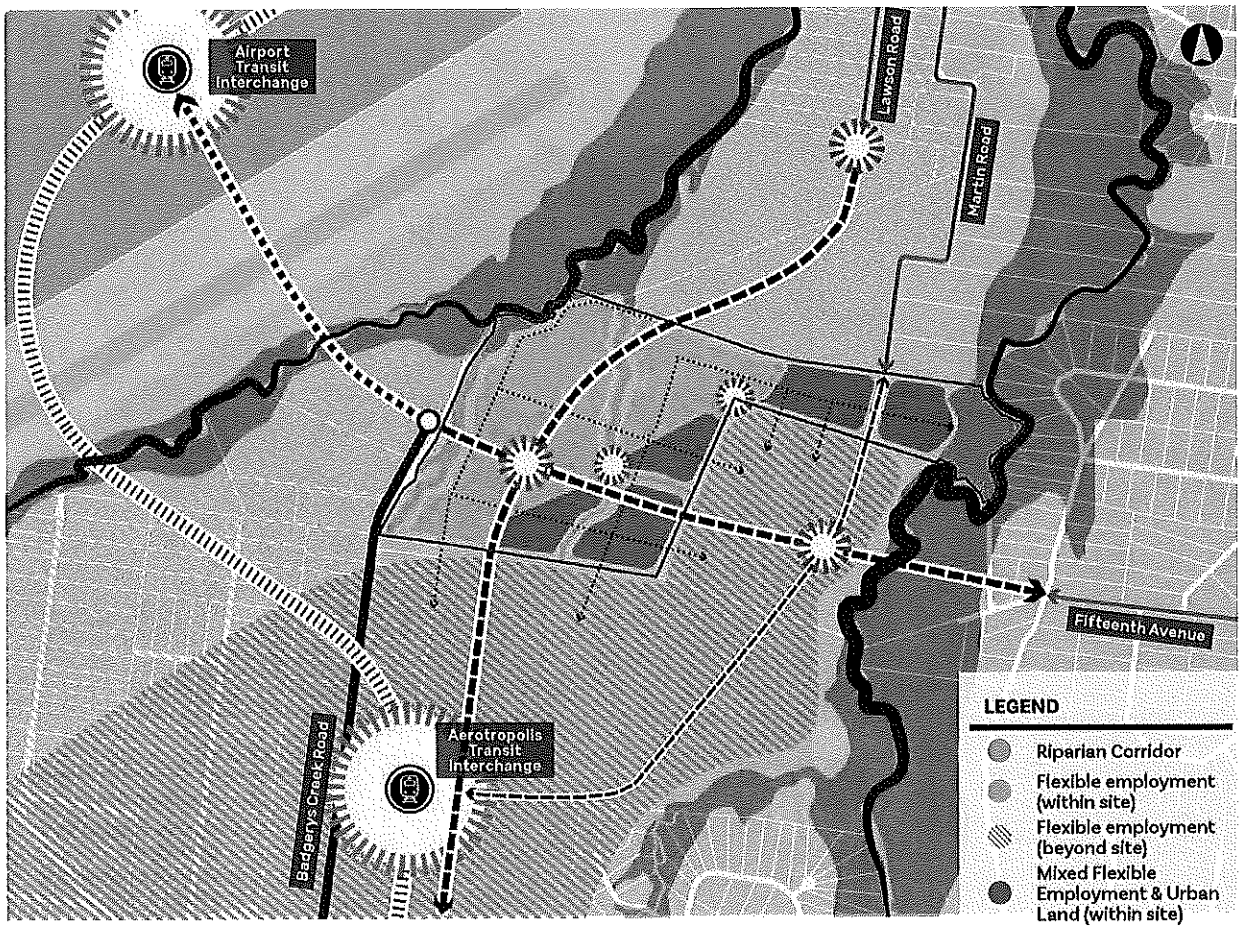
3. SERVICES AND AMENITY



KEY MOVES & RATIONALE

- As above, Ingham has sought to respect the environmental qualities of the site and has considered the opportunity to extend green spines through the site.
- Its envisaged that areas of high density (employment or residential) will be based around local centres which are located at the intersection of key transport corridors.

3. URBAN STRUCTURE



KEY MOVES & RATIONALE

- The long term vision for the site is based on an adaptable and flexible grid system that has successfully worked at other business park precincts.
- As land use intensity increases, blocks can be subdivided sequentially to enable a sensible urban structure. Ingham recognises the importance of bedding-down this structure early in the process to avoid future roadblocks to re-development such as land fragmentation.
- As described elsewhere in this submission, the Ingham landholding and other adjoining single-landholdings can play a catalysing role in enabling key infrastructure to be rolled-out in a coordinated manner that 'future-proofs' the urban structure.

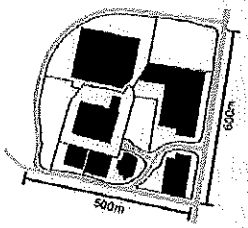
PRECEDENTS STUDY
BUSINESS PARKS WITH ADAPTABLE URBAN STRUCTURE

Building on the case studies presented in Part B of this submission, a design study of the urban structure for three existing employment areas in Sydney has also been undertaken to inform a proposed urban structure for the Ingham site.

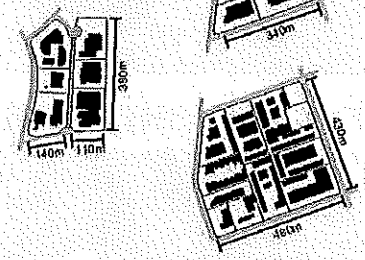
The precedents selected for this further investigation include:

- **Eastern Creek:** This area is characterised by large warehouses with a blocks depths ranging between 500m to 600m and average lengths of 600m. The area has limited pedestrian amenity.
- **Castle Hill Employment Area:** This area which has a mix of warehouse and light industrial trade unit has a blocks averaging 250m in depth and 500m in length. The area has limited pedestrian amenity.
- **Macquarie Park:** The area which has evolved from an industrial into being one of Australia's most successful business parks. It has a regular grid pattern with block sizes range depths of 150m-300m and lengths of 300-600m. The area has been characterised by limited pedestrian permeability and amenity. Mid-block connections are being considered by Council to address the issue.

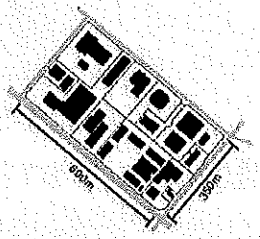
1. EASTERN CREEK



2. CASTLE HILL EMPLOYMENT AREA



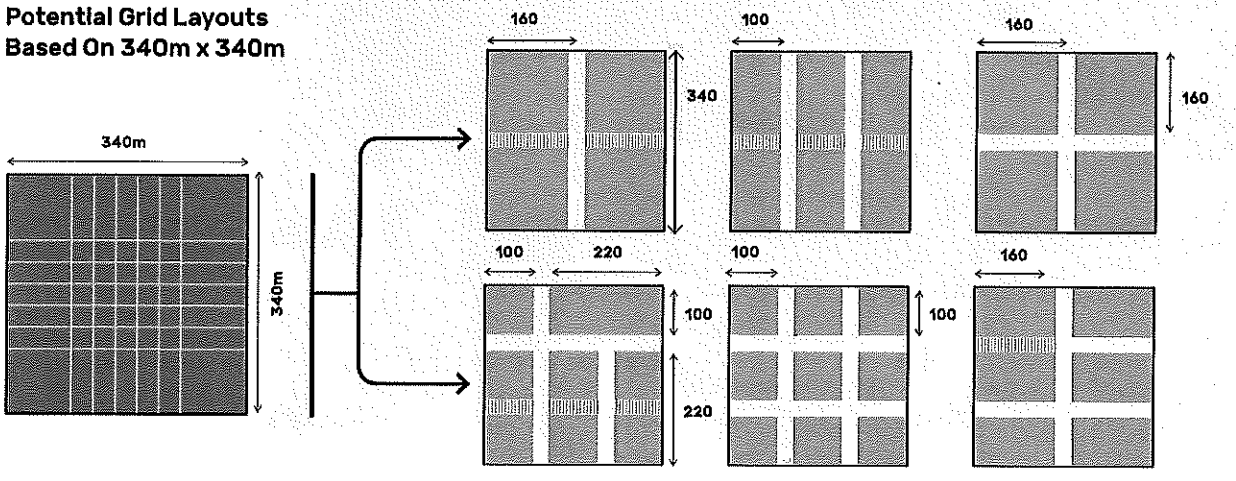
3. MACQUARIRE PARK



PROPOSED OUCTOME FOR INGHAM SITE

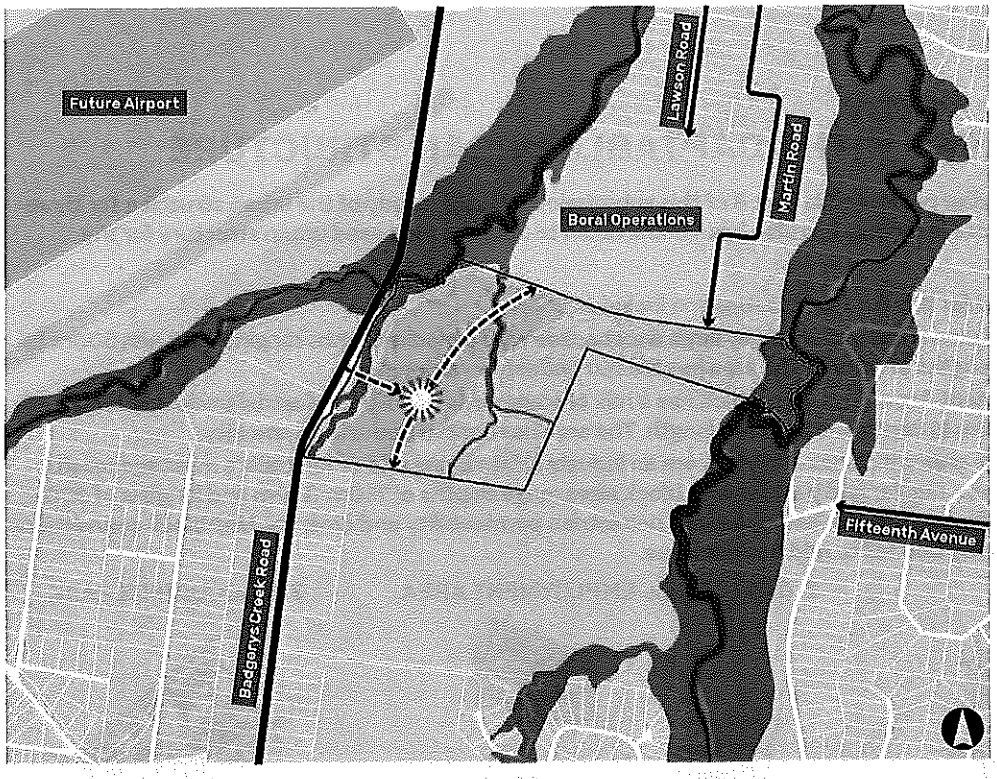
From the precedent studies, an urban structure of approximately 340m by 340m is proposed for the early stages of development at the Ingham site. The flexible structure will allow blocks to be fragmented into a combination of permeable blocks to cater for a variety of commercial buildings that will be developed over time as the site evolves.

Potential Grid Layouts Based On 340m x 340m

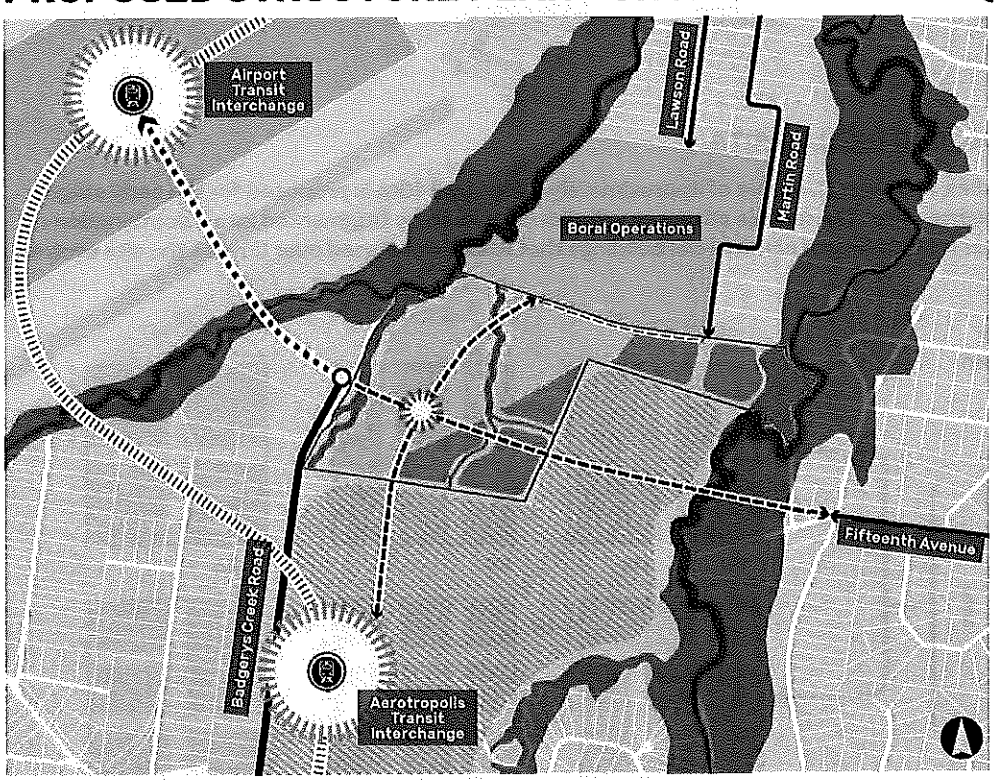


5. STAGING

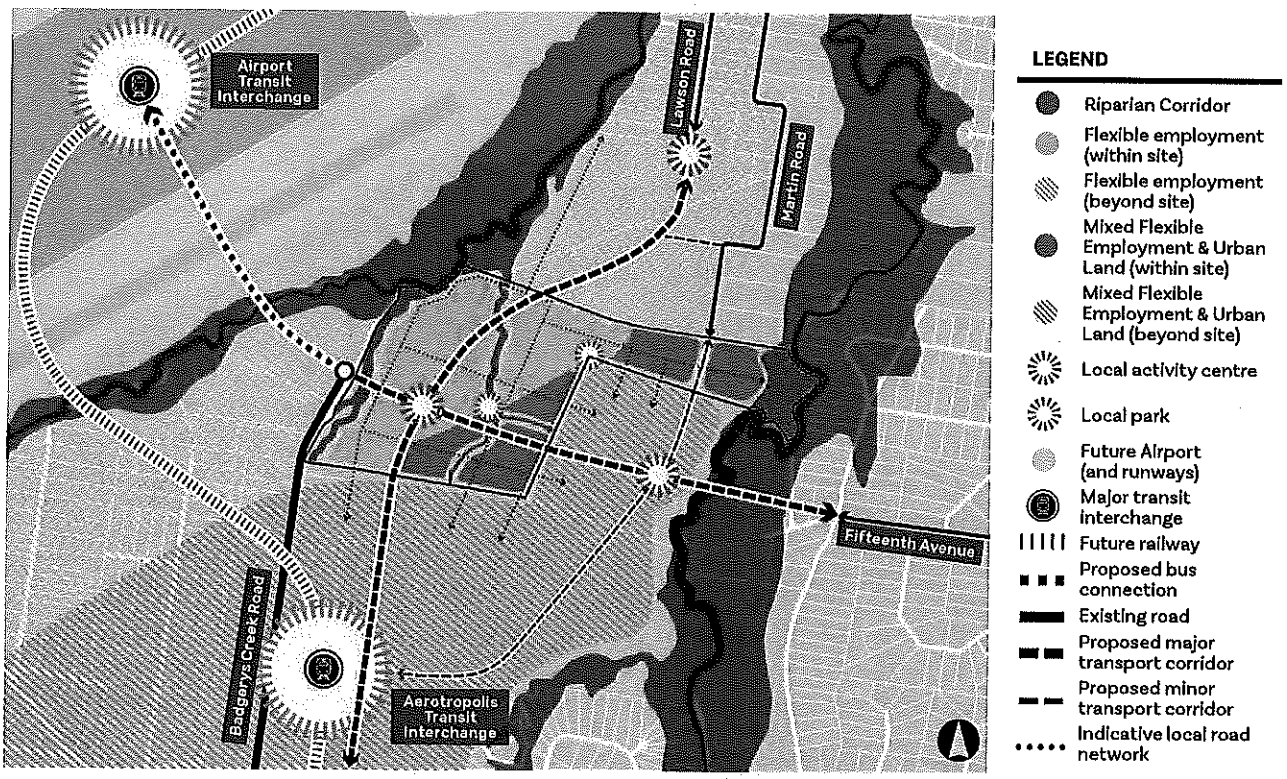
PROPOSED STRUCTURE PLAN - EARLY ACTIVATION



PROPOSED STRUCTURE PLAN - SHORT TERM PLAN (2026)



PROPOSED STRUCTURE PLAN - LONG TERM PLAN (2046)



KEY MOVES & RATIONALE

Early Activation

- As landowners of a large consolidated site (approximately 182 hectares) with a generous one kilometre frontage to Badgerys Creek Road, Ingham are uniquely positioned to deliver early activation on the Aerotropolis Core. Activation, in the form Flexible Employment uses, is achievable immediately along Badgerys Creek Road and from access off this road into the Ingham site.

Short Term

- Short-term activation is largely reactive to the delivery of the airport and major rail corridor. In this phase providing direct connectivity between Western Sydney Airport and Liverpool is a key priority. This means, extending Fifteenth Avenue through the Ingham site to the airport with a rapid bus connection. This option is beneficial to the community due to the directness of the connection and minimised travel time due to a direct alignment.
- In addition to this, a south connection to the Aerotropolis Transit Interchange (from this east-west corridor) is also proposed to further enhance activation and good connectivity within the Aerotropolis Core.
- Delivery of strategic transit corridors within this phase support intensification and expansion of development to accommodate Flexible Employment and Urban Land uses.

Long Term

- Long-term vision for the site includes extensions of Lawson and Martin Road to the Aerotropolis Transit Interchange. These north-south connections are achievable with eventual re-purposing of Boral operations site.
- The long-term structure plan also envisages evolution and densification of land uses to support Flexible Employment and Urban Land uses. With this growth, it is expected that a finer road network, an increase in amenity and open space, and the development of local centre clusters will evolve to enrich urban outcomes and place-making within the Ingham site.

PLANNING PATHWAY

STATUTORY PLANNING REVIEW

Ingham are committed to working closely with key Government stakeholders and landowners in realising the vision for the Western Sydney Airport. Working collaboratively throughout the structure planning stage and beyond is critical in greenfield land release, getting the coordination for the delivery of essential infrastructure and services is key. The connection of these across activation precincts and the broader Western Sydney Airport precincts is vital.

The coordination of infrastructure and servicing needs to start with the precinct planning. Aligning key trunk infrastructure with primary road reserve corridors is important, and will help ensure that the short, medium and long term development intensification can be viably realised within the Aerotropolis Core and other early activation precincts.

Ingham supports the potential for expanded complying development opportunities to enable the early activation of the Aerotropolis Core. Associated with this, and as presented in this submission, Inghams supports the proposed flexible zoning controls and reiterates the importance of reserving key infrastructure corridors.

Similarly, Ingham believes a flexible approach is required for dwelling densities. The target density bands will be very difficult to catalyse or service in the short term, when levels of amenity are low (prior to key infrastructure investment). Therefore, it is imperative that through the precinct planning phase over the next 12 months close consideration is given to the short-term and long term housing vision and targets for the Aerotropolis Core.

Ingham notes developer contributions and value capture mechanisms are still yet to be finalised. Notwithstanding however, it is important that the industry is closely consulted as part of the drafting of any infrastructure contribution funding mechanisms. It is understood that a Special Infrastructure Contribution (SIC) framework for the Western Sydney Aerotropolis will be exhibited shortly.

The opportunity to meet and discuss the principles for the future SIC, as well as for the industry to provide the Department of Planning and Environment with an understanding on land tax implications also, would be welcomed. Given the long term development timeframes anticipated for the take up of land, the levying of land tax should only be implemented when specific areas are activated rather than upon rezoning.

CONCLUSION

KEY ACTIVATION OF THE SITE & WSA

Ingham supports and commends the DPE's extensive work in releasing the draft LUIIP for the Western Sydney Airport and is well positioned to catalyse the early activation of the Aerotropolis Core, together with the short and long term strategic aspirations of Government.

The Ingham site is some 182 hectares and shares a large common boundary with the proposed Airport. Ingham supports the high level structure planning proposed in the LUIIP and shares the vision of leveraging the site's capacity to support the Western Sydney Airport through an evolving employment offer with supporting land uses. The opportunity to work with DPE as part of the next phase of precinct planning, and to further explore the early activation opportunities that the site has to offer to the Aerotropolis Core is presented in this submission.

Ingham has demonstrated through this submission that the site can accommodate a flexible urban structure that can be adapted over time as the Western Sydney Airport evolves. The site can unlock key transport connection points to/from Liverpool CBD together with north-south connections to Elizabeth and The Northern Road, supporting the '30 minute city' vision.

For all utilities and stormwater services, the short term development vision for the subject site is viable, however the long term land use intensification is reliant on ensuring that the infrastructure and utility servicing upgrades, extensions and connections are planned for and implemented in a coordinated and timely way to service the entire Aerotropolis Core precinct.

The introduction of new transport connections through the Ingham site (i.e. east-west and north-south) provide the ability to serve a dual use as reticulation routes for trunk utility assets to service the Aerotropolis Core.

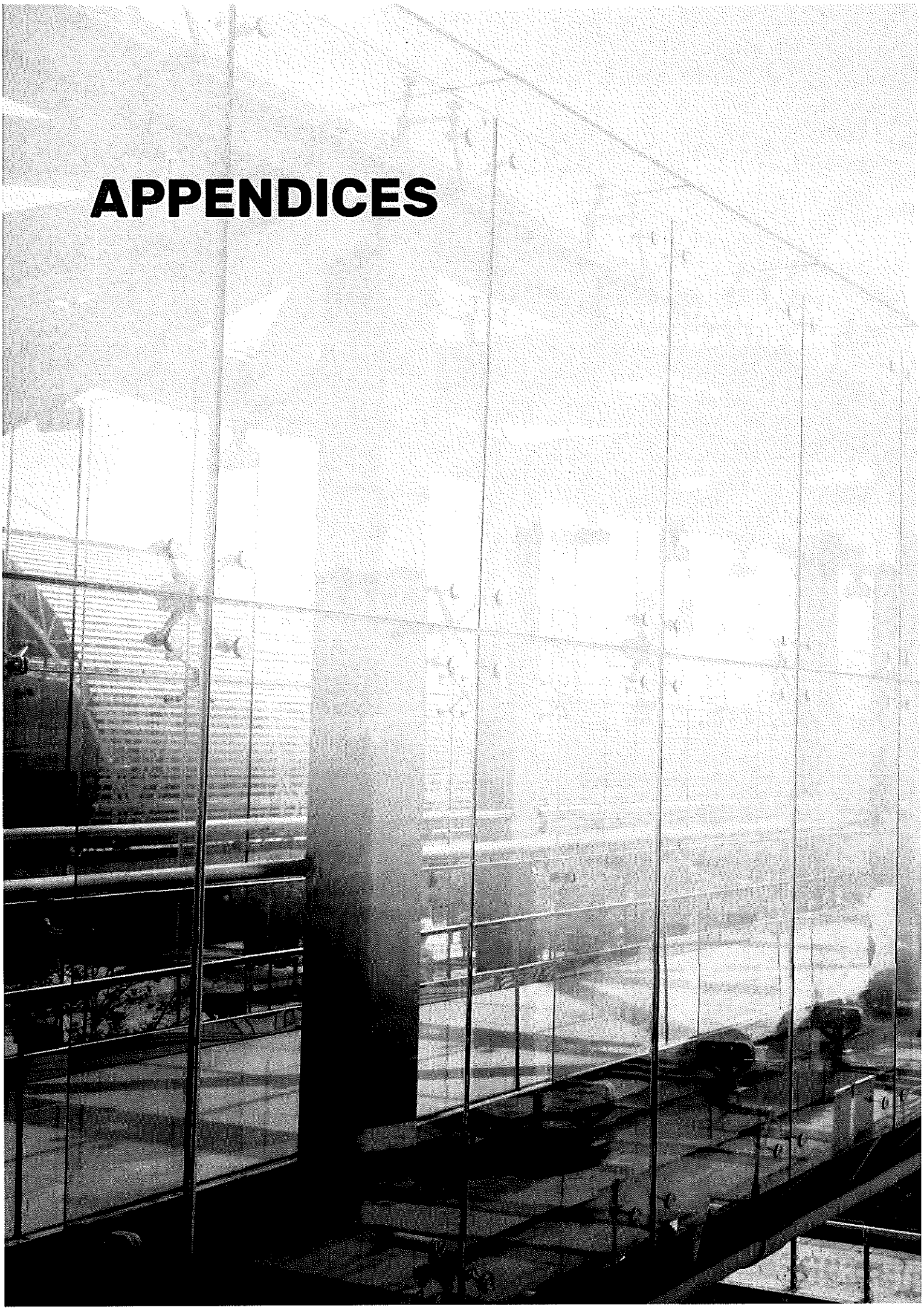
The challenges that face any greenfield land release are anticipated in realising the WSA vision.

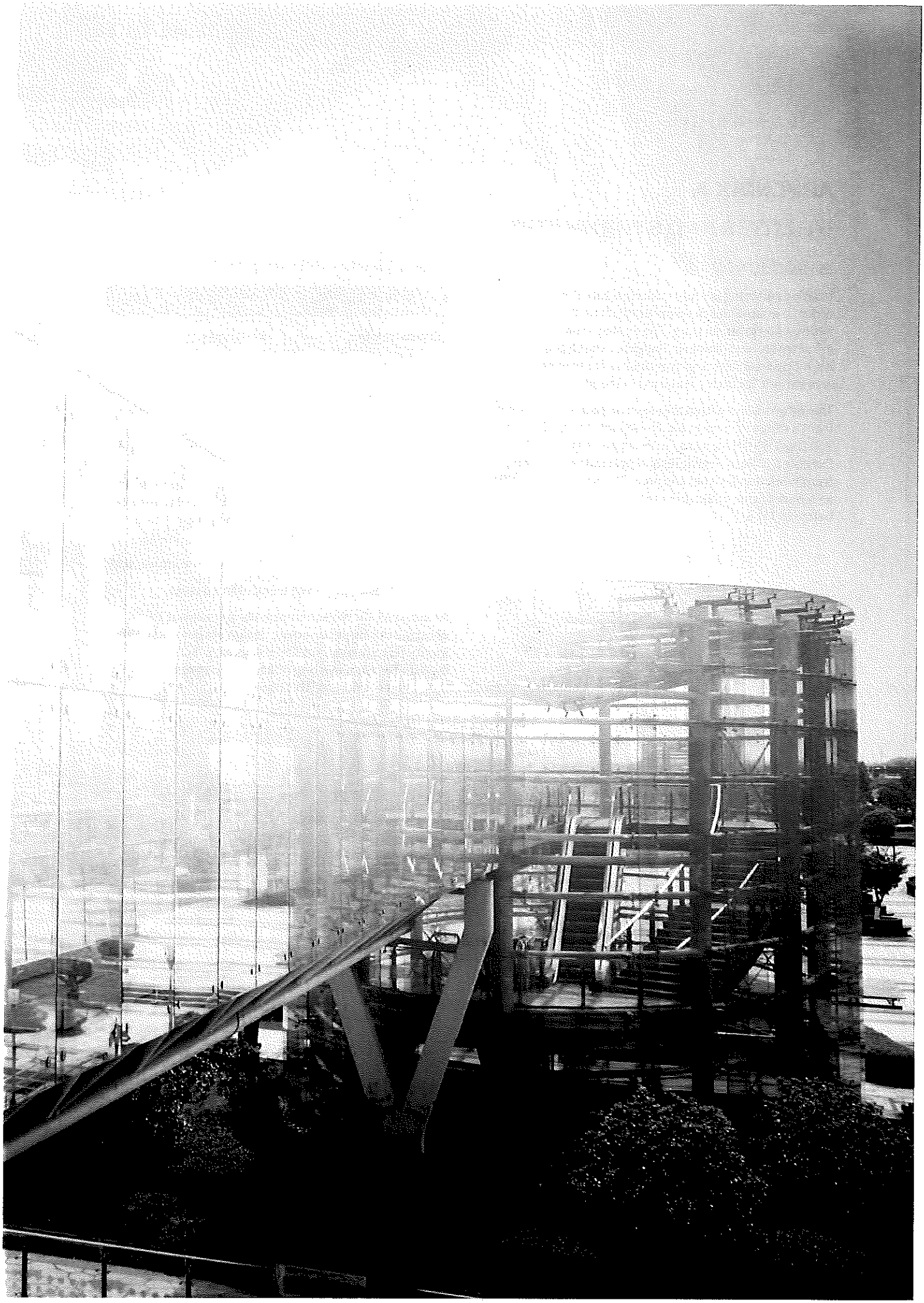
Careful consideration through the next phase of precinct planning, in order to best facilitate the early activation of the Aerotropolis Core, must be given to:

1. The ability for key infrastructure investment to be a catalyst for long term land use intensity.
2. The requirement for flexibility in planning controls, given the anticipated evolution of the Aerotropolis over time.
3. Establishing sensible funding and value sharing mechanisms up-front to provide market certainty.
4. Facilitation of inter-agency dialogue and coordination to provide the required services.
5. Leveraging the potential for coordination between key landowners (i.e. large single ownership land holdings and Government stakeholders to deliver the vision in an orderly manner, minimising cost to Government.

Ingham looks forward to working with key Government stakeholders through the next stage of precinct planning for the early activation of the Aerotropolis Core, and are excited by the opportunity of being a key stakeholder that will help to deliver Western Sydney's newest economic hub in the heart of the Western Parkland City.

APPENDICES





APPENDIX A

UTILITIES AND STORMWATER

INTRODUCTION

Utilities servicing is a key infrastructure item in order to enable the development of the Western Sydney Aerotropolis Core. The limited trunk infrastructure available in Badgerys Creek presents both opportunities and constraints for the planning investment for utility servicing in the area.

This information within this section has been gathered from a range of resources. These include Dial Before You Dig (DBYD) requests, authority reports, Works-as-Executed (where available) and previous experience from work done within the area. The services identified as a part of this desktop assessment are outlined below in Table 1

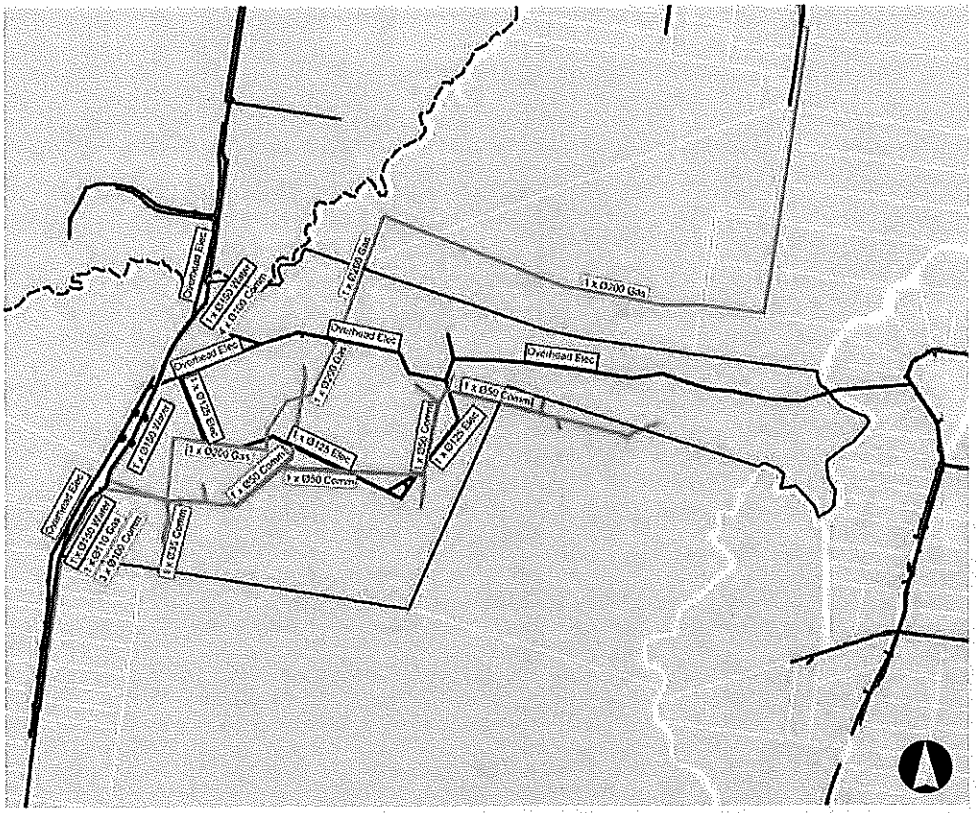
Table 1: Summary of Existing Services

Authority Name	Utility Type
Endeavour Energy	Electricity
Jemena Gas West	Gas and Petroleum
Liverpool City Council	Stormwater
Sydney Water	Water
Telstra NSW, Central	Communications

A combined services plan has been developed for the Badgerys Creek Study Area, presenting utility service locations and routes throughout the precinct and considering the following:

- Publically available utility infrastructure; and
- Identification of trunk utility assets.

All services shown schematically are subject to changes during subsequent design stages and further inputs from relevant utility authorities. Schematic layouts for each existing utility service are outlined in individual sections of this report.



LEGEND

Ingham's Site

Gas

Jemena

Communications

Telstra

Sydney Water

Potable water main

Stormwater

Liverpool Council asset

Electrical

33kV Endeavour Energy

11kV Endeavour Energy

LV Endeavour Energy

POTABLE WATER

Potable water servicing the Ingham Site is supplied by Sydney Water from a combination of the Warrangamba, Prospect South and Orchard Hills Water Delivery Systems as shown below Figure 1.

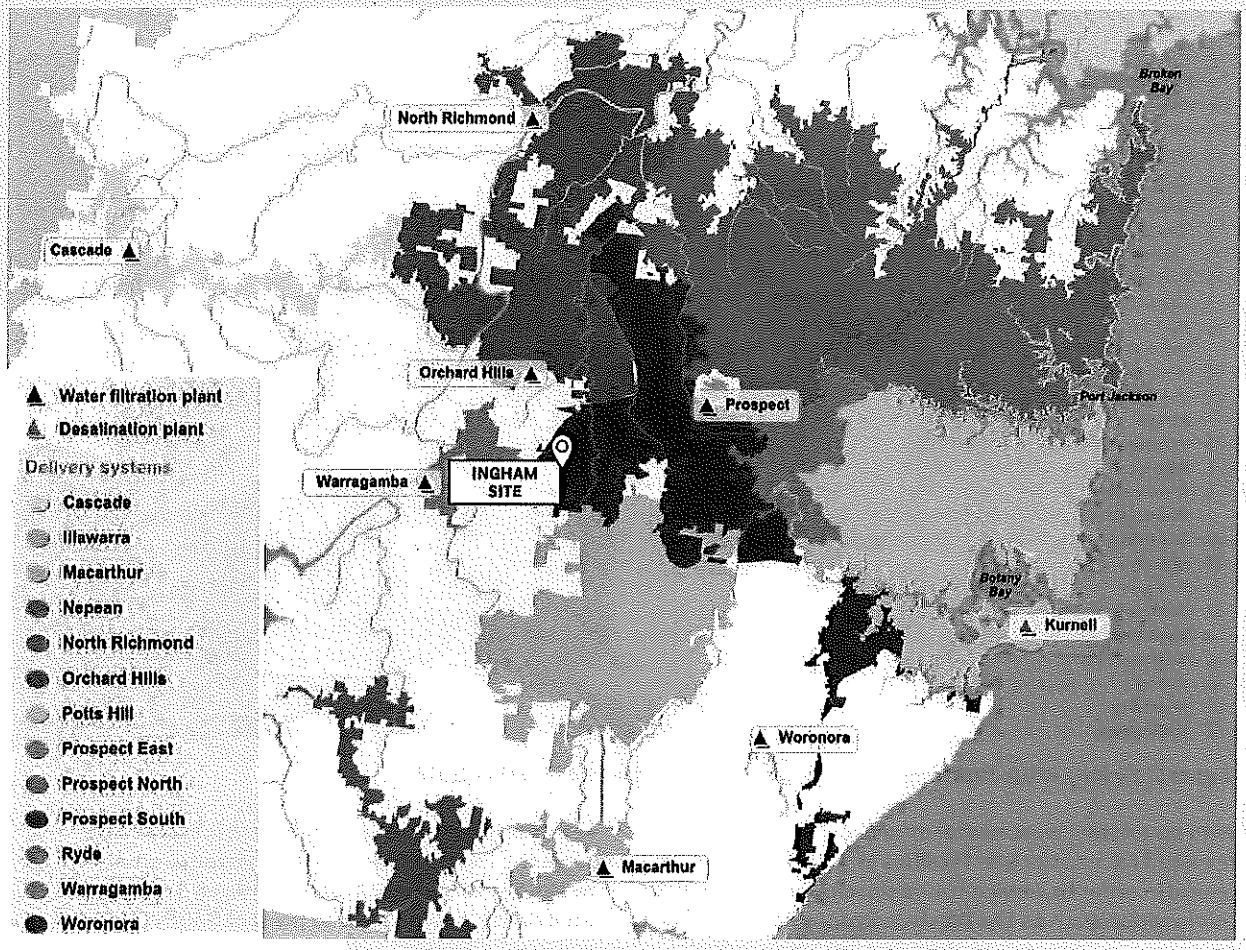


Figure 1: Sydney Water Potable Water Catchment (Sydney Water Corporation, 2018)

The existing Sydney Water potable water network on the Badgerys Creek Area has been identified using DBYD records. These records indicate the presence of a single Ø150mm cast-iron-concrete-lined (CICL) potable water main adjacent to the property boundary on Badgerys Creek Road.

While this single main is unlikely to have capacity to adequately service short term development on the Ingham Site, the Sydney Water Growth Servicing Plan 2017-2022 does indicate new potable water servicing to the Badgerys Creek Airport Precinct. There may be opportunities to extend this line to the Ingham Site, alternatively it may be possible to use a decentralised system to store potable water and service the short term low density development.

To support the long term development and vision of the Aerotropolis core, it is recommended that a new trunk potable water line be constructed to service the wider area with individual connections constructed into this new trunk main. The proposed new transport connections could also incorporate space for the provision of these trunk utility assets.

WASTEWATER

There is currently no wastewater network that services the Ingham Site or the surrounding area. As indicated below in Figure 2 the site is located outside of any Sydney Water wastewater catchment area.

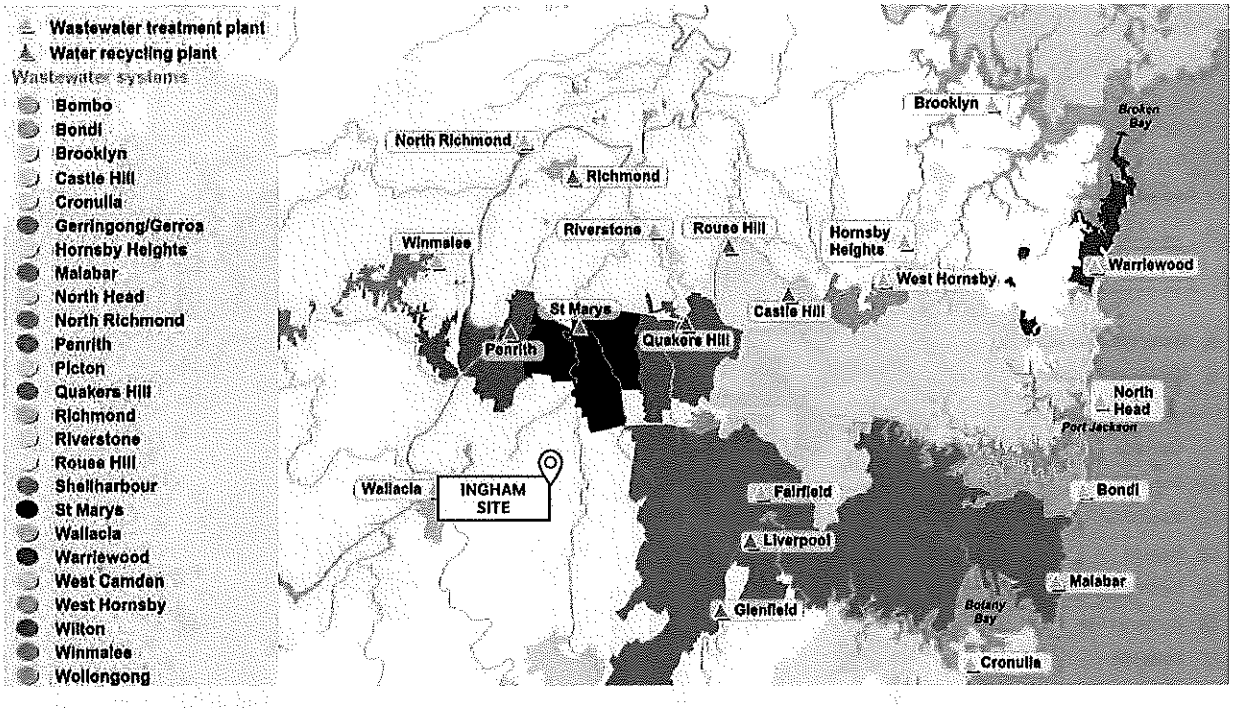


Figure 2: Sydney Water Wastewater Catchment (Sydney Water Corporation, 2018)

With no existing wastewater infrastructure in the area, the need for wastewater facilities and networks will be crucial in order to service future developments around this location such as the Western Sydney Airport, Aerotropolis Core and Western Sydney Employment Area.

The Growth Servicing Plan (2017-2022) identifies Sydney Water's planned improvement works for the area and has flagged the Badgerys Creek Airport Precinct for strategic planning of wastewater infrastructure however it is unlikely that this will be delivered in time to support the short term development.

It is likely that a decentralised recycled water scheme for wastewater servicing will be required to support the early or short term development, however it is worth noting that the South Creek waterway and associated stormwater catchment is likely to be subject to new stringent discharge requirements by the Environmental Protection Agency (EPA) for wastewater/stormwater to protect South Creek.

This means that a much more robust decentralised system re-using recycled water onsite will be required to ensure adequate protection of South Creek and its tributaries. Similar to the potable water network, provision of a trunk wastewater line is highly recommended to ensure that the goals and vision of the Aerotropolis Core are able to be achieved. Proposed transport corridors through the Ingham Site could also be used to facilitate the introduction of trunk utility assets.

ELECTRICITY

Endeavour Energy is the supplier of electricity within the Ingham site as shown below in Figure 3

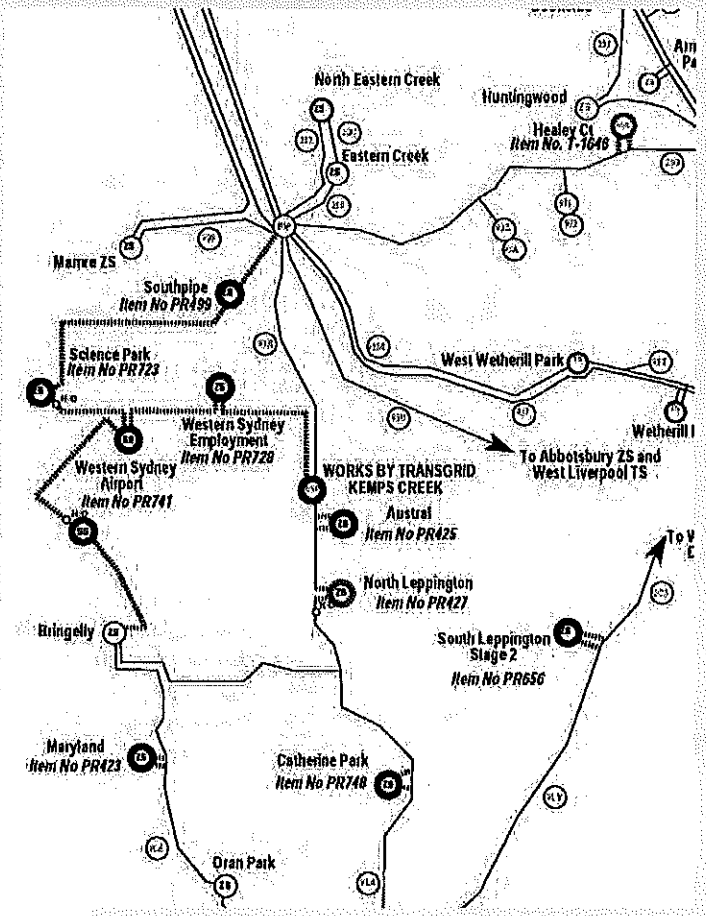


Figure 3: Sydney West Network Extract (Endeavour Energy, 2016)

Projections outlined in the Endeavour Energy Distribution Annual Planning Report, 2017 indicate joint planning with Transgrid for the provision of supply for the Western Sydney Airport at Badgerys Creek and the Broader Western Sydney Employment Area due to increased population growth and development expected for this priority growth area. In addition, Endeavour Energy's Direction Paper proposes to invest $150 million into this Western Sydney Priority Growth Area starting in 2019 for new electrical infrastructure and upgrades.

The key Zone Substations (ZS), Transmission Substations (TS) and Bulk Supply Points (BSP) adjacent to the site are listed below:

- West Liverpool Network: Kemps Creek ZS, followed by the West Liverpool TS and supplied by the Liverpool BSP;
- Sydney West Network: The Bringelly ZS, supplied by the Sydney West BSP; and
- Regentville Network: The Luddenham ZS, followed by the Penrith TS and supplied by the Regentville BSP.

The electrical infrastructure in the area has been identified in the 2017 Distribution Annual Planning Report as requiring substantial upgrades to accommodate the Western Sydney Priority Growth Area. This includes looking at the Western Sydney Aerotropolis Core (including the Ingham's Site), but also the Western Sydney Airport, Science Park Development and Western Sydney Employment Land.

Electricity is distributed from the zone substations to each site through Endeavour Energy's 33/11kV network, Endeavour Energy's strategy for servicing the area is shown below in Figure 4.

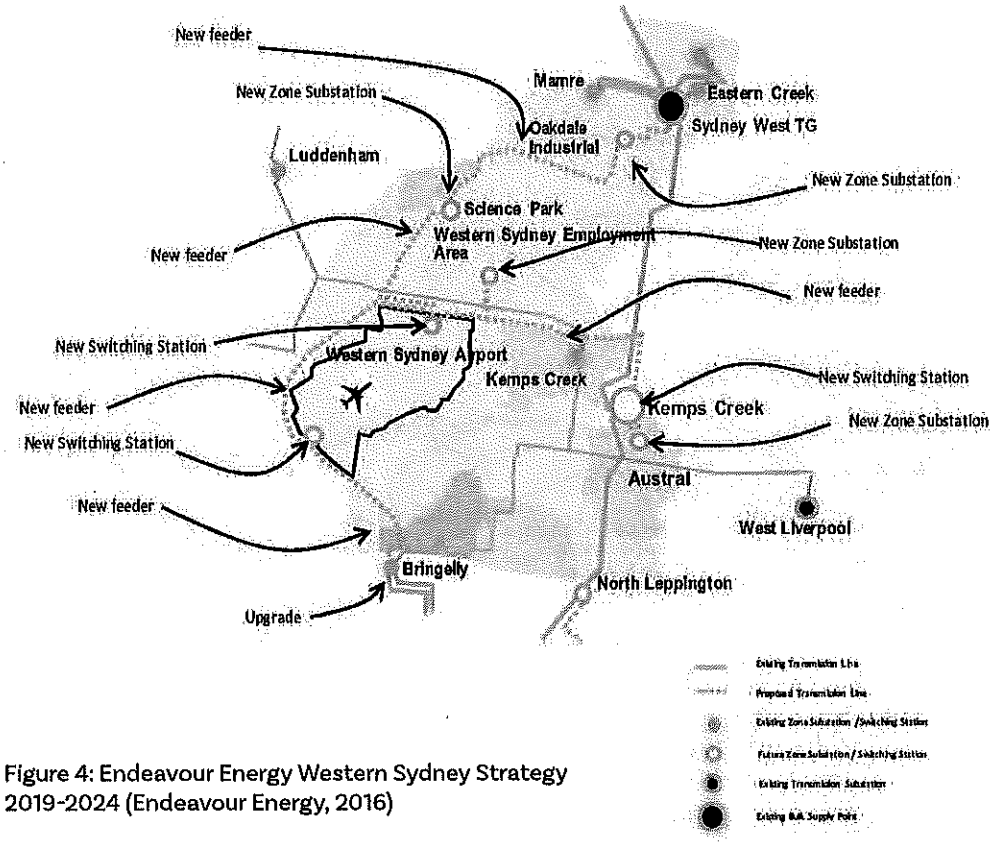


Figure 4: Endeavour Energy Western Sydney Strategy 2019-2024 (Endeavour Energy, 2016)

As identified within the combined services plan, there are a number of existing overhead power lines that cross through the Ingham Site however as a part of already planned site improvements works a number of these powerlines are in the process of being removed as shown in Figure 5.

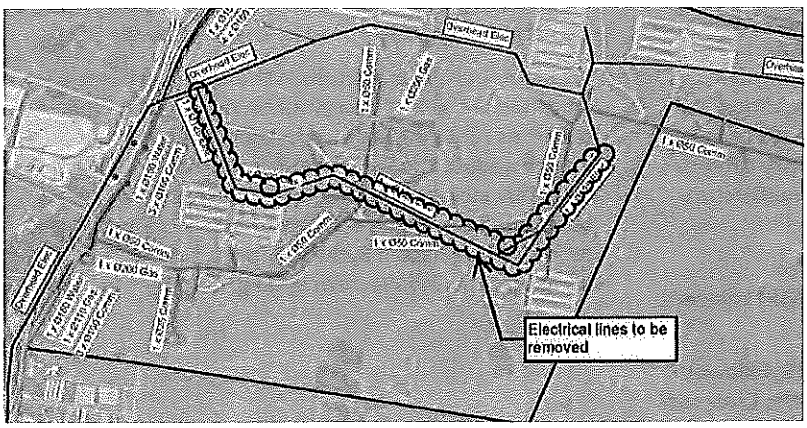


Figure 5: Existing Electrical Infrastructure Removal

Based on this information there appears to be sufficient electrical infrastructure to support any initial development with future development being contingent on the proposed Endeavour Energy upgrade works.

GAS

Gas servicing the Ingham Badgerys Creek Area is provided by Jemena through a combination of high pressure and reticulation mains as shown in DBYD records.

There is currently a small network of supplying pipes within and immediately adjacent the Ingham Badgerys Creek Area. The trunk gas mains as identified through DBYD records include:

- Ø200mm secondary trunk network main (1050kPa) running through the western side of the site down to the southwest corner of the site on the edge of Badgerys Creek Rd; and
- Ø110mm 300kPa network main running along Badgerys Creek Rd at the southwest corner of the development.

Limited information was available outlining the capacity of the Jemena network; however based on previous work in the area it is assumed that the current network is suitable for the short term development however the long term development may require amplification of trunk gas lines.

DATA AND TELECOMMUNICATIONS

The only telecommunications infrastructure identified through desktop assessments was Telstra. In particular existing copper and fibre optic Telstra conduits run along Badgerys Creek Rd which are typically Ø100mm in size. Telstra services also run within Ingham Site consisting of Ø100m to Ø35mm conduits servicing the existing buildings.

However it is important to note that the Federal Government has determined from January 2011 that under The Fibre in New Development NBN Co will provide telecommunication infrastructure to new developments (NBN Co., 2015). The current NBN network rollout map for the area is shown below in Figure 6, while there is no current NBN in the subject area there is service available in the Kemps Creek Area.

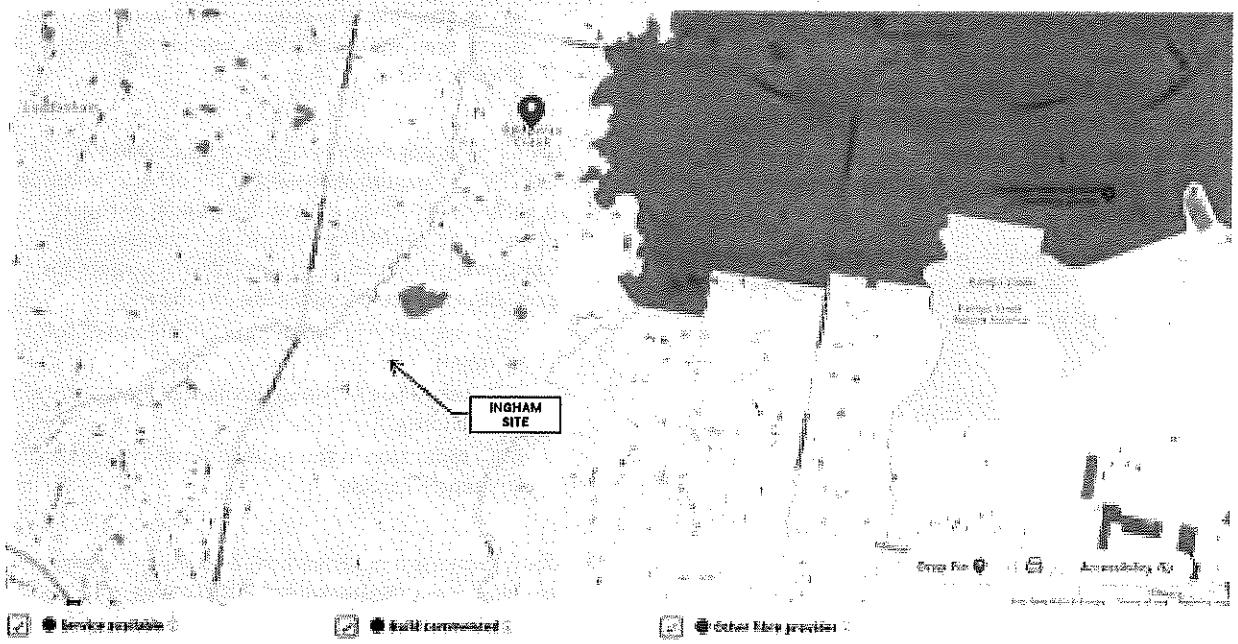


Figure 6: NBN Rollout Map

NBN Co will be responsible for installation of the fibre network in the new development and covers the cost of installation to a point. Developers are required to install and fund fibre-ready pit and duct infrastructure to NBN Co's specifications where such infrastructure doesn't already exist.

It is recommended that the longer term goal of the Aerotropolis Core is to enable a close NBN exchange so that any future employment or mixed use development has access to appropriate telecommunications infrastructure.

ALTERNATIVE DEMAND AND SUPPLY OPPORTUNITIES

The report previously discussed traditional servicing from authority infrastructure; development precincts are now frequently adopting alternative supply opportunities and demand management to meet their servicing requirements.

In addition to mitigating services infrastructure capacity gaps, demand management and alternative supply strategies may enable the study area to be eligible for classification as part of a rating system (such as Green Star) to comply with the minimum energy efficiency standards for new residential buildings set out in the National Construction Code of Australia (NCC) and to become a contributor to the Liverpool City Council's sustainability plans.

It is very likely that any new development on the Ingham Site will need to utilise these alternative supply opportunities, in particular stormwater harvesting, recycled water and/or wastewater treatment.

The Ingham Site should consider incorporation of the following sustainability rating schemes into any future development:

- Building Sustainability Index (BASIX) – Mandatory for residential developments;
- Green Star Buildings and Communities;
- National Australian Built Environment Rating Systems (NABERS); and
- Nationwide House Energy Rating Scheme (NatHERS).

Please note this is not an exhaustive list and due regard should be given to the Aerotropolis Core sustainability goals and initiatives.

STORMWATER AND FLOODING

The Ingham Badgerys Creek development is within the LGA of Liverpool City Council's and is located east of Badgerys Creek and west of South Creek.

Planning Framework - Liverpool City Council Development Control Plan (DCP)

Liverpool City Council's DCP provides a framework of measures to be adhered to or taken into consideration in the development assessment so that the quality of the natural and built environments in the area can be preserved and enhanced. The DCP key requirements related to flood planning and stormwater management are as follows:

- On-site stormwater detention – may only be used where:
  - The existing or proposed stormwater pipe system that is unable to cater for the increase in discharge due to development.
  - The development will involve an increase in impervious area on the site.
  - It is intended to connect stormwater directly to the street kerb and gutter only and the discharge exceeds 20 litres per second for the 10-year ARI.

- Gross Pollutant traps and Stormwater Runoff Quality – to ensure stormwater runoff is of suitable quality in regards to suspended solids, nitrogen, phosphorus and other potential contaminants. Water-sensitive urban design (WSUD) targets for post development targets are as follows:
  - 45% reduction in the mean annual load of total nitrogen.
  - 45% reduction in the mean annual load of total phosphorus.
  - 80% reduction in the mean annual load of total suspended solids.

- If any works are proposed near a water course, the Water Management Act 2000 may apply, and you may be required to seek controlled activity approval from the NSW Office of Water. Please consult with the NSW Office of Water regarding your proposal. Section 4 Bushland and Fauna Habitat Preservation of this DCP should also be addressed when pertinent.

Other relevant information is contained within the DCP section 9.0 for the detailed process in determining the relevant flood planning controls.

More detailed assessment on stormwater and flooding design controls will be undertaken with reference to the Liverpool Local Environment Plan (2008), Liverpool City Council Couth Creek Floodplain Risk Management Study and Plan and Liverpool City Council's D5 Stormwater Drainage Design specification.

Existing Topography

Elevations are highest along the southern and central property boundaries where maximum ground levels peak at three locations ranging from 72 m to 76 m Australian Height Datum (AHD) in elevation. Three localised streams are located within the site, two of which drain to Badgerys Creek and one draining to South Creek, all of which drain in the northern direction.

These local streams divide the site into three subcatchments, with two subcatchments draining roughly 2/3 of the western portion of the site to Badgerys Creek and one subcatchment draining roughly 1/3 of the eastern portion of the site to South Creek. The lowest lying areas are along the natural watercourses of Badgerys Creek and South Creek and their respective branches. The lowest ground level at Badgerys Creek is <58 m AHD and for South Creek is <48m AHD.

Preliminary Flooding and Stormwater Assessment

This development area is currently determined as a "Primary Production (RU1)" zone lot according to the Liverpool Local Environmental Plan 2008. The infrastructure currently on site is suited to the previous use of poultry production and manafacturing.

Existing Flood Behaviours

The majority of Ingham's development site is outside of the Probable Maximum Flood (PMF) and 100-year ARI flood extents. However, small portions of the development are within the fringes of the PMF and 100-year ARI flood extents at the northwest corner boundary near Badgerys Creek and eastern boundary near South Creek. Three riparian corridors, each along the localised streams, extend within the site.

Key flood extents and tributary areas are shown on the figure overleaf.

Existing Stormwater Network

The existing drainage network is observed to be limited to an in-ground pipes and manhole network along Badgerys Creek Road and surface flows following the existing topography of the land within the site to localised streams which join to Badgerys Creek and South Creek.

We understand the proposed site will consist of mixed-use commercial and residential developments. This will increase the amount impervious area compared to the existing conditions and will require planning and design for stormwater infrastructure and upgrades to the existing systems. Consultations with the development design team in confirming proposed development strategy will be required in order to plan for:

- The updated land use and zoning for the area;
- Any changes to the existing topography which may change surface runoff and flood behaviours;
- Future stormwater infrastructure network strategy to service each of the individual sites within this development;
- Flood strategies to prevent and/or mitigate flood risks;
- On-site detention requirements for each of the individual sites within this development; and
- Water treatment measures to satisfy WSUD requirements.

FUTURE CHANGES

It is noted in the Environment Protection Authority Strategy Plan 2017-21 that the EPA proposes updating the existing WSUD guidelines to allow for a risk-based framework to inform water quality outcomes for the South Creek Catchment.

As such a pilot has been introduce to develop a new approach to changed urban water management for the South Creek Catchment with the aim of addressing better liveability in Sydney's 'Western Parkland City' for residential and employment land adjacent to the Western Sydney Airport development, and inform other growth areas such as the South West and North West growth areas.

The potential implications for this change in approach is a greater reliance on stormwater harvesting and water re-use to improve the quality and liveability of the South Creek catchment. This is complementary to the decentralised approach required to any initial site development; however it will require careful integration with the proposed final site design including the appropriate infrastructure to meet the risk based targets.

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