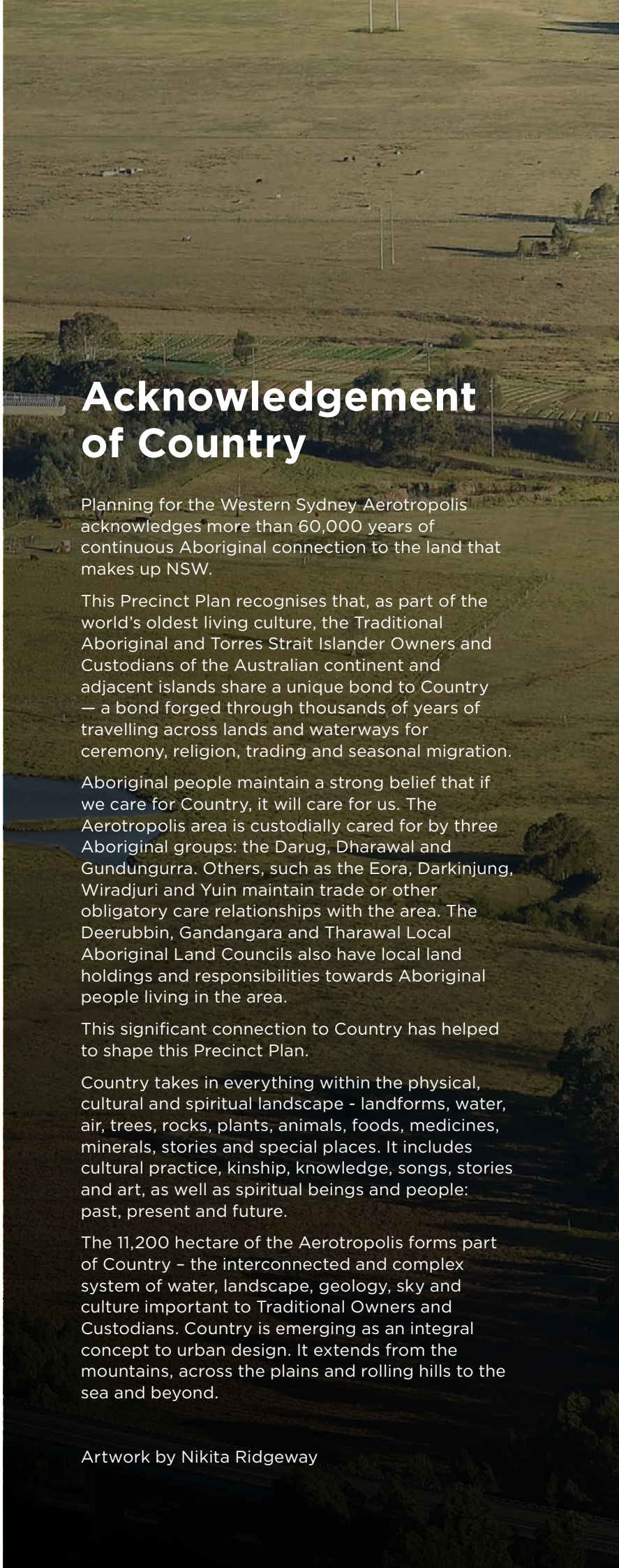
NSW GOVERNMENT

WESTERN SYDNEY PLANNING PARTNERSHIP

Draft Aerotropolis Precinct Plan

Draft for Public Comment

November 2020



Acknowledgement of Country

Planning for the Western Sydney Aerotropolis acknowledges more than 60,000 years of continuous Aboriginal connection to the land that makes up NSW.

This Precinct Plan recognises that, as part of the world's oldest living culture, the Traditional Aboriginal and Torres Strait Islander Owners and Custodians of the Australian continent and adjacent islands share a unique bond to Country — a bond forged through thousands of years of travelling across lands and waterways for ceremony, religion, trading and seasonal migration.

Aboriginal people maintain a strong belief that if we care for Country, it will care for us. The Aerotropolis area is custodially cared for by three Aboriginal groups: the Darug, Dharawal and Gundungurra. Others, such as the Eora, Darkinjung, Wiradjuri and Yuin maintain trade or other obligatory care relationships with the area. The Deerubbin, Gandangara and Tharawal Local Aboriginal Land Councils also have local land holdings and responsibilities towards Aboriginal people living in the area.

This significant connection to Country has helped to shape this Precinct Plan.

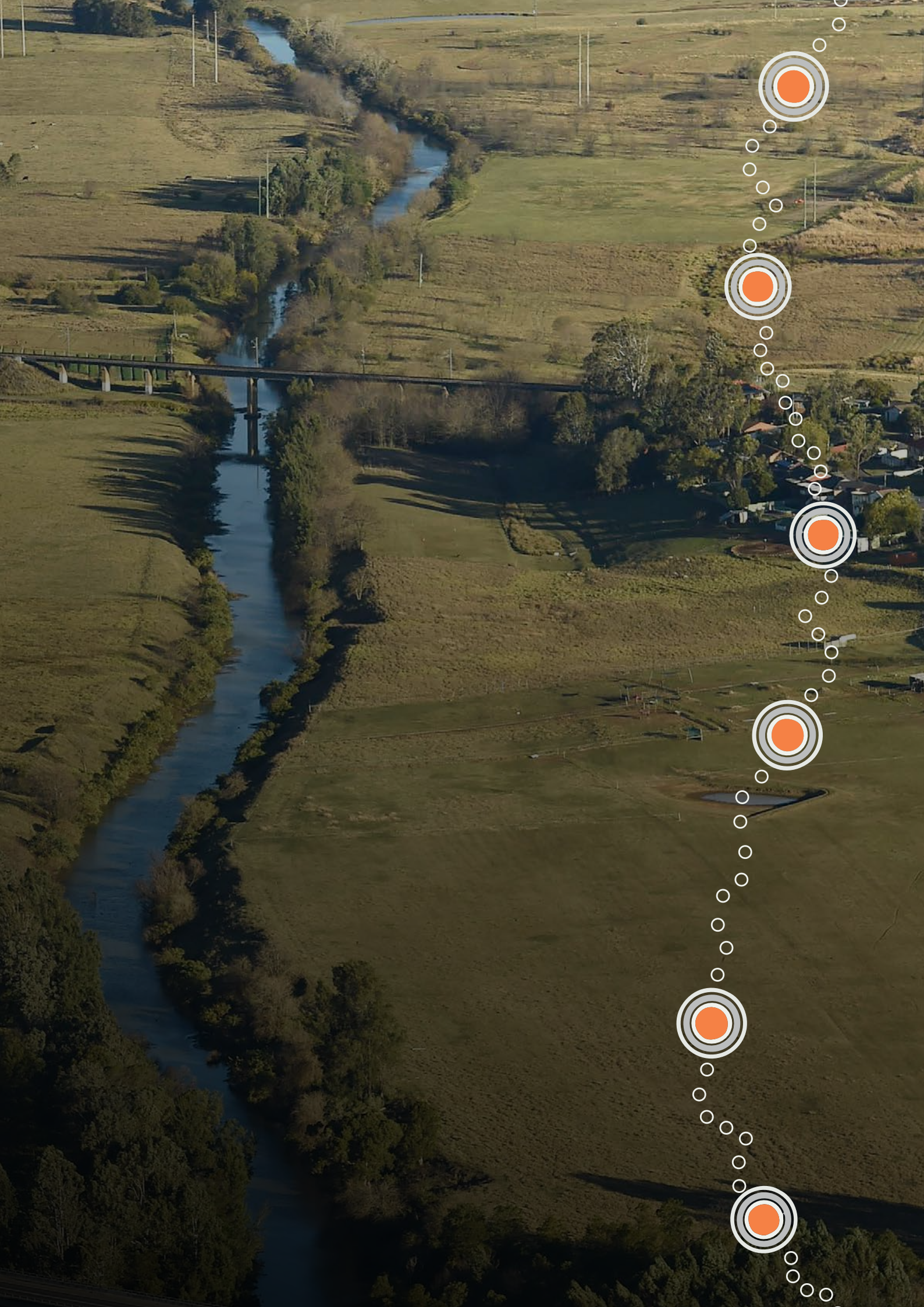
Country takes in everything within the physical, cultural and spiritual landscape - landforms, water, air, trees, rocks, plants, animals, foods, medicines, minerals, stories and special places. It includes cultural practice, kinship, knowledge, songs, stories and art, as well as spiritual beings and people: past, present and future.

The 11,200 hectare of the Aerotropolis forms part of Country – the interconnected and complex system of water, landscape, geology, sky and culture important to Traditional Owners and Custodians. Country is emerging as an integral concept to urban design. It extends from the mountains, across the plains and rolling hills to the sea and beyond.

Artwork by Nikita Ridgeway

Visit:
www.wscd.sydney/planning-partnership
www.planning.nsw.gov.au

NSW State Government
Released November 2020



Contents

Figure List

Executive summary

The Western Sydney Aerotropolis will surround the planned Western Sydney International (Nancy-Bird Walton) Airport and will contribute towards the 200,000 jobs target for the Western Parkland City. Jobs will be offered in in technology, logistics, science, creative industries and agribusiness, within a cool, green connected environment.

This Western Sydney Aerotropolis Precinct Plan focuses on the initial precincts: the Aerotropolis Core, Badgerys Creek, Wianamatta-South Creek, Northern Gateway and Agribusiness precincts, as identified in the Western Sydney Aerotropolis Plan and *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020 (Aerotropolis SEPP)*. The Precinct Plan achieves the placed- based planning principles and themes in the Western Sydney Aerotropolis Plan, including sustainability, connectivity, productivity, liveability, place and built form.

This Precinct Plan is the next step in realising the vision for the Western Parkland City. The Precinct Plan analyses the Aerotropolis as it is today and establishes place-based responses for its future, including the opportunities from catalysts such as Sydney Metro stations that will become the heart of new vibrant urban centres. It uses a landscape-led approach to planning for the Aerotropolis; an approach that recognises Aboriginal cultural values in terms of design, heritage and urban systems.

Recognise Country

Acknowledge Traditional Custodians and provide opportunities to connect with Country, design for Country and care for Country in the planning for the Aerotropolis.

Statutory context

The Precinct Plan is required under part 7 of the Aerotropolis SEPP and is to be read in conjunction with the Western Sydney Aerotropolis Development Control Plan (DCP). Any master plan or development application must be consistent with the Precinct Plan objectives and requirements, and demonstrate consistency with the DCP. A Phase 2 DCP will be published in 2021; until then consistency will be assessed against the Phase 1 DCP.

Technical studies have been undertaken to inform the critical context and analysis for the *Western Sydney Aerotropolis: Urban Design and Landscape reports*, which has formed a significant direction and framework for the Precinct Plan.

Key drivers

Eight key drivers underpin the framework for the Precinct Plan

- **Key driver 1: Connecting to Country**: Traditional understandings of Country will influence planning, design and landscape management, integrating Wianamatta-South Creek into the area's character and places. Precinct planning will be guided by Cultural Design Principals.
- **Key driver 2: Landscape-led**: The connected natural systems of Wianamatta-South, Badgerys, Kemps, Cosgroves and Duncans Creeks will be retained and optimised to create a connected, walkable and liveable city.
- **Key driver 3: Great places**: Great places will attract and retain knowledge-intensive businesses and workers with the areas around Metro stations, strategic centres and local business hubs transformed to urban environments that cater for workers' needs and circumstances.
- **Key driver 4: Transport investment and jobs**: Sydney Metro – Western Sydney Airport, the M12 Motorway, upgrades to Elizabeth Drive and The Northern Road, Eastern (Airport) Ring Road, Western Sydney Freight Line and rapid bus corridors will connect people and goods throughout the Western Parkland City.
- **Key driver 5: Circular economy**: The Aerotropolis will be regenerative and achieve net positive outcomes through a circular economy.
- **Key driver 6**: A resilient city: Precinct planning will consider land suitable for development in terms of risk with resilient development pursued for new buildings, places and infrastructure.
- **Key driver 7**: Urban comfort and green streets: The Aerotropolis will be planned in a way that increases the tree canopy, incorporates blue and green infrastructure, improves efficiency of stormwater and incorporates water sensitive urban design.
- **Key driver 8**: Market factors: The Aerotropolis will attract a new jobs market that can increase and diversify employment, with retail and local service jobs opening up as more residents and workers come to the area and high-value jobs focused around the Metro stations.

Executive summary

Precinct plan frameworks

Recognising Country reimagines urban development and open space through frameworks. The Precinct Plan sets out planning and design guidelines under each framework, as well as objectives and requirements under related land use planning elements.

- **Blue and green framework** that integrates the blue and green systems of the waterways, riparian areas, bushlands, parks and open spaces, tree canopy and private gardens, and includes stormwater management and recreation opportunities.
- **Access and movement framework** through investment in Sydney Metro stations, other public transport, roads and walking and cycling links to create a sustainable transport network that supports proposed land uses and the 30-minute city.
- **Land use and built form framework** that is informed by the land zones established in Aerotropolis Plan: Agribusiness, Enterprise, Environmental and Recreation and Mixed Use.
- **Social and cultural infrastructure framework** that place the services the community needs close to transport, open space and blue-green corridors.
- **Sustainability and resilience framework** that provides opportunities for new sustainability initiatives and targets, where precinct design is supported by cyclical resources and net positive ecological, social and economic outcomes.

Initial precincts

The Precinct Plan relates to the initial precincts of Aerotropolis Core, Wianamatta-South Creek Corridor, Badgerys Creek, Northern Gateway, and Agribusiness. Wianamatta-South Creek Precinct is integrated into the planning for the Aerotropolis Core and Badgerys Creek precincts.

To support the landscape-led approach, planning for each precinct will incorporate the requirements of each of the frameworks. In addition, planning and development in each initial precinct will be subject to place-based performance criteria that informs the future development, investment and retention of the blue-green connections across the Aerotropolis.

The **Aerotropolis Core Precinct** will be the economic hub – a dense urban precinct around a Metro station with connections to waterways and a new regional park system. It will be home to between 50,000 and 60,000 workers

Badgerys Creek Precinct will be the place that supports the Airport's operations, transforming to a hub of higher-order jobs in areas such as technology, advanced manufacturing and industry uses for around 10,000 workers.

Both precincts will link to the defining **Wianamatta-South Creek Precinct** – an interconnected blue-green corridor for parks, sporting fields and waterways, with walking and cycling trails and community facilities. This will offer a peaceful transition for the burgeoning urban area.

The **Northern Gateway Precinct** will accommodate a new specialised centre and a key interface to the Airport from the rest of Greater Sydney, with the new Sydney Science Park as its foundation. It will accommodate around 21,000 workers.

The **Agribusiness Precinct** is a place of opportunity for the State's agricultural and agribusiness sectors, employing around 10,000 workers. It will build on the heritage of Western Sydney's successful agricultural operations. At the Precinct's heart, Luddenham Village will be a destination for local, regional, national and international visitors to celebrate the merging of the rich history of Western Sydney with its future on the global stage.

1. Aerotropolis Core City Centre
2. Thompsons Creek Regional Park
3. Luddenham Metro Station
4. Luddenham Village
5. Western Sydney Airport terminal
6. Western Sydney Airport business park


LUDDENHAM ROAD
3
COSGROVES CREEK
THE NORTHERN ROAD
M12 MOTORWAY
ELIZABETH DRIVE
4
LUDDENHAM
6
PITT STREET
5
BADGERYS CREEK
WIANAMATTA - SOUTH CREEK
DUNCAN'S CREEK
EASTERN RING ROAD
THE NORTHERN ROAD
FIFTEENTH AVENUE
THOMPSONS CREEK
1
2
BRINGELLY ROAD

Executive summary

Infrastructure

The Precinct Plan is focused on the coordination of land use, infrastructure and transport infrastructure. It sets out a multi-utility approach that will integrate infrastructure corridors more comprehensively, especially given the scale of greenfield areas.

The Initial Precincts are the first stage precincts to be developed in the Aerotropolis. Sequencing within the Initial Precincts provide the priorities across infrastructure development and to align Government investment with achieving targets established in the Western Sydney Aerotropolis Plan.

Staging and sequencing across the Aerotropolis has been informed by the Greater Sydney Commission's Place-based Infrastructure Compact (PIC) and will align infrastructure investment across agencies and utility providers.

The Precinct Plan establishes infrastructure delivery priorities in terms of:

First priority areas:

- high density employment areas near Metro Stations at Luddenham and Aerotropolis Core
- associated large unfragmented landholdings
- land adjacent and outside of the M12 corridor and interchange area that can support access to the Western Sydney Airport
- agribusiness land in the northern area enabling access to the Western Sydney Airport from The Northern Road
- agribusiness land in the southern area that links to Northern Road and airport entry.

Second priority areas:

- mixed use zoned land east of Thompsons Creek relatively close to the Metro and Aerotropolis Core Centre that can bolster employment and resident populations
- developed areas between the Aerotropolis Core, Badgerys Creek and Northern Gateway precincts
- land to the immediate west of Badgerys Creek Road.

Land that is further from either committed infrastructure and/or difficult to develop owing to environmental and topographical constraints is the **third priority**.

1 Introduction

1.1 Vision – beyond business as usual

The Western Sydney Aerotropolis will be Australia's next global gateway. Leveraging the Western Sydney International (Nancy-Bird Walton) Airport and a significant pipeline of infrastructure projects, the Aerotropolis will become an economic powerhouse driving the productivity of New South Wales and Western Sydney through this century and beyond.

The Aerotropolis will play a critical role making Greater Sydney a 30-minute city. Connecting with the metropolitan centres of Liverpool, Penrith and Campbelltown, the Aerotropolis will provide unprecedented opportunities for the people of Western Sydney.

The Western Sydney Aerotropolis Plan (WSAP) will shape the emergence of the Aerotropolis in a parkland setting. Integrating urban development with city shaping infrastructure and blue-green corridors, the WSAP sets out a sequenced approach to how a world class city will be planned and developed over the coming decades.

This Precinct Plan is the next step in realising the vision for the Western Parkland City. It provides both the certainty and the flexibility that will enable innovation to thrive in the Aerotropolis. The Plan embraces a 'beyond business as usual" landscape-led approach as it provides greater detail about the future of the initial precincts in the Aerotropolis. The Precinct Plan interweaves urban planning and design with the landscape while recognising and celebrating Country with Wianamatta-South Creek as the centrepiece.

The Precinct Plan builds on the Aerotropolis as it is today: the creeks and tributaries; undulating topography and view lines; places of Aboriginal and European significance and urban settlements such as Luddenham Village. These features are then melded together with catalytic infrastructure projects and world best urban design to create a network of vibrant urban centres across the 11,000-hectare Aerotropolis.

The Precinct Plan reimagines urban outcomes underpinned by:

- **a blue and green framework** that integrates the blue and green systems of the waterways, riparian areas, bushlands, parks and open spaces, tree canopy and private gardens, and includes stormwater management and recreation opportunities
- **an access and movement framework** through investment in Sydney Metro stations, other public transport, roads and walking and cycling links to create a sustainable transport network that supports proposed land uses and the 30-minute city
- **a land use and built form framework** that is informed by the land zones established in Aerotropolis Plan: Agribusiness, Enterprise, Environmental and Recreation and Mixed Use.
- **a social and cultural infrastructure framework** that place the services the community needs close to transport, open space and blue-green corridors
- **a sustainability and resilience framework** that provides opportunities for new sustainability initiatives and targets, where precinct design is supported by cyclical resources and net positive ecological, social and economic outcomes.

1.2 Connecting to Country and a landscape-led approach

Country is a leading driver of the planning and urban design across the Aerotropolis. The planning and development of the Aerotropolis will recognise Aboriginal cultural values in terms of design, heritage and urban systems. This acknowledges that Traditional Owners and Custodians have maintained a connection with the land and draws on their belief that by caring for Country, Country will care for us.

In this way, the concept of Country includes all things physical, cultural and spiritual in the landscape, as well as all things in the past, present and future.

The overarching objective for the planning of the Aerotropolis is:

> Recognise Country
>
> Acknowledge Traditional Custodians and provide opportunities to Connect with Country, Design for Country and Care for Country when planning for the Aerotropolis.

This objective responds to the Greater Sydney Region Plan's direction of 'a city in its landscape'. It means the Aerotropolis will be restorative and regenerative, with planning and design aiming to restore ecological and hydrological systems in a way that ensures sustainability while forming the character of the place.

It also means the Aerotropolis will be an efficient city where water, waste and greenhouse gases are minimised and managed in a way support the overall sustainability performance. Aerotropolis planning and design will prioritise human wellbeing, create places that people want to work and live in, and emphasise the *qualities* of place over function.

1.3 Purpose

This Precinct Plan applies to the five initial precincts of the Western Sydney Aerotropolis: the Aerotropolis Core, Badgerys Creek, Wianamatta-South Creek, Northern Gateway and Agribusiness precincts. These initial precincts are identified in the Aerotropolis Plan and *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020 (Aerotropolis SEPP)*.

This Precinct Plan fulfils the requirements of Part 7 Division 1 Clause 40 the Aerotropolis SEPP by providing the planning requirements to enable development, manage the environment and support investment. The *Aerotropolis Urban Design and Landscape Report* for the initial precincts forms the basis of this Precinct Plan.

Part 7 of the Aerotropolis SEPP provides that Precinct Plan should contain:

- the strategic vision and general objectives for the Precinct
- mapping showing proposed land uses for land in the Precinct
- performance criteria for development on land in the Precinct
- proposals for public utility infrastructure, roads and transport on land in the Precinct
- proposals for total water cycle management for the Precinct.

This document meets the statutory requirements of the Precinct Plan and provides the framework and performance criteria for the initial precincts. Performance criteria, as defined by the Aerotropolis SEPP, comprise key objectives and requirements that should be met to satisfactorily implement the Aerotropolis SEPP.

1 Introduction

1.4 Applying the Precinct Plan

All applications

The Precinct Plan provides the framework and performance criteria for master plans and all development applications. The Aerotropolis SEPP and the Guideline to Master Planning in the Western Sydney Aerotropolis (Master Planning Guideline) requires any master plan and development application to demonstrate consistency with the Precinct Plan objectives and requirements as outlined under the performance criteria.

A master plan or development application must also demonstrate consistency with the Aerotropolis Development Control Plan (DCP). Until the Phase 2 DCP is published, consistency will need to be assessed against the Phase 1 DCP.

Modifications to the Precinct Plan by a proposed Master Plan

If a proposed master plan is not consistent with the Precinct Plan, the proposed inconsistencies will require review and recommendation by the Technical Assurance Panel as outlined in the Master Planning Guideline. Any inconsistencies that will result in a modification to a Precinct Plan must result in a superior outcome with consideration to potential consequences and outcomes broader than the master plan site.

Modifications to the Precinct Plan by proposed development applications

If a proposed development is not consistent with the Precinct Plan, an amendment to the Precinct Plan may be required. This would be achieved through a planning proposal, being submitted to the Secretary of the Department of Planning, Industry and Environment, which will only be supported if it clearly demonstrates:

- the place-based objectives of the WSAP.
- the integrity of the blue-green infrastructure, transport infrastructure, hierarchy of centres and social infrastructure framework
- superior urban design, infrastructure and place-based outcomes that will meet the Aerotropolis Plan objectives not just for the relevant precinct, but for overall Aerotropolis
- an enhancement to the strategic vision and objectives of each precinct
- alignment with objectives for the Wianamatta-South Creek Corridor in part 3 of this Plan
- alignment with the transport plan in part 3, and, specifically, that interchanges, road or rail alignments are acceptable to Transport for NSW
- that the staging will not be negatively impacted if it is not in accordance with the priority sequence of precincts
- alignment with the land use, height and minimum lot size objectives and requirements in part 3 of this Plan.

Sydney Science Park – a rezoned area in Northern Gateway

Sydney Science Park is rezoned under *Penrith Local Environmental Plan 2010* and current development approvals continue to apply.

Once the Precinct Plan is approved, any development application will need to comply with it, and demonstrate consistency with the Aerotropolis Development Control Plan. Until the Phase 2 DCP is published, consistency will need to be assessed against the Phase 1 DCP. Any inconsistencies in the master plan will require the same modification process as outlined in section 1.4.

1.5 Relevance of the Phase 2 Aerotropolis DCP

The Phase 1 Aerotropolis DCP should be read in conjunction with the Western Sydney Aerotropolis Plan, Aerotropolis SEPP, Ministerial Directions 3.5 and 7.8, this Precinct Plan and Master Planning Guideline in the Western Sydney Aerotropolis 2020.

The Phase 2 Aerotropolis DCP will be released for consultation in early 2021 will provide performance criteria and benchmark outcomes to guide development applications. The Phase 1 Aerotropolis DCP will be superseded by the Phase 2 Aerotropolis DCP, once released.

The Phase 2 Aerotropolis DCP will guide development on aspects such as the natural environment, risk minimisation and management, aviation safeguarding, heritage and conservation, subdivision, built form, parking and landscape controls.

1.6 Structure of this Precinct Plan report

This Precinct Plan comprises five parts:

Part 1 provides the policy context and the key drivers for the landscape-led and place-led approach.

Statutory components under the Aerotropolis SEPP:

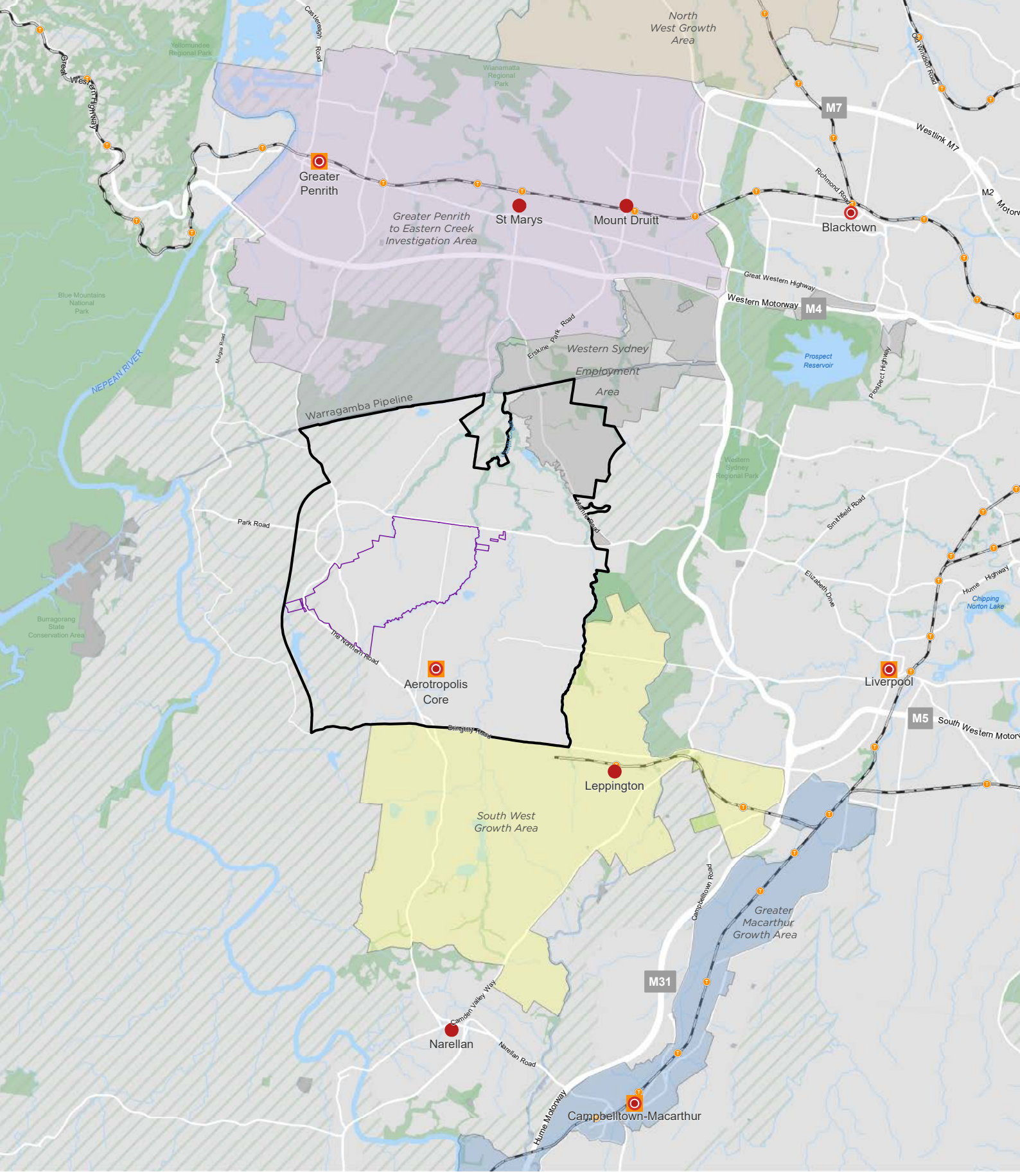
Part 2 provides the framework, vision and objectives for the Initial precincts.

Part 3 outlines the place-based Aerotropolis wide performance criteria for all of the Initial Precincts.

Part 4 outlines the specific place-based performance criteria for all Initial Precincts.

Part 5 provides the framework for the provision of infrastructure and the preferred staging or sequencing for development.

Part 6 is a glossary of terms.



Adjoining Areas

Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- National Parks and Nature Reserves
- Environmental Conservation
- Western Sydney Employment Area
- Greater Penrith to Eastern Creek Investigation Area
- South West Growth Area
- Greater Macarthur Growth Area
- North West Growth Area
- Metropolitan Rural Area
- Metropolitan Cluster
- Health and Education Precinct
- Strategic Centre

0 1 2 4
Kilometres

N

1.7 Planning and policy context

Figure 1 illustrates the Aerotropolis and key strategic areas and major connections.

This Precinct Plan is informed by State and local policy frameworks.

1.7.1 Western Sydney Aerotropolis Plan

The Aerotropolis Plan was finalised in September 2020. The WSAP provides the vision and high-level planning framework for the Aerotropolis including objectives, strategic outcomes and implementation strategies for all precincts. The planning principles included into the WSAP relating to sustainability, connectivity, productivity and liveability, place and built form and infrastructure have been interpreted into the Precinct and form the framework for planning.

The Aerotropolis Plan:

- establishes the vision and planning framework for the Aerotropolis
- focuses development around the new Airport
- emphasises the connection to Country
- aims to integrate the Aerotropolis within the Western Parkland City.

Figure 1 (overleaf): Context
Source: Western Sydney Aerotropolis Plan (September 2020)

1 Introduction

The Aerotropolis Plan provides direction to promote a walkable, workable and liveable place with connections between accessibility, physical infrastructure, smart technology, sustainability and low carbon features, diverse housing and 24/7 Airport operations.

It identifies:

- planning objectives and principles for the Aerotropolis (**Figure 2**)
- different land uses for each precinct
- high-level infrastructure to support the Aerotropolis
- initial precincts and non-initial precincts to reflect the sequence to undertake precinct planning.

The Aerotropolis Plan includes a structure plan (**Figure 3**) that provides the basis for the urban design and planning concepts included in this Precinct Plan.

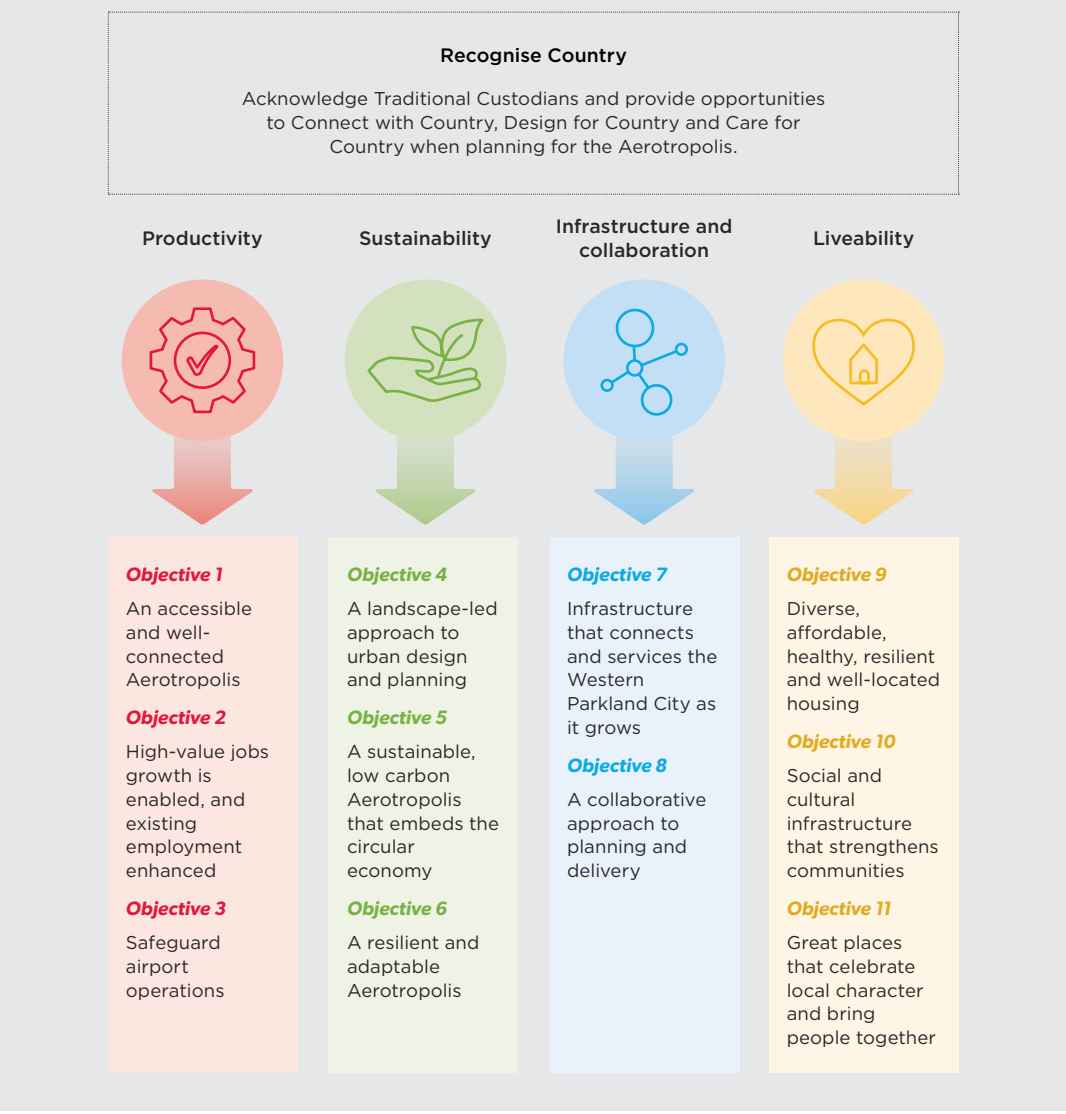
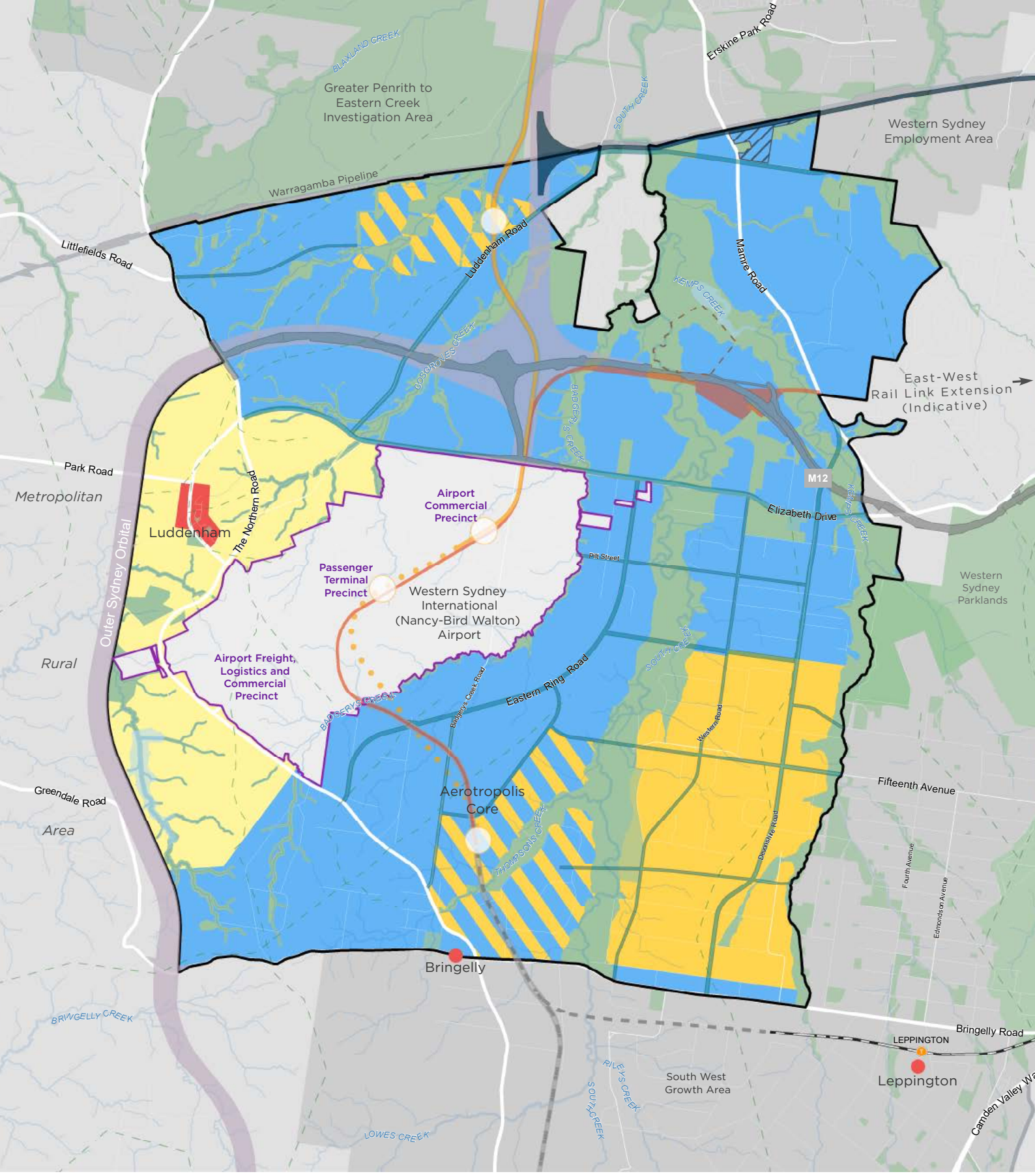


Figure 2: Aerotropolis-shaping objectives and principles. Source: Western Sydney Aerotropolis Plan (September 2020)

Figure 3 (overleaf): Western Sydney Aerotropolis Plan Structure Plan
Source: Western Sydney Aerotropolis Plan (September 2020)



Structure Plan

Western Sydney Aerotropolis

0 0.5 1 2 Kilometres

N

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- Key Network Upgrade
- M12 Motorway Corridor
- Proposed Transport Corridor Potential
- Intermodal Terminal
- Upper South Creek Advanced Water Recycling Centre
- Metro Station
- Sydney Metro - Western Sydney Airport
- Sydney Metro - Western Sydney Airport Tunnel Alignment
- Proposed Future Rail Links
- Potential East-West Rail Link and Stabling
- Western Sydney Freight Line Corridor
- North South Rail Line Corridor
- Centre
- Topographic Ridgeline
- Luddenham Village
- Agribusiness
- Environment and Recreation
- Enterprise
- Urban Land
- Mixed Use

1 Introduction

1.7.2 Region Plan and Western Sydney District Plan

The *Greater Sydney Region Plan* sets a 40-year vision and 20-year plan for Greater Sydney. It seeks to meet the needs of a growing and changing population by transforming Greater Sydney into a metropolis of three cities – the Western Parkland City, the Central River City and the Eastern Harbour City. The 11,200-hectare Aerotropolis is at the heart of the Western Parkland City, and a key focus of the *Western City District Plan*.

Located at the western edge of the Sydney Basin, the Western Parkland City is defined by green edges with the Metropolitan Rural Area and Blue Mountains National Park to the west, the Western Sydney Parklands to the east, the north-south spine of the Wianamatta-South Creek Corridor and a gently undulating topography with low ridges running down to the creeks.

The Western Parkland City will be home to 1.1 million people by 2036 and well over 1.5 million people by 2056. It will also see a significant increase in jobs.

Planning for new jobs and housing along the Sydney Metro - Western Sydney Airport spine will help to bring a greater diversity of jobs closer to where people live across the entire Western Parkland City including Greater Penrith, Liverpool and Campbelltown-Macarthur.

Planning for the Wianamatta-South Creek as part of a broader blue-green Framework will reinvigorate the waterways as a key component of the Western Parkland City's landscape.

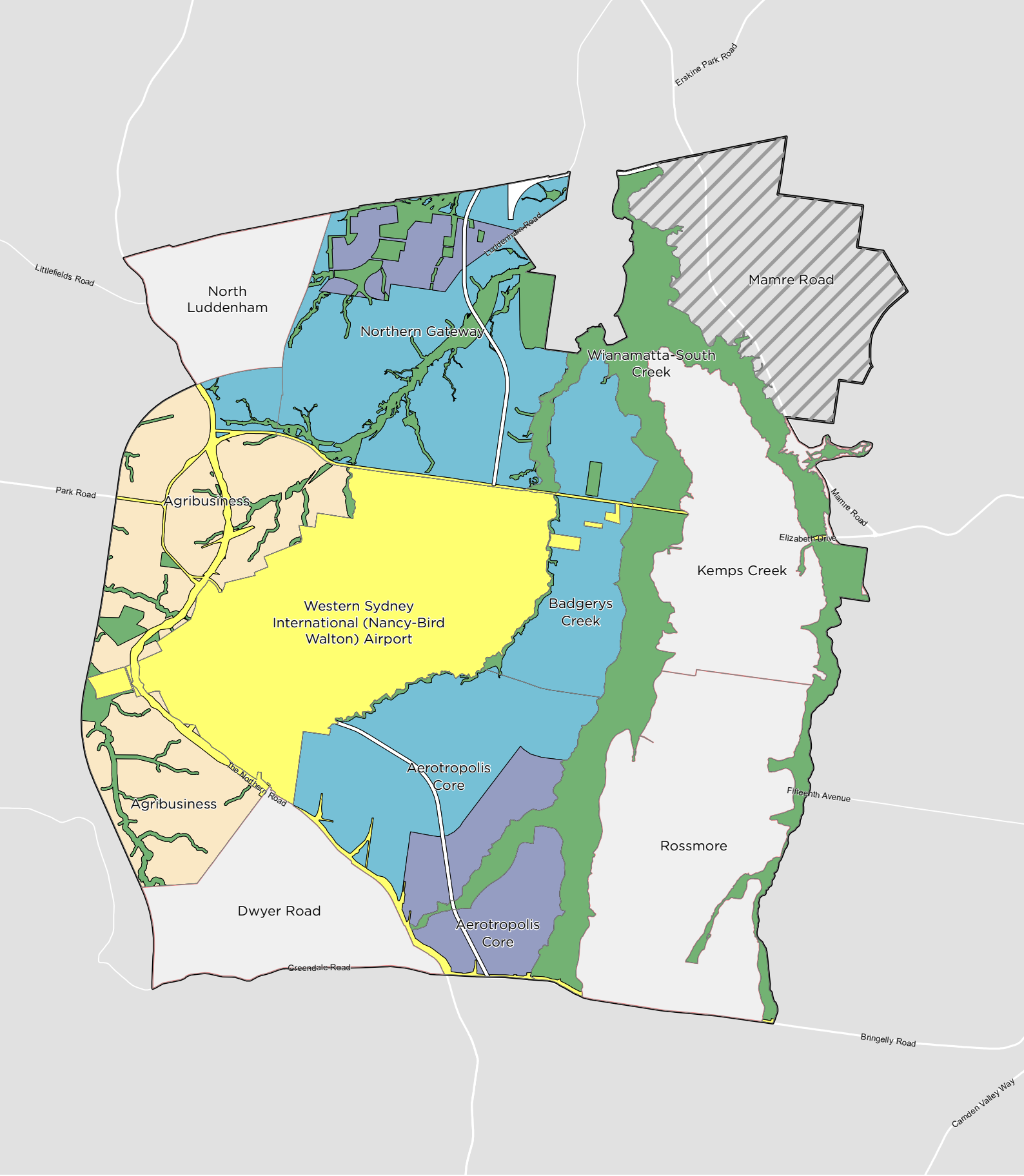
1.7.3 Aerotropolis SEPP

The Aerotropolis SEPP applies to the land within the Aerotropolis and provides the statutory framework to facilitate the planning and development of land consistent with the Aerotropolis Plan. It also seeks to protect the operations of the Airport within and beyond the Aerotropolis.

The Aerotropolis SEPP introduces land use zones as outlined in **Figure 4**.

- **Enterprise Zone** – supports the establishment of enterprise uses while mitigating the impacts of Airport operations. No residential or noise sensitive developments are permitted.
- **Mixed Use Zone** – promotes flexibility in establishing a range of uses including employment, residential and noise-sensitive uses, with high amenity and good connections to public transport.
- **Environment and Recreation Zone** – applies to the Wianamatta-South Creek Corridor and other areas identified for conservation, biodiversity and recreational uses.
- **SP2 Infrastructure Zone** – covers physical infrastructure provision including new and existing road and rail corridors, transport facilities, land required for utilities, the Airport and associated land in Commonwealth ownership to support Airport operations.
- **Agribusiness Zone** – supports high-tech agribusiness uses, including freight, logistics and horticulture.

Figure 4 (overleaf): Land Use Zoning Plan (Aerotropolis SEPP)
Source: Western Sydney Aerotropolis Plan (September 2020)



Land Zone

Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Precinct Boundary

Land Zone (Aerotropolis SEPP)

- AGB Agribusiness
- ENT Enterprise
- ENZ Environment and Recreation
- MU Mixed Use
- SP2 Infrastructure
- Major Infrastructure Corridor
- Deferred Matter (LEP Zone)
- Mamre Road (WSEA SEPP)

0 0.5 1 2
Kilometres

N

1 Introduction

1.7.4 Greener Places

Greener Places was prepared by the Government Architect to guide the planning, design and delivery of green infrastructure in urban areas across NSW. The policy provides that well-designed green infrastructure responds to four key principles:

1. **Integration** – combine green infrastructure with urban development and grey infrastructure
2. **Connectivity** – create an interconnected network of open space
3. **Multifunctionality** – deliver multiple ecosystem services simultaneously
4. **Participation** – involve stakeholders in development and implementation.

Greener Places is a supporting framework for the precinct plan on how to design, plan and implement green infrastructure.

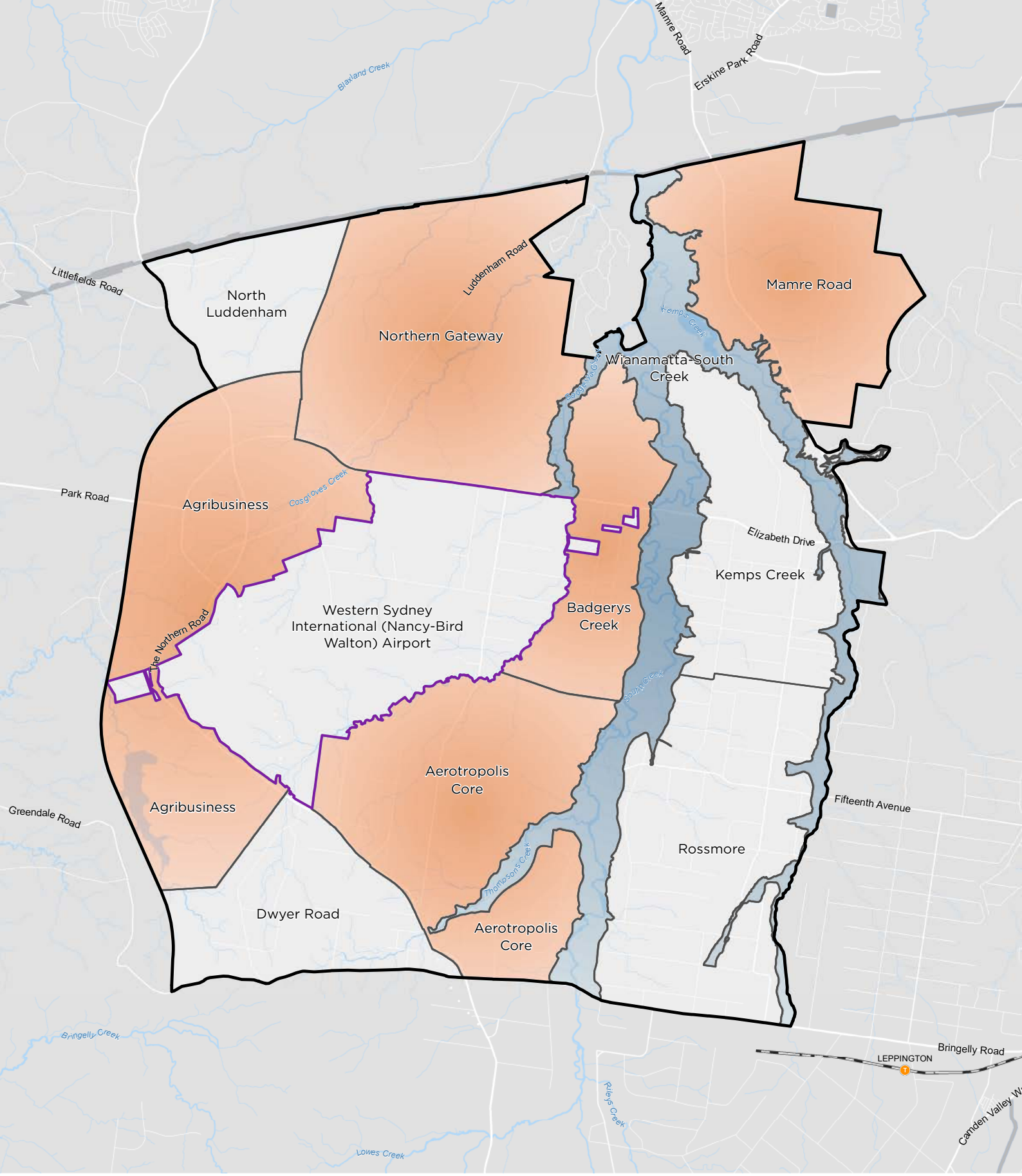
1.8 Initial precinct planning

The Aerotropolis Plan (Western Sydney Aerotropolis Plan) identifies 10 precincts (as shown in **Figure 5**), of which four, together with the Wianamatta-South Creek Corridor, are 'Initial Precincts'. This Precinct Plan relates to Aerotropolis Core, Wianamatta-South Creek Corridor, Northern Gateway, Badgerys Creek and Agribusiness.

The planning for Wianamatta-South Creek Precinct is integrated into the planning for the Aerotropolis Core and Badgerys Creek PrecinctsThe Mamre Road Precinct is already rezoned and therefore not included in this Precinct Plan.

The remaining precincts of North Luddenham, Dwyer Road, Kemps Creek and Rossmore will be subject to precinct planning at a later date.

Figure 5 (overleaf): Initial precincts
Source: Western Sydney Aerotropolis Plan (September 2020)



Initial Precincts

Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- Initial Precincts
- Wianamatta-South Creek initial precinct

0 0.5 1 2
Kilometres

N

1 Introduction

1.9 Mamre Road

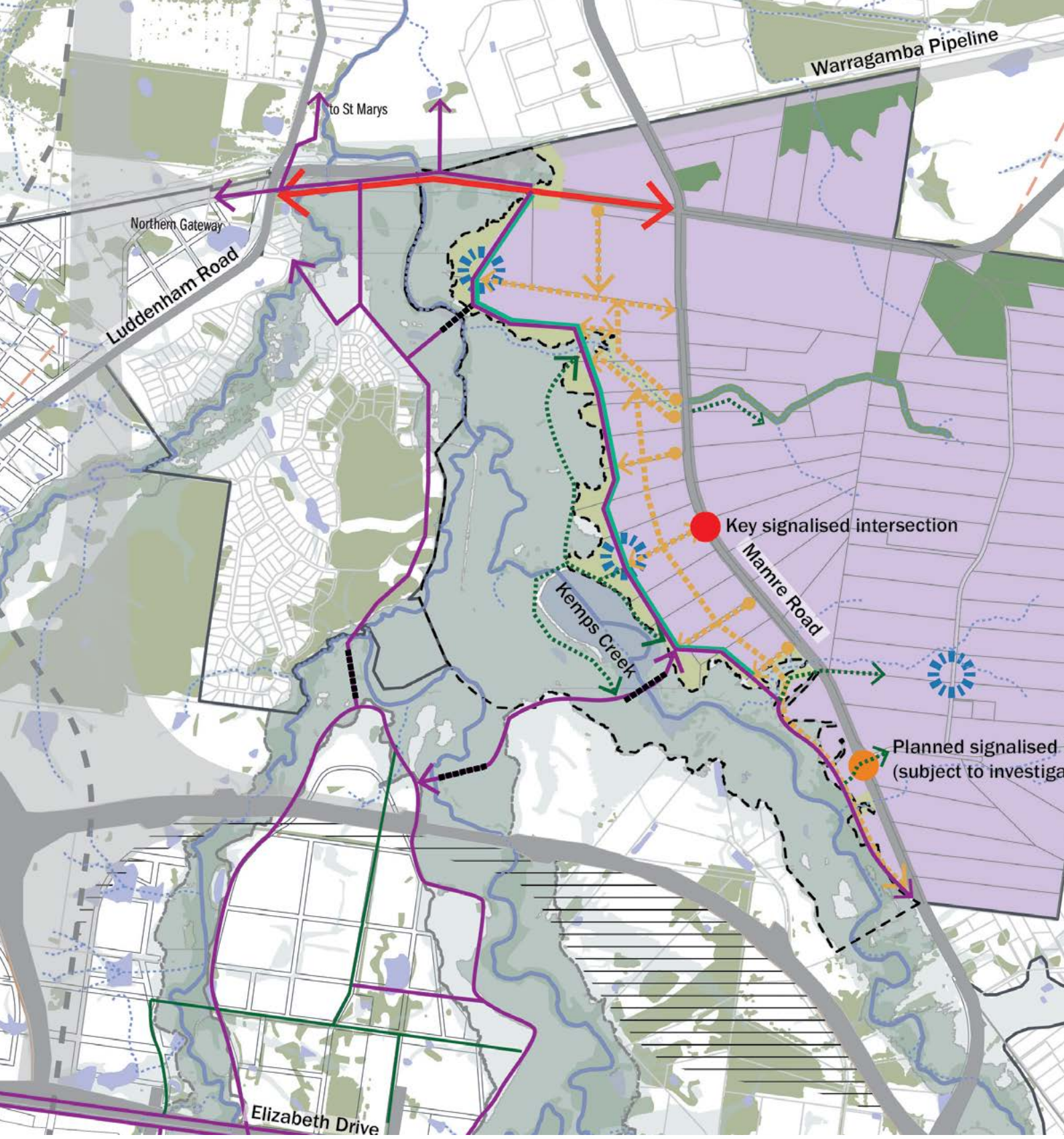
The Mamre Road Precinct was rezoned on 11 June 2020 as an amendment to the *Western Sydney Employment Area (WSEA) SEPP*. The rezoning facilitated an industrial warehousing and logistics precinct, led by the Department of Planning, Industry and Environment (the Department). A draft Structure Plan for the Mamre Road Precinct was placed on public exhibition in November 2019.

An area of unzoned land between Mamre Road and Kemps Creek Precinct has previously not been addressed as part of the Mamre Road Structure Plan. This land falls between the Wianamatta-South Creek Precinct and western boundary of the already zoned Mamre Road Precinct.

Much of the land is within the 1% AEP flood risk area, and so has been identified for Environment and Recreation Zone, consistent with the strategy across the Aerotropolis. A comparatively small but still developable strip of land lies between the 1% AEP flood risk area and Mamre Road. This land is used for rural activities. Two ephemeral creeks cross the affected land and have been identified for retention in open space. This allows the landscape-led urban design principles of the Aerotropolis to be carried through.

The remaining land has been identified for Industrial uses, consistent with the surrounding land in the Mamre Road Precinct. As Mamre Road is intended to function as an arterial corridor, access to the land is to be controlled. The Mamre Road Structure Plan identifies a controlled intersection in the area identified. This Precinct Plan considers a potential intersection at Mamre Road with Abbots Road, subject to investigation by Transport for NSW. Internal access required to service the land and must be coordinated across property boundaries.

Figure 6 (overleaf): Plan showing integration with the Mamre Road precinct



Mamre Road Precinct Integration

Western Sydney Aerotropolis

- Existing road
- Mamre Road potential connection
- Mid - block road connection
- Active transport link
- Edge interface to active transport path
- Environment and Recreation
- Industrial
- Open space
- Existing vegetation
- Indicative employment service hub
- Signalised intersection
- Potential signalised intersection

N

1 Introduction

1.10 Supporting studies

Technical studies have analysed historic and existing site conditions, as well as opportunities and constraints.

They provide the critical context and analysis for the *Aerotropolis Urban Design and Landscape Report*, which has formed a significant direction and framework for the Precinct Plan.

The following technical studies were undertaken:

- Aboriginal and non-Aboriginal heritage
- Aboriginal engagement
- air quality and odour baseline assessment
- bushfire risk assessment
- economic and market feasibility
- land capability
- social infrastructure audit and needs
- stormwater and water cycle management study (interim report)
- sustainability and heat
- transport and traffic
- utilities audit
- wildlife management
- biodiversity.

A separate report provides executive summaries, key findings and recommendations of each study.

Artist's Impression

2 Precinct Plan Framework

The Aerotropolis will catalyse transformational change in Greater Sydney. The Aerotropolis Plan considers how to take this massive opportunity across time and scale to realise a sustainable urban form.

The Aerotropolis Plan shapes a landscape-led approach to urban design and planning to achieve the vision for the Aerotropolis:

The Aerotropolis accommodates high value jobs closer to where people live. It is an accessible, innovative 24-hour metropolitan centre, connected globally, nationally, locally and digitally.

2.1 Precinct planning drivers

A sustainable urban form requires new ways of designing for and enabling development. Starting with Country will achieve the intent of a landscape-led approach, as will sustainable practices in terms of resilience, the circular economy, job creation and the Greater Sydney Green Grid.

Eight key drivers provided the key structure to the Aerotropolis Plan; these also underpin the framework for the Precinct Plan.

Artist's Impression


THOMPSONS
CREEK
PARK

2 Precinct Plan Framework

Key Driver 1: Connecting to Country

Traditional understandings of Country will shape the Aerotropolis, influencing planning, urban design and landscape management. Appreciating Country means Country is cared for during design and development.

Wianamatta-South Creek Corridor is a place of fertility that provides a distinctive variety of topographic environments, ecologies, climates and geology. The sacred waters and undulating land provide a connection to Country and the way the land was managed prior to European occupation. Connecting and integrating the Wianamatta-South Creek Corridor with the area's broader character, place and social environment will drive planning and design.

Precinct planning will be guided by Cultural Design Principals and local leaders in the Aboriginal community. Future natural, economic or cultural landscapes will preserve and embody Aboriginal values and identities.

Key Driver 2: Landscape-led

The connected natural systems of Wianamatta-South Creek, Badgerys Creek, Kemps Creek, Cosgroves Creek and Duncans Creek together with smaller creek tributaries define the Aerotropolis Blue-Green Infrastructure Framework.

The Framework creates a foundation for a connected, walkable and liveable city. It retains and re-establishes healthy, interconnected landscapes, waterways and soils. Wianamatta-South Creek will support a mix of parks, walking and cycling paths, community facilities and ecological functions, including nutrient capture, urban cooling and local habitat. It will ensure the resilience, balance and health of the whole system by retaining water, providing biodiversity corridors for wildlife and reconnecting remnant native fauna and flora communities.

The soils of the Western Sydney Cumberland Plain, when in their undisturbed state are integral to the proper functioning of the green blue networks. Setting aside significant tracts of land for open space will minimise major earthworks so not to damage to soil profiles and the ecology.

A landscape-led approach recognises waterways, parks or green spaces as the kind of elements that should shape the future of a city.

Photograph of the existing Aerotropolis landscape (overleaf).
Source: Danièle Hromek, 2020.

2 Precinct Plan Framework

Key Driver 3: Great places

Liveability relates to the quality of a place and what it is like to live in, work in or visit. Creating great places is a key factor in the attraction and retention of knowledge-intensive businesses and workers. People respond well to places that are distinctive, memorable and meaningful. Further people respond to the place as it has flexible, future focused communication infrastructure for fast, reliable and affordable digital connectivity. The clustering of different land uses, combined with spatial and cultural integration at Metro stations, strategic centres and local business hubs will transform the Aerotropolis into a landscape of great places with a strong sense of community.

Well-designed places and being a smart place can encourage workers to collaborate and interact. They can be urban environments that recognise and cater for workers' needs and circumstances.

Key Driver 4: Transport investment and jobs

The Western Sydney International (Nancy-Bird Walton) Airport is the catalyst for much of Western Sydney's future urbanisation. The Aerotropolis will accommodate more than 100,000 jobs - creating an innovation precinct and a home for technology, logistics, science, creative industries and agribusiness. Sydney Metro – Western Sydney Airport will become the transport spine for the Western Parkland City, connecting communities and travellers with the new Airport and the growing region. Sydney Metro will link residential areas with job hubs within the Initial Precincts and the broader Western Parkland City. It will be the impetus for the development of different types of centres and uses in the Aerotropolis.

Planning must safeguard future airport operations from inappropriate development while still supporting the development of places that will generate employment. Wildlife attraction has therefore been carefully considered when determining the appropriate location and type of new land uses within the Aerotropolis to manage the risk of collisions between wildlife and aircraft. Careful landscape design and species selection can meet the vision for the Western Parkland City while mitigating these risks.

Transport connections include the M12 Motorway, upgrades to Elizabeth Drive and The Northern Road, Eastern (Airport) Ring Road, Western Sydney Freight Line, rapid bus corridors, including the FAST Corridor bus service along Fifteenth Avenue will provide critical initial transport connection before the Airport opens in 2026. Rapid bus transit will link the Aerotropolis across the Western Parkland City, including to Greater Penrith, Liverpool and Campbelltown-Macarthur.

Artist impression of
Luddenham Metro Station.
Source: Sydney Metro.

2 Precinct Plan Framework

Key Driver 5: Circular economy

The Aerotropolis will be regenerative and a place that achieves net positive outcomes through a circular economy that avoids waste where possible; reduces the demand for resources through design and co-location; and re-uses materials wherever possible before conventional recycling. This system reduces resource demand and keeps resources in use as long as possible, then recovers and regenerates products and materials at the end of their life. It is a more efficient and environmentally sound alternative to the traditional linear economy that makes, uses and disposes of resources.

Precinct-scale initiatives will be essential. Waste and recycling services in the Aerotropolis and public places should not impact places, workers and residents. Circular economy components should be integrated throughout the Aerotropolis as a system, located at scale to maximise positive waste, water and energy outcomes. Circular economy infrastructure located close to where people live and work allows for the efficient collection of materials, encourages participation in recycling and activities, and maintains the quality of materials so they can be put back to productive reuse within the community.

Key Driver 6: A resilient city

A resilient city is prepared for, and ready to respond to, potential stressors and shocks and can accommodate major risk events over the short, medium and long-term. The driver for the Aerotropolis is to identify land that is suitable for future development in terms of risk and pursuing resilient development in terms of new buildings, neighbourhoods and infrastructure.

Planning for a resilient city must anticipate changes from climate trends and providing ecosystems to withstand and enhance the blue and green infrastructure. Managing stormwater and flooding and ensuring efficient permeable lands to absorb water and support landscaping are critical. Other key drivers for improving resilience include seeking to minimise urban heat island effects in times of severe heatwaves.

Artist impression of
the Northern Gateway strategic centre.
Source: Sydney Metro.

Key Driver 7: Urban comfort and green streets

The Western Parkland City vision requires efforts to increase the tree canopy, incorporate blue-green infrastructure, improve efficiency of stormwater and incorporate water sensitive urban design. Buildings should be designed to provide shade to complement the role of tree canopies in contributing to liveability, sustainability and resilience. Streets should be designed to respond to their environment while emphasising Western Sydney's character. The use of sustainable, low-impact materials and investment in energy technology will reduce energy costs and emissions.

Key Driver 8: Market factors

The Aerotropolis can create the critical number of jobs to cement the employment function within the Western Parkland City. Construction and large-scale infrastructure projects, together with the release of commercial and industrial land associated with the Aerotropolis, will help to attract a new jobs market that can increase and diversify employment.

Retail and local service jobs will become available as more residents and workers come to the area. High-value jobs will be focused around the Metro stations, particularly with commercial uses planned close to the stations. Initial investment around the Metro stations will also help to establish supporting retail, hospitality and leisure facilities.

While not focused around Metro stations, industrial uses or warehousing will also generate employment and kickstart development.

The focus on green links and connections to open spaces and employment hubs with community infrastructure will also help to drive the market, as people will want to work in attractive places.

Artist's impression of Aerotropolis green streets.

2 Precinct Plan Framework

2.2 Place-based opportunities and constraints

The *Aerotropolis Urban Design and Landscape Reports* identify precinct-specific opportunities and challenges to be addressed through precinct planning.

Important design opportunities that underpin the landscape-led and place based approach across all the precincts are:

- contain development outside the updated 1% Annual Exceedance Probability (AEP)
- retain creeks within the landscape, undisturbed soils in open space, and retain and enhance existing vegetation for biodiversity purposes
- respect topography and ensure clear and legible links between ridgetops and creek lines
- focus residential, commercial, industrial, community and other development towards places people will want to live , such as creek corridors and open space, and focus jobs around Metro stations
- design buildings to be sustainable and resilient
- design landscape to minimise risks from bushfires and other major weather events
- locate streets along the edges of creek corridors, open space and key infrastructure items to provide good access to the spaces as well as surveillance to support safety
- use the alignment of streets to provide views and access to creek corridors
- enable the amalgamation of lots to integrate and coordinate the development of places for different land uses, transport, infrastructure, open space and water, especially between Thompsons and Wianamatta-South Creeks, and to the enterprise zone west of Badgerys Creek Road and south of Elizabeth Drive
- locate sensitive land uses outside of areas affected by aircraft noise and plan for low employment density businesses in public safety areas
- coordinate development densities to balance the urban structure and the built form below the Obstacle Limitation Surface (OLS)
- retain Aboriginal heritage items and significant places in public open space and respect and enable conservation of non-Aboriginal heritage items
- leverage the local distinctiveness of village of Luddenham
- allow existing quarries and extractive industries to continue to operate.

2.3 Planning Principles setting the framework for the Precinct Plan

The Precinct Plan establishes the intended vision and approach to realise the vision, development outcomes and planning and design principles, articulated in the Aerotropolis Plan across four key themes:

- Sustainability
- Connectivity
- Productivity and Liveability
- Place and Built Form

Corresponding planning principles in the Aerotropolis Plan have been interpreted into the Precinct Plan.

Sustainability

Country and its landscape form a key structuring element. The Wianamatta-South Creek and its tributaries, Badgerys, Cosgrove and Thompsons Creeks, as well as Duncans Creek, which flows to the Nepean, from the environment and recreation spine of the Aerotropolis. Wianamatta-South Creek and its tributaries provides connections, environment conservation and water management areas. It will provide an important interface to surrounding development, reducing urban heat and cleaning the air, by providing open space, amenity, biodiversity, and by being a place where people can connect, socialise and feel part of the community.

A landscape-led approach frames development around Wianamatta-South Creek and an expansive network of parklands and green and blue corridors. The blue-green infrastructure framework is implemented through:

- Retention and enhancement of ephemeral creeks systems to ensure ongoing ecological health of the Wianamatta-South Creek system and flood flow path functions; achieved in part by appropriate zoning and buffers for 1% AEP flood zones, as well as through local endemic species planting.
- Application of high-quality water retention and WATER SENSITIVE URBAN DESIGN outcomes within the landscape to meet water drainage targets
- Establishment of the open space network, located to retain existing native vegetation, waterways and soil profiles.

Connectivity

Movement throughout the Aerotropolis is founded on creating great places, amenity and liveability, on the foundation of an efficient transport. The Sydney Metro stations, other public transport and walking and cycling links will combine to create a sustainable transport network that supports proposed land uses and provides for equitable access. Neighbourhoods within the Aerotropolis are designed to maximise proximity and connectivity to Western Sydney Airport Stations providing frequent connections to broader Sydney, as wells as maximising accessibility to public open spaces.

Movement and connectivity across the Aerotropolis prioritises public and active transport. Larger arterial corridors will direct goods to the airport. These are directed around centres, maintaining a focus on place, amenity and liveability.

The hierarchy of street types enables highly walkable and comfortable streets in centres, mixed use zones and throughout employment areas. In this regard, neighbourhoods and employment areas are designed so that people can easily walk to public transport, walking and cycling paths, and open space.

The public realm and street network will be designed to enable convenient, comfortable and safe walking and bicycle access to the Wianamatta-South Creek, Thompsons, Badgerys and Cosgrove Creek systems. Regular creek crossings will allow access points of amenity such as centres, district and regional open spaces.

2 Precinct Plan Framework

Productivity and Liveability

Creating high value jobs and enhancing existing employment, together with ensuring attracting investment means recognising the mixed uses areas for higher productivity, and the enterprise and agribusiness precincts providing advanced manufacturing, logistics and research industries providing jobs over the long term. Providing the connectivity to the airport to ensure efficient servicing for industrial and logistics, and creating the environment for the investment in the appropriate character precinct provides wide ranging employment opportunities for the future. Western Sydney Airport will trigger regional-scale growth in these industries, given the availability of land, skilled labour, research and development opportunities and key transport links.

A hierarchy of centres will be distributed throughout the Aerotropolis to create a placed approach to support the residents, employees and tourist, and provide a focus to neighbourhoods. Centres will be located to leverage public transport access, and key transport spines to provide walkable access to centres.

Place and Built Form

The urban structure is arranged across the Aerotropolis to respond to key landmarks and the natural topography of the land, to provide visual connectivity between water, land and sky. In this regard built form, street systems, open space are designed to provide or maintain visual connection to key landmarks, creeks or ridgetops.

The planning of each of the Initial Precincts is influenced by these four themes and the desire to create an accessible, 24-hour metropolitan centre that is globally, nationally and locally connected, where Airport operations are protected. This will be a centre that promotes job diversity and creation, quality landscape-led design, housing variety and options for recreation, appropriate infrastructure provision, sustainability and resilience, and a connection to Country.

Detailed technical studies, together with consultation with key stakeholders, informed the design of the Initial Precincts. An overall, high-level plan showing all the Initial Precincts is provided in **Figure 7**.

Figure 7 (overleaf): Joint Precinct Plan
Source: Western Sydney Aerotropolis Plan (September 2020)


BLAXLAND CREEK
NORTHERN GATEWAY AND LUDDENHAM METRO
LUDDENHAM ROAD
THE NORTHERN ROAD
M12 MOTORWAY
COSGROVES CREEK
BADGERYS CREEK PRECINCT
ELIZABETH DRIVE
LUDDENHAM
WESTERN SYDNEY (NANCY BIRD WALTON) AIRPORT
AIRPORT BUSINESS PARK METRO STATION
PITT STREET
AGRIBUSINESS PRECINCT
AIRPORT TERMINAL METRO STATION
BADGERYS CREEK
DUNCAN'S CREEK
WIANAMATTA - SOUTH CREEK
EASTERN RING ROAD
THE NORTHERN ROAD
FIFTEENTH AVENUE
AEROTROPOLIS CORE CENTRE AND METRO STATION
THOMPSONS CREEK
BRINGELLY ROAD

2 Precinct Plan Framework

2.4 Aerotropolis Precinct

2.4.1 Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek Precincts

Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek Precincts have been integrated in this Precinct in order to support the landscape-led urban design approach, and to integrate the connection with water, culture, environment, landscape, urban systems and economy to go beyond the precinct boundaries.

Vision – Aerotropolis Core Precinct

The Aerotropolis Core Precinct is a dense urban precinct planned around the Aerotropolis Metro station and the Wianamatta-South Creek Corridor system. Its places are defined by a new regional park system along Thompsons Creek and a focus on the new metropolitan centre.

It will offer attractive places for workers, residents and visitors and be a complement to the metropolitan cluster of Greater Penrith, Liverpool and Campbelltown-Macarthur. The Precinct could accommodate 50,000 to 60,000 jobs, leveraging the positive economic impact of the adjacent Airport.

The metropolitan centre will be focused on advanced manufacturing, research and development, professional services, creative industries and science, technology, engineering and mathematics (STEM) focused educational facilities, and will facilitate the emerging aerospace and defence industries. The Precinct will also attract business incubator hubs and shared office workspaces.

Residential communities and other noise sensitive land uses will be within walking distance of the Metro station or other public transport, such as the Rapid Bus routes connecting the city centre with the metropolitan cluster, as well as the blue-green Infrastructure of creeks and other open spaces.

Vision – Badgerys Creek Precinct

Badgerys Creek Precinct will support Airport operations and is well connected to the metropolitan centre in the Aerotropolis Core to the south as well as the Northern Gateway to the north west. The Precinct will transform from lower density and less intensive land uses buildings and structures to higher order employment-focused technology, advanced manufacturing and industry uses with the opportunity for between 9,000 – 11,000 jobs. The Precinct will be linked to the east across Wianamatta-South Creek to areas such as Rossmore.

The Precinct adjoins the Airport with good access to Elizabeth Drive and the proposed Outer Sydney Orbital. New developments will be designed with an appropriate interface to surrounding major infrastructure and existing industries, including the existing resource recovery industries and new circular economy hubs.

Affected by aircraft noise, this Precinct is not suitable for noise sensitive land uses like residential areas It will provide land for a range of employment generating uses that will benefit from proximity to Airport operations.

Vision – Wianamatta-South Creek Precinct

The Precinct is located within the broader Wianamatta-South Creek Corridor and provides an interconnected blue-green corridor for parks, sporting fields, waterways and potential permanent water bodies, walking and trials and community facilities.

The Wianamatta-South Creek Precinct will be a place for workers and a transition between the creeks and the surrounding urban development, with a variety of limited development located in suitable locations outside of the 1% AEP flood planning level.

Aerotropolis Core, Badgerys Creek and Wianamatta-South Creek Precinct objectives

The following objectives are designed to achieve the precinct vision.

O1	Develop a metropolitan centre, centred on the Aerotropolis Metro station and a major destination for business, tourism and social experiences.
O2	Become the premier location of choice for advanced manufacturing and high technology industries in Australia with accessible infrastructure and public transport and high design quality for fit-for-purpose buildings and open spaces.
O3	Create an aerospace and defence industries sub-precinct through the provision of appropriate infrastructure, a variety of lot configuration and size and enabling 24/7 operations.
O4	Create an education precinct supported by the provision of accessible public transport, high density quality for contemporary architecture solutions and access to open space.
O5	Provide for social infrastructure in strategic locations that support the residents, workers and visitors to the Aerotropolis.
O6	Create a highly distinctive city character with a public domain of outstanding urban design, and architectural and landscape merit that responds to site topography and landscape.
O7	Develop street networks and links to Metro stations to accommodate public transport infrastructure provision to allow for a 30-minute city and create pedestrian-orientated development centred around key destinations and transport nodes.
O8	Establish public and private areas that mitigate and adapt to urban heat and support innovative water sensitive urban design.
O9	Protect the operations of the Airport, including 24-hour operations, and protect future communities for aircraft noise.
O10	Facilitate quality and innovative development to provide for a variety of employment uses.
O11	Integrate with the blue-green corridor for the Western Parkland City.
O12	Integrate buildings alongside the creek lines to create attractive places for workers.
O13	Provide landscaped, safe, activated, interesting and healthy streets that prioritise pedestrian, cycle and public transport movements.
O14	Prioritise the restoration and protection of the Wianamatta-South Creek Corridor system (including its tributaries) and adjacent high quality green space by integrating land use and water management.
O15	Promote the role of water within Wianamatta-South Creek Corridor to support healthy, liveable and sustainable communities.
O16	Increase the urban tree canopy to mitigate heat island effect and manage stormwater flows.
O17	Enhance water retention in the landscape and achieve healthy waterways to facilitate urban cooling.
O18	Support flood management, mitigation and best practice natural drainage solutions.

An artists impression of the Aerotropolis Core City Centre.

O19	Locate and design stormwater infrastructure to be consistent with a landscape-led approach.
O20	Identify and protect remnant vegetation, tree canopy and other areas of significant vegetation to enable a landscape-led approach to planning.
O21	Provide for a circular economy hub to ensure waste is reduced, synergies are realised and resource are circulated back to benefit businesses and communities.
O22	Protect ridges to preserve view lines and enable provision of open space for active and passive recreation.
O23	Facilitate development of vibrant, accessible and exemplary green places with a strong sense of place and custodianship, and recognition and celebration of Aboriginal and European heritage spaces.
O24	Support connectivity and staging to support temporary uses and development over time in a manner that minimises the potential for isolated parts of the Precinct.

Opportunities and challenges

Opportunities	**Challenges**
Aerotropolis Core	
Leverage the accessibility and catalyst opportunities provided by the Metro station	Address fragmentation of existing ownership and lot arrangements
Utilise the ephemeral creek network and ridgetops to establish the structuring elements of the Precinct Plan	Address how the Kelvin Park Road structure, diversity of land ownership and lot arrangement makes it difficult to plan, and implement, a coordinated mixed use outcome
Retain existing roads where they contribute to a legible urban neighbourhood arrangement	Locate land uses so they respond to identified ANEC/ANEF contour lines and integrate with sensitive land uses and high amenity areas
Retain and enhance existing vegetation that has biodiversity values	Ensure building heights and densities need to comply with OLS limitations
Provide appropriate urban density and urban activation to the Wianamatta-South Creek Corridor interface	Consider that limited development is permissible in the 1% AEP flood area
Use the acquisition of Thompsons Creek as a focus for a city centre regional park	Address the impacts of extractive industry activity on the original landscape and topography
Respect and conserve heritage items	Undertake detailed design to confirm the Metro service and tunnel areas, and be in a position to then support adjacent development.
	Locate appropriate land uses and carefully consider landscape outcomes to minimise wildlife attraction

Opportunities	Challenges
Badgerys Creek	
Use existing road corridors where possible	Address land fragmentation and ownership patterns, in particular south of Elizabeth Drive
Leverage access opportunities associated with Elizabeth Drive	Address the disconnected road network.
Provide connections over Badgerys Creek to integrate with the Northern Gateway Precinct and future Rossmore Precinct	Respond to the affects of substantial extractive industry activity affecting natural landscape and topography
Retain and enhance existing vegetation that has biodiversity values	Enforce land use limitations due to future noise and public safety areas resulting from the Airport
Respect and conserve heritage items	Address access limitations north of the future M12
Consolidated land ownership north of Elizabeth Drive	Plan around the existing waste transfer activities north of Elizabeth Drive
Potentially connect to the Airport via Pitt Street	Locate appropriate land uses and carefully consider landscape outcomes to minimise wildlife attraction.
Wianamatta-South Creek Precinct	
Retain and enhance existing vegetation that has biodiversity values	Address private and fragmented land ownership
Respect and conserve heritage items	Consider that limited development is permissible in the 1% AEP flood area
Use the Wianamatta-South Creek Corridor as an active transport network	Locate appropriate land uses and carefully consider landscape outcomes to minimise wildlife attraction.
Provide active transport crossings over the creeks	

2.4.2 Northern Gateway Precinct

Vision – Northern Gateway

The Northern Gateway will be a major Airport interface and a specialised centre linking the Airport with the metropolitan cluster. It will be an employment precinct that can be easily accessed, with supporting residential areas. It will provide skilled employment and business opportunities north of the Aerotropolis Core and Airport.

The Precinct's topography provides opportunities for distinctive place-making, connection to Country as well as challenges with respect to the range of relatively large footprint buildings envisaged. The street pattern and location of open space responds to both, linking ridge to creek. The Precinct will build on the approved Sydney Science Park, which comprises a town centre with commercial buildings and housing to assist with activation of this centre. The addition of the new Luddenham Metro Station will further catalyse opportunities for connectivity.

High order employment uses will include freight and logistics, warehousing, technology, commercial enterprise, offices, industry, creative industry, fresh food markets, education, civic, health, visitor accommodation, recreation and entertainment. The Precinct will have synergies with the adjacent Airport Business Park across Elizabeth Drive.

Sydney Metro services will provide connections between the Northern Gateway, the Airport and Aerotropolis Core Precinct. Rapid bus services to Penrith will provide additional connectivity. The Precinct will have access via Luddenham Road, Elizabeth Drive and the Agribusiness Precinct to the Airport. New roads will over time provide links to the rest of the Aerotropolis, St Marys, Greater Penrith and Greater Sydney.

Residential mixed use will be medium and higher density, oriented to address creek corridors and open space areas, as well as parts of the Precinct that benefit from public transport access around the Metro station.

Northern Gateway Precinct objectives

The following objectives are designed to achieve the precinct vision.

O1	Transform Luddenham, in the vicinity of the approved Sydney Science Park, into a specialised centre and support a cluster of leading science-based business, tertiary instructions and research facilities in the mixed use centre supported by public transport.
O2	Facilitate a high technology employment precinct in the context of the Aerotropolis, the Western Economic Corridor and the Western Parkland City.
O3	Facilitate a variety of high order employment uses and place-specific residential development in locations that support the principles of transit-oriented development.
O4	Provide for a mix of uses to support the specialised centre, including social and educational uses to meet the demand of the residents, workers and tourists.
O5	Provide for high quality architectural and design outcomes that take advantage of site characteristics and require buildings to face and activate creek lines, contributing to the character of the Precinct.
O6	Facilitate transport infrastructure to allow for a 30-minute city, including the alignment of centres with public transport infrastructure (such as the Luddenham Metro Station) to create pedestrian oriented environments.
O7	Support connectivity and staging throughout the Precinct, such that it can support temporary uses and develop over time in a manner that minimises the potential for isolated parts of the Precinct.
O8	Protect the operations of the Airport, including 24-hour operations, and provide appropriate protections for the community.
O9	Preserve and protect the water assets and the landscape ecology.
O10	Protect Wianamatta-South Creek Corridor, its tributaries and adjacent high quality green space.
O11	Prioritise the restoration and protection of the Wianamatta-South Creek Corridor and Cosgroves Creek catchments by integrating land use and water management.
O12	Promote the role of water within Wianamatta-South Creek Corridor and Cosgroves Creek to support healthy, liveable and sustainable communities.
O13	Retain existing soil profiles to the maximum extent possible in streets, parks, floodways and on private land.
O14	Increase the urban tree canopy to mitigate heat island effect and manage stormwater flows.
O15	Enhance water retention in the landscape and achieve healthy waterways to facilitate urban cooling.
O16	Support flood management, mitigation and best practice natural drainage solutions.
O17	Locate and design stormwater infrastructure to be consistent with a landscape-led approach.

An artist's impression of the Northern Gateway Specialised Centre and parkland.

2 Precinct Plan Framework

Opportunities and challenges

Opportunities	Challenges
Northern Gateway Precinct	
Integrate the Luddenham specialised centre as a key part of the Northern Gateway Precinct	Sensitively adapt the rural character of Luddenham Road to create a tree lined boulevard
Leverage Luddenham Metro station to create a vibrant mixed use quarter	Manage the proposed M12, and Outer Sydney Orbital corridor that will cut through severing significant areas
Create enlivened urban environments and open space utilising infrastructure	Incorporate and adapt the existing planning approval for the Sydney Science Park which was based on an inward-focused public space structure
Diversify and intensify land uses to increase employment opportunities	Connect areas divided by major infrastructure to ensure a sustainable urban development
Celebrate the hilltops and ridges, connect with Country and repair the Cumberland Plain Woodland celebrating endemic species	Manage areas with high soil salinity on steeper topography
Retain existing soil profiles and restore existing vegetation to improve salinity with a landscape-led approach	Use a new approach that supports greening of the landscape around larger footprint buildings where they are more suited to large scale enterprise.
Create a public space network of streets and parklands that seamlessly connects to the wider Northern Gateway Precinct and to other precincts	Locate land uses so they respond to ANEC/ANEF contour lines, OLS and future noise sources (e.g. from new and existing road and rail) and integrate with sensitive land uses and high amenity areas
Create strategic connections over the Warragamba pipeline corridor	Retain and protect the 60m wide TransGrid easement and investigate opportunities for strategic connection from the Precinct northwards over the existing Warragamba pipelines into Greater Penrith to Eastern Creek Investigation Area
	Locate appropriate land uses and carefully consider landscape outcomes to minimise wildlife attraction

2.4.2 Agribusiness Precinct

Vision – Agribusiness Precinct

The Agribusiness Precinct on the western edge of the Airport adjacent to the Metropolitan Rural Area and framed by the proposed Outer Sydney Orbital, offers key access points to the Airport, allowing the development of agribusiness hubs including an Integrated Logistics Hub, Agriport, Integrated Intensive Production Hub, Australia Centre of Excellence in Food Innovation, Fresh Product and Value-Added Food – Pharma Hub.

Planning for the Precinct will build on the existing topography and natural features. High quality public open spaces will be identified and zoned, and areas of biodiversity significance protected and enhanced.

Precinct planning will facilitate and encourage Aboriginal people to access and connect with the land. This will enable opportunities for education, employment and business opportunities and a connection with Country.

Precinct planning will build on successful agricultural operations and develop new agribusiness opportunities while protecting and embracing important vegetation within the landscape. This includes the development of integrated food and supply chain-related industries particularly those that rely on the skills of the growing population in the Western Parkland City. These industries will generate employment opportunities in high technology agriculture with customer-centric digitally enhanced systems, processes and platforms to enable rapid distribution connections to the broader road freight supply chain in Greater Sydney.

The Precinct will provide opportunities for education and tourism. The Integrated Intensive Production Hub will be designed to align with Airport operations and landscape considerations.

Existing agricultural lands within this precinct will be transition over time. Some general employment uses may be considered to the north of Elizabeth Drive.

Luddenham Village will become a destination for local, regional, national and international visitors to celebrate the merging of the rich history of Western Sydney with its future state on the global stage due to the construction of the Airport. It will emerge as the tourism and cultural hub for the Aerotropolis celebrating and being anchored by, the rich cultural heritage and elevated vistas of Western Sydney. It is to become a destination for food and arts, providing opportunities for social and cultural engagement. Planning for the village will recognise key sites that anchor movement corridors in a highly pedestrianised environment. The village will remain compact but will be a distinctive centre where heritage sites are protected and enhanced.. Cultural wayfinding will guide visitors as they navigate through the village.

2 Precinct Plan Framework

Agribusiness Precinct objectives

The following objectives are designed to achieve the precinct vision.

O1	Provide an Agribusiness Precinct that will deliver fresh and value-added Australian food production from farm gate to the global market, and support Australia's value-add agribusiness export industries
O2	Provide an integrated intensive production and state-of-the-art integrated logistics hub to deliver a supply chain solution for Greater Sydney, NSW and Australia.
O3	Appropriately locate agricultural value-added industries and freight and logistics facilities that potentially benefit from access to the Outer Sydney Orbital and air-side access to the Airport.
O4	Integrate sustainable energy, waste and water as well as a circular economy into development and operations.
O5	Protect and celebrate the rural, agricultural village character of Luddenham Village and promote its role in providing services to support growth of the Precinct.
O6	Encourage education opportunities related to agriculture and agribusiness.
O7	Embrace tourism opportunities presented by the development of the Airport.
O8	Protect the operations of the Airport, including 24-hour operations and provide appropriate protection for the community.
O9	Support connectivity and staging throughout the Precinct, such that the Precinct can support temporary uses and develop over time in a manner that minimises the potential for isolated parts of the Precinct.
O10	Support efficient operations of export-related industries and operations around the Aerotropolis through integrated and intelligent logistics design.
O11	Facilitate the potential future alignment of the Outer Sydney Orbital to connect to the Precinct
O12	Preserve and enhance significant landscaped vistas within and from the Precinct towards the Blue Mountains, Cosgroves Creek and Wianamatta-South Creek Corridor.
O13	Promote the role of water within Wianamatta-South Creek and Nepean Corridors to support healthy, liveable and sustainable communities
O14	Identify and protect remnant vegetation, tree canopy and other areas of significant vegetation to develop within the Agribusiness Precinct to be built around landscape elements.

Opportunities and challenges

Opportunities	Challenges
Agribusiness Precinct	
Leverage the accessibility and catalyst opportunities provided by the connection to the Airport	Manage the limits of topography when planning for the possible location of large-format land uses
Utilise the prominent edge lines and creek network to establish the structuring elements of the *Urban Design and Landscape Report*	Use land use limitations to create future noise and public safety areas resulting from the airport
Use connected parklands as an active transport network	Ensure building heights conform to OLS limitations
Retain and enhance existing vegetation that has biodiversity values	Limit the number of intersections along arterial roads
Respect and conserve heritage items, especially within Luddenham Village	Manage and design the asset protection zone (APZ) to avoid bushfire connectivity
Celebrate the heritage of Luddenham Village through sensitive design and appropriate development	Address existing ownership and lot arrangements
Retain and enhance key landscaped vistas from ridgelines to the creeks and key views	Retain and protect the 60m wide TransGrid easement and ensuring sufficient access to manage and maintain.
Provide active transport crossings of the creeks	Maintain ecological, physical and visual connections across the potential future alignment of the Outer Sydney Orbital
Reinforce the landscape character of the Precinct by utilising landscape and tree canopy to screen built form	Address heat including prevailing winds from the west
Transform Duncans Creek reservoir into public recreation outside of the Public Safety Area	Locate land uses so they respond to identified ANEC/ANEF contour lines and integrate with sensitive land uses and high amenity areas
Leverage access opportunities associated with Elizabeth Drive	Manage the future timing, design and defined alignment of Outer Sydney Orbital and impacts on the Luddenham Village and surrounding heritage values
Utilise large-scale roofscapes for Precinct scale sustainability outcomes, such as solar power and water capture	Locate appropriate land uses and carefully consider landscape outcomes to minimise wildlife attraction
Potential future connections to major infrastructure such as the proposed Outer Sydney Orbital to move freight from road to freight rail infrastructure	

An artist's impression of the Agribusiness Precinct.

3 Precinct Plan

This Precinct Plan applies to the five Initial Precincts of the Western Sydney Aerotropolis: the Aerotropolis Core, Badgerys Creek, Wianamatta-South Creek, Northern Gateway and Agribusiness Precincts.

Based on the Aerotropolis Plan framework and the vision for each precinct, place-based performance criteria for all initial precincts are set out under key framework elements:

- Recognise Country
- Blue-green infrastructure
- Urban structure, built form and character
- Movement, access and connectivity
- Infrastructure and facilities
- Sustainability and resilience

Within each of these framework elements there are general planning and design guidelines, as well as specific performance criteria (comprising objectives and requirements) to achieve the landscape-led and place- led approach. Master plan and development applications need to demonstrate consistency with the performance criteria.

An aerial perspective view looking north east over the Aerotropolis Core

3 Precinct Plan

3.1 Recognise Country

The Aerotropolis encompasses cultural landscapes that connect to Country and contain historical archaeological remains, places of Aboriginal cultural heritage significance and heritage items. Intangible cultural heritage values exist such as stories, knowledge and practices associated with the land. The cultural framework is varied, with cultural connections and conflict histories. Listed State and local heritage items help to embody the prevalent themes around agriculture, pastoralism and early 19th century life.

Aboriginal heritage sites, such as modified trees and grinding grooves, together with unusual and preserved landforms, will be protected, as will connections with other natural features.

Planning and Design Guidelines

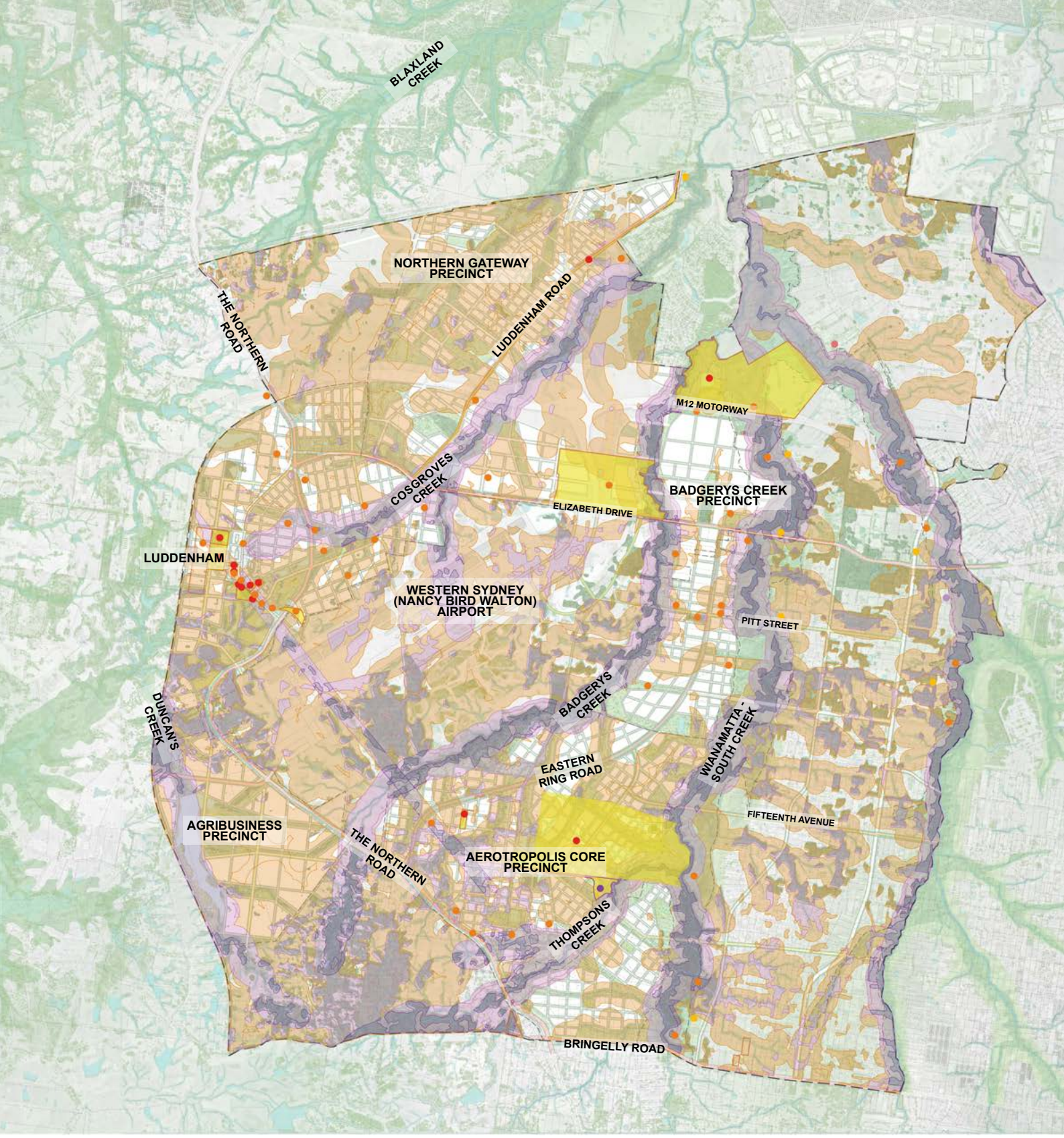
The following provide broad guidelines for the planning and design for the Precincts.

Principles Guidelines

The following objectives are designed to achieve the precinct vision.

1	Connect with Country by identifying and connecting places of Aboriginal significance.
2	Reflect the original landscape of the Cumberland Plain through revegetation techniques informed by Aboriginal knowledge of native flora and planting practices, and the preferred species list.
3	Care for Country by creating opportunities for cultural care and land management.
4	Integrate places of Aboriginal significance into the urban structure, urban design and landscape.
5	Where possible, provide a physical connection between locally and culturally significant places.
6	Use cultural naming, language and narratives specific to a precinct or local area.
7	Identify and integrate Country through the urban design and development process.
8	Acknowledge local cultural groups in the design and location of cultural facilities and centres.

Figure 8 (overleaf): Heritage: Areas of Aboriginal Cultural Sensitivity and listed Heritage Items



Heritage

Western Sydney Aerotropolis

- Aboriginal cultural sensitivity - high
- Aboriginal cultural sensitivity - moderate
- Aboriginal cultural sensitivity - low
- Local Environment Plan heritage item
- SEPP heritage item
- State Heritage Register item
- State buffer unlisted heritage item
- Local heritage item
- Local buffer heritage item
- Local unlisted heritage item
- Local buffer unlisted heritage item

N

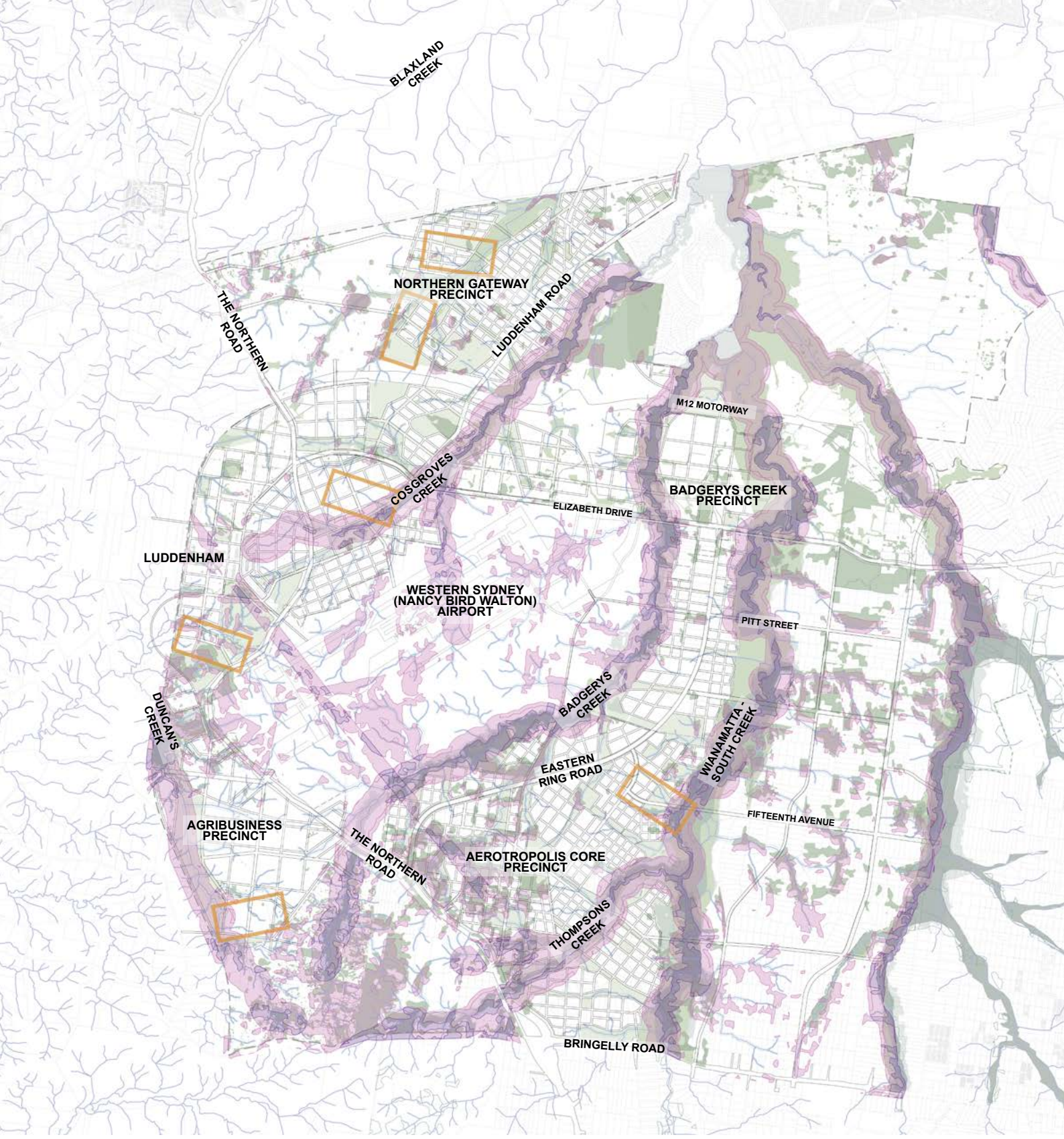
3.1.1 Aboriginal heritage

Objectives

RCO1	Facilitate the conservation of Aboriginal heritage items and areas of cultural heritage significance in accordance with the requirements of the *National Parks and Wildlife Act 1974*.
RCO2	Protect areas of high cultural value.
RCO3	Ensure development is designed to care for and connect to Country.

Requirements

RC1	Ensure development is compatible with the Aboriginal heritage significance of the place and does not detract from the features and values of the Aboriginal heritage place or object.
RC2	Ensure development adjacent to or within the vicinity of an item or place of Aboriginal heritage significance has minimal impacts and is appropriately sited to retain the curtilage or setting of the Aboriginal item or place. Consider surrounding landscapes, topography, views and connections with other Aboriginal sites. Consider uses such as passive open space, environmental conservation and riparian corridors.
RC3	Development should avoid, and design in and around, specific Aboriginal heritage site types such as modified trees (carved or scarred) and grinding grooves to protect the connection to other places and landscape that are significant to Country.
RC4	Avoid development in areas of High Aboriginal Heritage Sensitivity and minimise development in areas of moderate sensitivity.
RC5	Conserve archaeological sites, including Aboriginal places and objects of significance, where places of significance should be ground-truthed through consultation and mapping.
RC6	Undertake any interpretation and story-telling in consultation with, and walking on Country with, the traditional custodians and Local Aboriginal Land Councils (LALCs).
RC7	Preserve remnant vegetation clusters to care for Country.
RC8	Retain and respect potential heritage conservation corridors that represent a range of landforms and environments, as well as curtilage, view lines and amenity, in consultation with local stakeholders.



Conservation Corridors

Western Sydney Aerotropolis

- Open space
- Creek line
- Vegetation
- Potential conservation corridors where significant Aboriginal heritage sites should be connected to its associated nearby creek / watercourse with open space
- Aboriginal cultural sensitivity - high
- Aboriginal cultural sensitivity - moderate

N

Figure 9: Conservation Corridors

3.1.2 Non-Aboriginal heritage

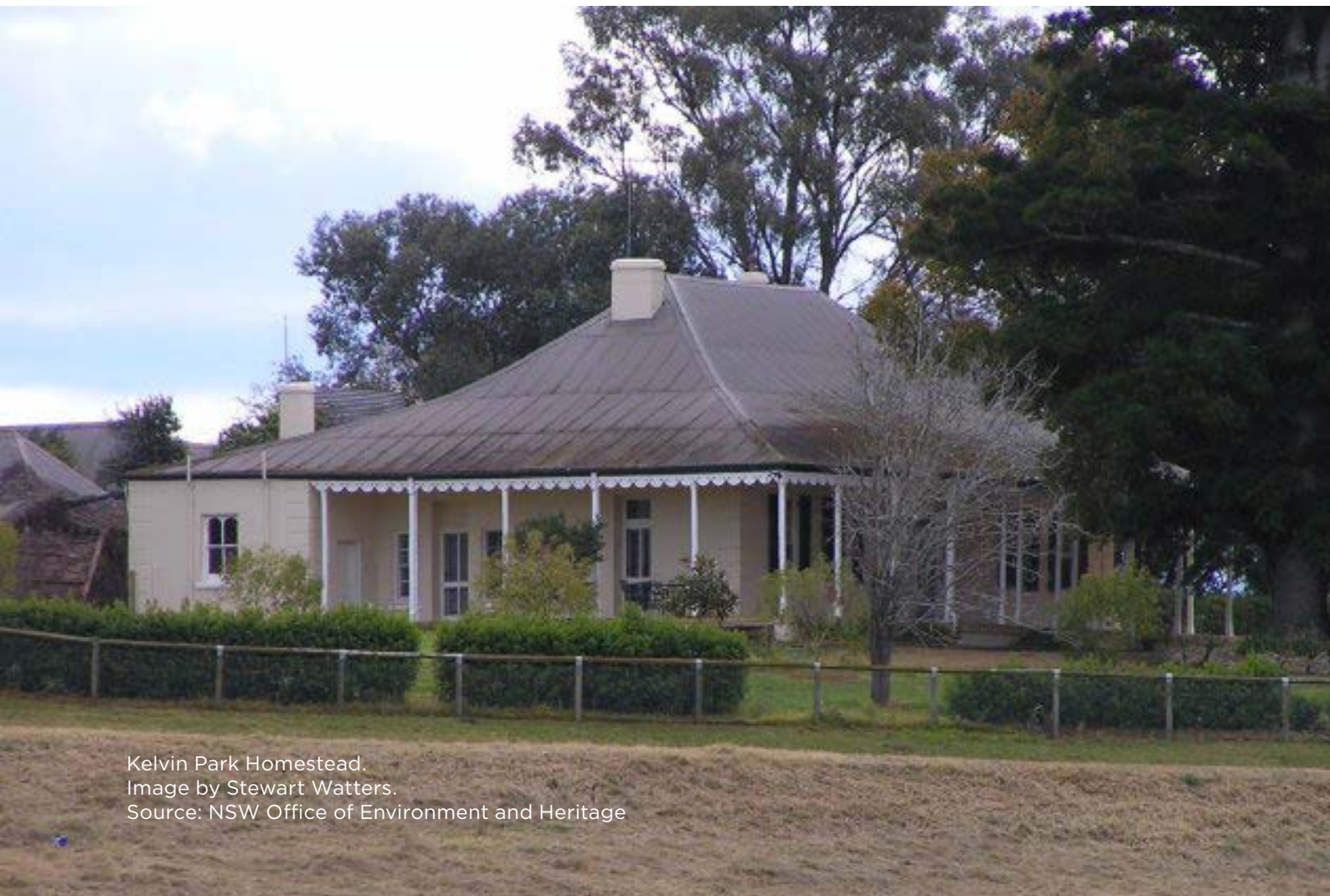
Objectives

RCO1	Retain and conserve heritage items and places of cultural significance.
RCO2	Design and develop in the vicinity of heritage items to protect the heritage significance of the item and its setting.
RCO3	Undertake development in the vicinity of a heritage item in a manner that complements the heritage significance of the site or area.
RCO4	Keep heritage relevant and sustainable and ensure long-term conservation outcomes.

Requirements

RC1	Comply with the requirements of the *Heritage Act 1977* to carry out works on or within the curtilage of a heritage item.
RC2	Use heritage items for purposes appropriate to their heritage significance, including adaptive reuse where appropriate.
RC3	Retain existing heritage items and their significant elements.
RC4	Base development on the understanding and conservation of the heritage significance of the item, being sympathetic and respectful to the value of heritage places in accordance with the *Australia ICOMOS Charter for Places of Cultural Significance* (The Burra Charter 2013).
RC5	Ensure planning, urban design and development activates and integrates heritage items into new developments in a sensitive way in accordance with: • *Australia ICOMOS Charter for Places of Cultural Significance*, The Burra Charter, 2013 • *Better Placed: Design Guide for Heritage* by Government Architect NSW • *Design in Context: Guidelines for Infill Development in the Historic Environment* by NSW Heritage Office & Royal Australian Institute of Architects NSW Chapter *New Uses for Heritage Places: Guidelines for the adaptation of Historic Buildings and Sites* by NSW Heritage Office & Royal Australian Institute of Architects NSW Chapter
RC6	Maintain the setting of the heritage item including the relationship between the item, its setting in its surroundings and maintain a sufficient curtilage to minimise the impact of new development.

RC7	Ensure the subdivision of land on which a heritage building is located does not isolate the building from its setting or context, or adversely affect its amenity or privacy.
RC8	Position new development to maintain the visual prominence, context and significance of the existing heritage item and its setting. Protect front and side boundary setbacks as major contributors to the character and significance of a heritage item or heritage conservation area.
RC9	Maintain sufficient curtilage around an item to minimise the impact of new development.
RC10	Investigate the heritage significance of potential heritage items and potential areas of archaeological significance which are to be retained and conserved, where possible.
RC11	Archaeological evidence associated with early land grants may survive at Kelvin Grove, within the Fleurs Estate and within Badgerys Exeter Farm. Note that such sites, depending on their integrity and type, have the potential to be State significant and additional investigations may be required to confirm their heritage listing.



Kelvin Park Homestead.
Image by Stewart Watters.
Source: NSW Office of Environment and Heritage

3.2 Blue-Green Infrastructure Framework

The Blue-Green Infrastructure Framework integrates the blue and green systems of the waterways, riparian areas, bushlands, parks and open spaces, tree canopy and private gardens, and includes stormwater management and recreation opportunities.

Wianamatta-South Creek Corridor is a natural core spine of the blue and green infrastructure system and provides a central element of the framework. The landscape-led approach shifts the focus from business as usual approach to re-focussing on a restorative and regenerative approach, improving ecological and hydrological systems, with integrated stormwater management.

The Department of Planning, Industry and Environment will prepare the Cumberland Plain Conservation Plan. This plan will maintain important biodiversity, and include commitments and actions designed to improve ecological resilience and function, and offset biodiversity impacts from development. It will deliver long-term conservation outcomes to the Western Parkland City protecting important biodiversity in areas for new development and infrastructure corridors.

Further, the Order to confer biodiversity certification on the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*, also form part of the blue-green infrastructure framework for the precincts. In particular, biodiversity protection including linear parks along creeks and linking creeks to ridge tops enable engagement and interaction with the blue and green grid. By employing landscape-led principles and embedding key landscape elements of the precincts, the core character of Aerotropolis can be preserved, protected and enhanced.

Planning and Design Guidelines

The following provide broad guidelines for the planning and design for the Precincts.

Principles Guidelines

1	Enhance and make Wianamatta-South Creek Corridor the regional ecological corridor and green spine within the Aerotropolis.
2	Extend and strengthen the blue-green corridor by linking the north-south creek systems with the east-west green connections to connect between precincts.
3	Provide for a holistic and integrated approach to water protection, re-use, retention and management.
4	Increase urban tree canopy to support Region Plan targets and objectives of the *Greener Places* document.
5	Contribute to urban cooling and greening through landscaping, retention of water and shading structures
6	Protect and enhance the Wianamatta-South Creek Corridor to achieve waterway health and biodiversity.
7	Retain and enhance significant biodiversity and integrate it with the blue-green corridor.
8	Prioritise the restoration and protection of the Wianamatta-South Creek Corridor catchment by managing stormwater and water that results from the various permissible land uses
9	Retain Strahler Order 2 and ephemeral creeks along their natural alignment and restore them with appropriate planting in open space areas.
10	Locate, design and connect green links and corridors such as streets and linear parks to enhance biodiversity corridors and support water retention in the urban landscape.
11	Ensure urban development, the street network and other public and open spaces are sufficiently pervious to allow for retention of water to achieve the NSW Government objectives for waterway health in the Aerotropolis.
12	Consolidate areas of deep soil to ensure pervious soils, with: • residential and mixed use developments having a minimum of 50% site area • commercial and business developments having a minimum of 40% site area • industrial developments having a minimum of 30% site area.

13	Optimise dams for their ability to cool the place and aim to re-use, adapt or enhance them for water retention.
14	Provide open and public spaces to serve new workers and residents in places that are accessible, connected and well distributed: • local spaces in a high density environment should be a two or three minute walk away, or five minutes away in a medium density environment. • district spaces should be able to be accessed within a 25-minute walk. • regional spaces should be able to be accessed within 30 minutes by public transport.
15	Provide high quality open and public spaces of different shapes and sizes to accommodate a variety of recreational activities and users.
16	Achieve an average overall tree canopy cover of 40%, with the approach for 60% canopy for local open space, 45% canopy for district open space and 65% for regional open space, and where tree canopy cover that falls within the APZs, cannot be included within the tree canopy cover target.
17	Locate water bodies and major stormwater infrastructure in the public domain to facilitate ease of maintenance, multifunctionality and optimal waterway health and amenity outcomes.
18	Increase the urban tree canopy and retain more water in the landscape to mitigate urban heat island effect, create shaded pedestrian and cycle routes, and manage stormwater flows

Figure 10 (overleaf): Blue-Green Infrastructure Framework


LUDDENHAM ROAD
M12 MOTORWAY
COSGROVES CREEK
ELIZABETH DRIVE
LUDDENHAM
PITT STREET
BADGERYS CREEK
WIANAMATTA - SOUTH CREEK
DUNCAN'S CREEK
EASTERN RING ROAD
THE NORTHERN ROAD
FIFTEENTH AVENUE
THOMPSONS CREEK
BRINGELLY ROAD
N

3 Precinct Plan

Conceptual Approach to activation of the Wianamatta - South Creek Corridor

The Thompsons Creek section (right) has been developed on the basis of Liverpool City Council Flood Risk categories and the GIS 1% AEP and PMF mapping.

In this particular instance, the "High flood risk" as mapped does not have the same extent as the 40m Riparian corridor.

Office of Water Guidelines have been used to direct the location of any active transport infrastructure (shared path, cycling path, lookouts) to the outer half of the riparian corridor and outside of the high flood risk zone, unless required for crossing over the creek. These paths would be elevated "boardwalk structures" on piers to reduce impact on the riparian corridor.

In this particular case, the Thompsons Creek acquisition has been zoned for Environment and Recreation, including the PMF – hence the section below shows PMF extending to the edge of Park Edge street.

Through consultation with the Technical Working Groups, the following strategy was developed: Park infrastructure, amenities and sportfields within the low flood risk, low impact recreation such as walking path and trails within the medium flood risk zone and environmental – habitat corridor in the high flood risk.

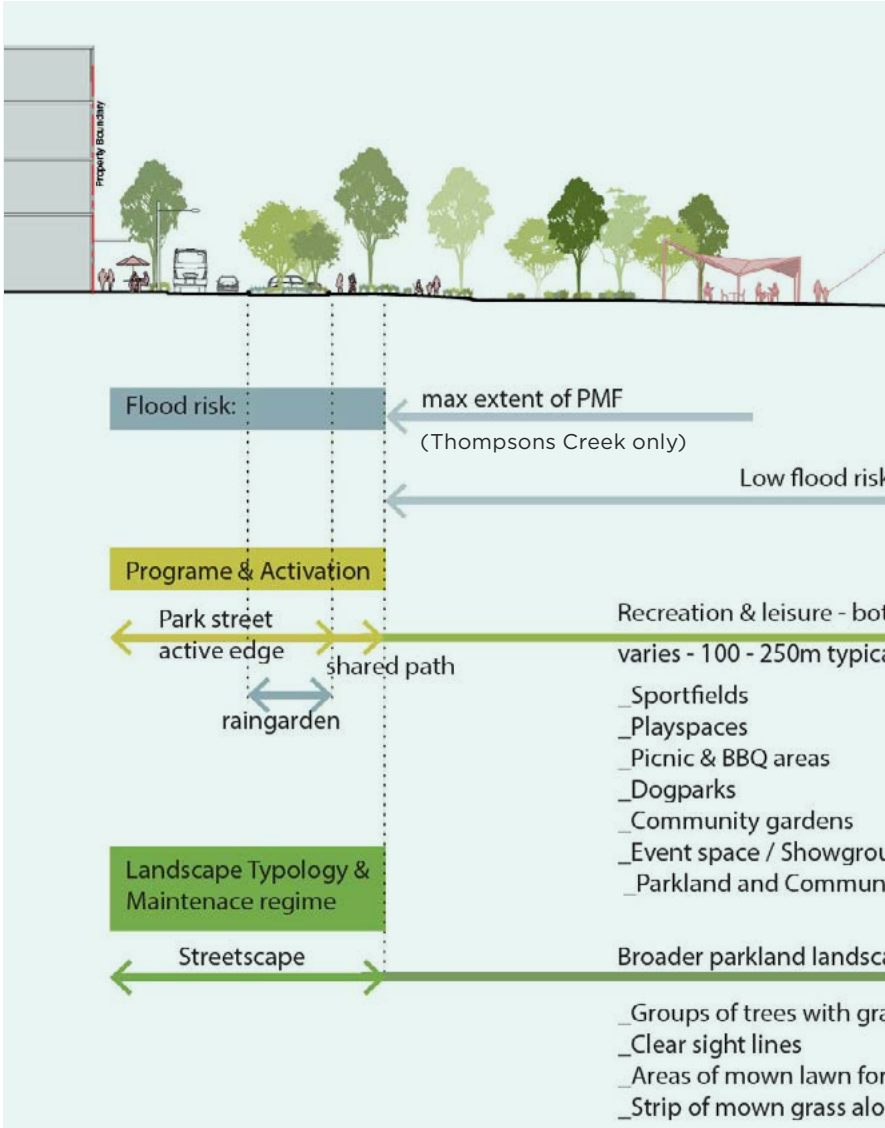
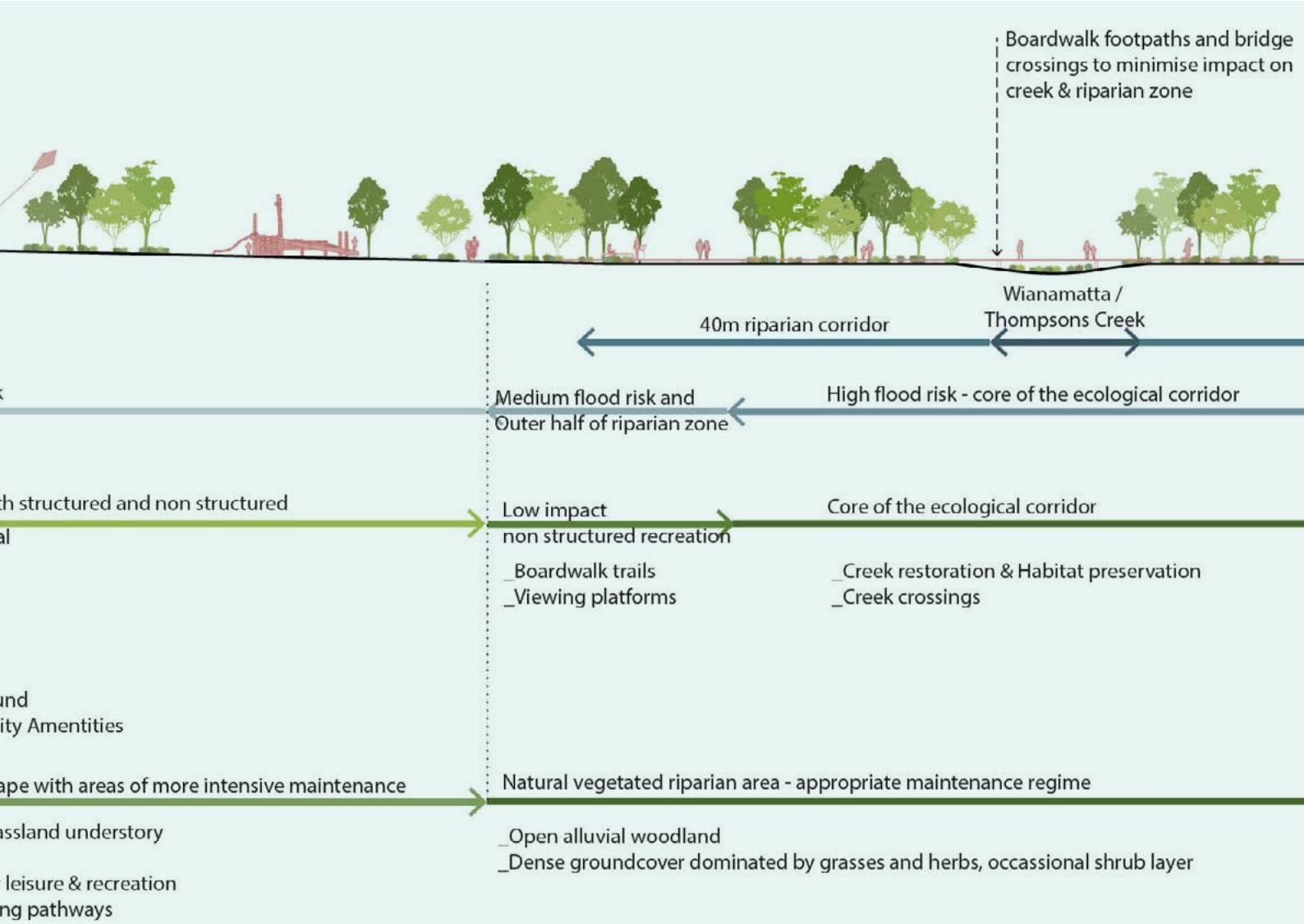


Figure 11: Conceptual section of Wianamatta - South Creek (Thompsons Creek) use and activation



High flood risk as defined by Liverpool City Council:

- Core of riparian ecological corridor

The area of land subject to flooding during the 1% annual exceedance proabability (AEP) flood and subject to high hydraulic hazards. The high flood risk zone is often aligned with the floodway corridor.

Medium flood risk as defined by Liverpool City Council:

- Low impact recreation - boardwalk walking trails & viewing

The residual area of land subject to flooding during the 1% annual exceedance proabability (AEP) flood outside of the high flood risk zone.

Low flood risk as defined by liverpool city council:

- Sportfields, playscape, parkland & community amenities

Area of land outside of the predicted 1% annual exceedance proabability (AEP) flood extent but within the probable maximum flood (pmf) extent.

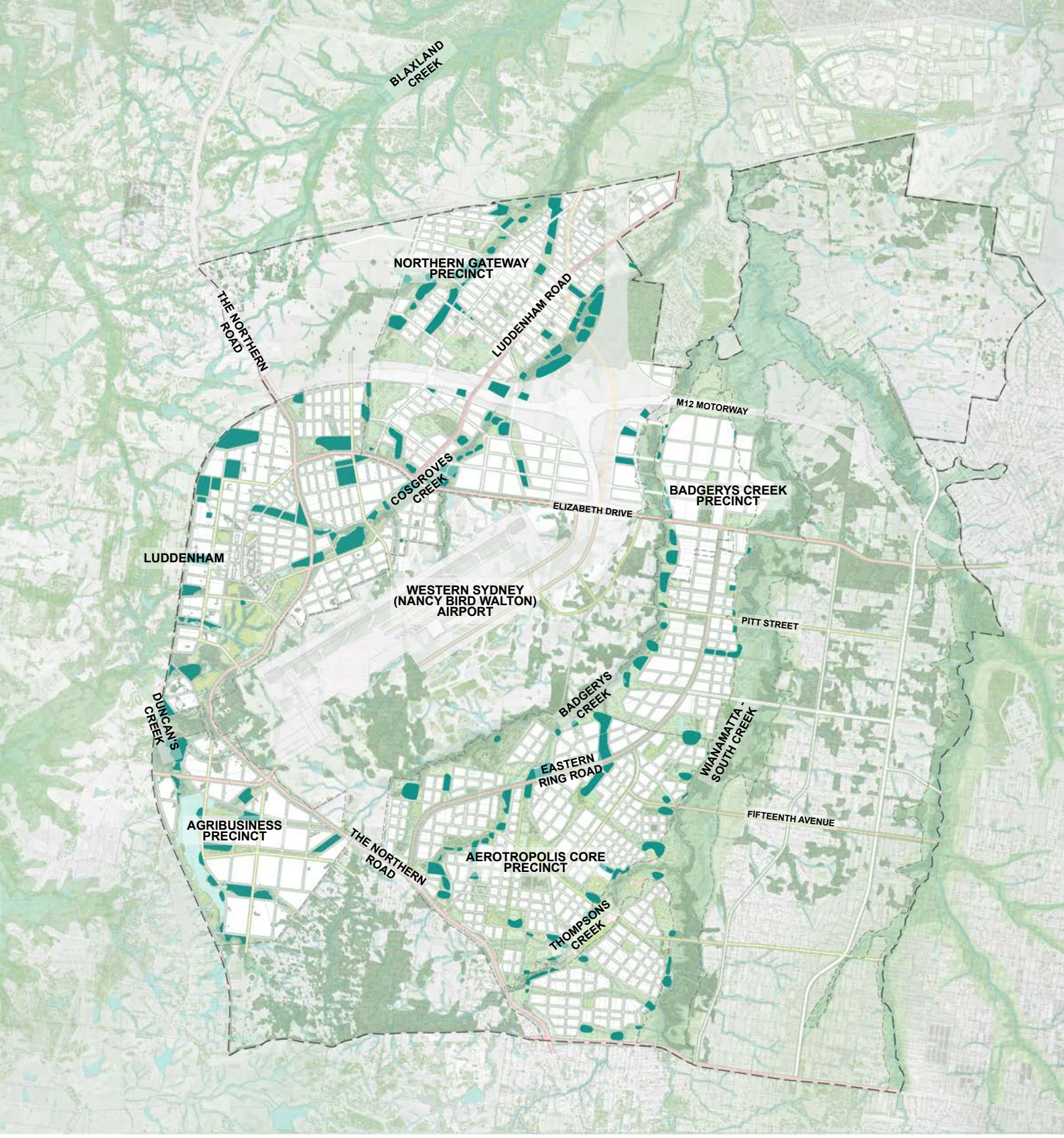
3.2.1 Wianamatta-South Creek Corridor

Objectives

BGO1	Make the Wianamatta-South Creek Corridor the backbone of a system of creeks, tributaries, parks, walking trails and areas of conservation.
BGO2	Protect the Wianamatta-South Creek Corridor water system, retain and enhance significant remnant vegetation and create a new regional parkland.
BGO3	Retain and enhance riparian corridors, alluvial land, creeks and dams, and protect the ridgelines and significant remnant vegetation with biodiversity value as part of the Wianamatta-South Creek Corridor.
BGO4	Effectively manage indirect and ongoing impacts of development adjacent to the Wianamatta-South Creek Corridor to protect riparian vegetation, aquatic fauna and water quality and quantity.

Requirements

BG1	Provide drainage basins in the general location shown on **Figure 12** to appropriately manage water.
BG2	Throughout the Wianamatta-South Creek Corridor: • locate active transport and recreation walking paths within the Environment and Recreation Zone, and where possible, outside high flood risk areas • connect active transport and recreation walking paths across creek corridors via bridges in the locations shown on the Wianamatta-South Creek Active Transport Plan (**Figure 20**) to allow regular crossings across the creek corridor to centres, schools, recreation and active transport networks.
BG3	Maintain and manage riparian vegetation within the Wianamatta-South Creek Corridor to improve overall health and biodiversity significance, and design recreation areas and pathways to minimise disturbance to vegetation and enhance biodiversity values.
BG4	Orient new development to integrate with the Wianamatta-South Creek system (riparian lands, creeks, floodplains) and related water systems to provide connection with and surveillance of the Wianamatta-South Creek Corridor.



Indicative WSUD Drainage Basin Locations

Western Sydney Aerotropolis

- Indicative WSUD basin location
- Waterbody
- Creek line
- Vegetation

N

Figure 12: Wianamatta-South Creek Corridor Indicative WSUD Basins

3.2.2 Flood management

Flood modelling has identified additional areas beyond the Environment and Recreation Zone that require flood management controls. This is to ensure the developable land is outside the 1% AEP, that areas of high hydraulic importance are free of blockages, to avoid adverse impacts on peak flood levels and flow velocities, and provide consistency in the application of flood management for the Aerotropolis.

Objectives

BGO1	Keep areas of high hydraulic importance are to be kept free of blockages, avoid adverse impacts on peak flood levels and flow velocities and provide consistency in the application of flood management for the Aerotropolis.

Requirements

BG1	Ensure urban development avoids encroachment into the 1% AEP.

3.2.3 Water in the landscape

Currently, the Wianamatta-South Creek catchment is the most degraded catchment in the Hawkesbury-Nepean River system due to historical vegetation clearing and urbanisation. Increased urbanisation will further degrade the waterways if stormwater, wastewater and flooding regimes are not managed, upfront through an integrated ecosystem approach. This approach requires the waterways and hydrological cycle to be central considerations in both land use and water infrastructure planning.

Objectives

BGO1	Keep water in the landscape by integrating waterways into the design of the city and residential neighbourhoods, and for the waterways to be healthy so they can provide the essential services and functions expected of a cool green corridor
BGO2	Protect, maintain and/or restore waterways, riparian corridors, water bodies and other water dependent ecosystems that make up the 'blue' components of the blue-green infrastructure framework
BGO3	Provide a landscape-led approach to integrated stormwater management and water sensitive urban design
BG04	Urban development is to comply with the water quality and flow objectives and follow the protocol outlined in the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (OEH/EPA, 2017)*.

Requirements

BG1	Achieve the performance criteria protocol outlined in the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (OEH/EPA, 2017)*.
BG2	Protect ecosystems and existing native vegetation (i.e. groundwater dependent vegetation) that are located in the floodplain and protected under the *Biodiversity Conservation Act 2016* and *Environment Protection and Biodiversity Conservation Act 1999.*

BG3 Consider the ephemeral nature of the waterways in planning of the stormwater flow paths and consequent volume and timing of discharges. Where required, there will be a requirement to undertake bed and bank stabilisation works to prevent erosion and provide habitat for fish and other aquatic life.

BG4 Urban development is to comply with the following performance criteria for ambient water quality of waterways and waterbodies in the Aerotropolis:

Water Quality Objectives	
*Total Nitrogen (TN, mg/L)	1.72
Dissolved Inorganic Nitrogen (DIN, mg/L)	0.74
Ammonia (NH3-N, mg/L)	0.08
Oxidised Nitrogen (NOx, mg/L)	0.66
*Total Phosphorus (TP, mg/L)	0.14
Dissolved Inorganic Phosphorus (DIP, mg/L)	0.04
Turbidity (NTU)	50
Total Suspended Solids (TSS, mg/L)	37
Conductivity (µS/cm)	1103
pH	6.20 - 7.60
Dissolved Oxygen (DO, %SAT)	43 - 75
Dissolved Oxygen (DO, mg/L)	8

** when showing compliance towards TN and TP through industry models, the DIN and DIP performance criteria should be instead to recognise that stormwater discharges of nutrients are mostly in dissolved form*

BG5 Urban development is to comply with the following performance criteria for ambient stream flows and requirements of waterways and water dependent ecosystems in the Western Sydney Aerotropolis*:

Flow Objectives		
	1-2 Order Streams	3rd Order Streams or greater
Median Daily Flow Volume (L/ha)	71.8 ± 22.0	1095.0 ± 157.3
Mean Daily Flow Volume (L/ha)	2351.1 ± 604.6	5542.2 ± 320.9
High Spell (L/ha) ≥ 90th Percentile Daily Flow Volume	2048.4 ± 739.2	10091.7 ± 769.7
High Spell - Frequency (number/y) High Spell - Average Duration (days/y)	6.9 ± 0.4 6.1 ± 0.4	19.2 ± 1.0 2.2 ± 0.2
Freshes (L/ha) ≥ 75th and ≤ 90th Percentile Daily Flow Volume	327.1 to 2048.4	2642.9 to 10091.7
Freshes - Frequency (number/y) Freshes - Average Duration (days/y)	4.0 ± 0.9 38.2 ± 5.8	24.6 ± 0.7 2.5 ± 0.1
Cease to Flow (proportion of time/y)	0.34 ± 0.04	0.03 ± 0.007
Cease to Flow – Duration (days/y)	36.8 ± 6	6 ± 1.1

** numerical values for performance criteria will be finalised following public exhibition of the Precinct Plan.*

3.2.4 Riparian corridors and farm dams

The protection, restoration and maintenance of waterways, riparian corridors, and water dependent ecosystems is essential in achieving the cultural, social and biodiversity aspirations as well as tree canopy targets of the Western Parkland City.

Creeks within the Initial Precincts are being validated and mapped with associated vegetated riparian zones to support waterway health. Water dependant ecosystems and key fish habitat are also being identified and mapped. A riparian revegetation strategy will be developed once fieldwork is complete, recommending the areas and likely costs of riparian land that should be revegetated.

Objectives

BGO1	Protect, restore and maintain vegetated riparian zones adjacent to creeks and other water bodies.
BG02	Manage indirect and ongoing impacts of development on waterways to achieve and maintain established waterway health targets.
BG03	Minimise disturbance and/or impacts on natural waterways and riparian land.
BG04	Retain and integrate high value riparian corridors into the precincts.
BG05	Contribute to maintaining creek health while bringing people safely into contact with water in the landscape for recreation and urban cooling.

Requirements

BG1	Where appropriate, re-purpose or re-build farm dams as water in the landscape features. In doing so, address issues such as dam failure, safety, water quality, algal bloom risk, water level fluctuations and wildlife attraction.
BG2	Maintain waterways of Strahler Order 2 and higher in a natural state, including the maintenance and restoration of riparian area and habitat such as fallen debris. If a development is associated with or will affect a waterway of Strahler Order 2 or higher, rehabilitate the waterway to return it to a natural state to maintain natural processes and functionality.
BG3	Improve the health of waterways and riparian land through the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (OEH/EPA 2017)* to manage the cumulative impacts of development.
BG4	Retain and restore vegetation along riparian corridors to connect these corridors.
BG5	Protect, restore and maintain vegetated riparian zones (VRZ) adjacent to creeks and other water bodies and explore opportunities to revegetate beyond standard VRZs to maximise biodiversity outcomes and achieve urban canopy targets, particularly within Wianamatta-South Creek Precinct.
BG6	Development should result in beneficial improvement without adverse impacts and should be designed to consider the water quality in any waterway, or entering the waterway and the quantity of water entering any waterways
BG7	Retaining of existing farm dams may require a licence, depending on whether the water comes from a source controlled by a water-sharing plan.
BG8	Waterway values are protected and enhanced through risk-based approaches that mitigate development impacts.

Photographs of the existing dams in the Aerotropolis landscape.
Source: Danièle Hromek, 2020.

3 Precinct Plan

3.2.5 Integrated water management and water sensitive urban design

Water servicing for precincts are to feature total water cycle management that integrates and balances drinking water, wastewater, recycled wastewater and harvested stormwater.

A range of trunk drainage and preferred water sensitive urban design stormwater management elements have been developed through consultation with Penrith and Liverpool Councils. These water sensitive urban design elements work together to preserve the local waterways that cross the precincts as well as waterways in the lower catchment. Achieving the stormwater management objectives will require a shift away from stormwater filtration to an approach that is more focussed on the retention of stormwater in the landscape.

Objectives

BGO1	Manage urban water elements (drinking water, wastewater, and stormwater) under integrated water management.
BGO2	Encourage retention of on-site stormwater for use as an alternative water source for appropriate use in the landscape.
BGO3	Ensure development incorporates an adequate suite of stormwater management measures to meet the NSW Government water quality and flow objectives and Precinct-specific targets within the Integrated Water Management Plan and Phase 2 DCP.

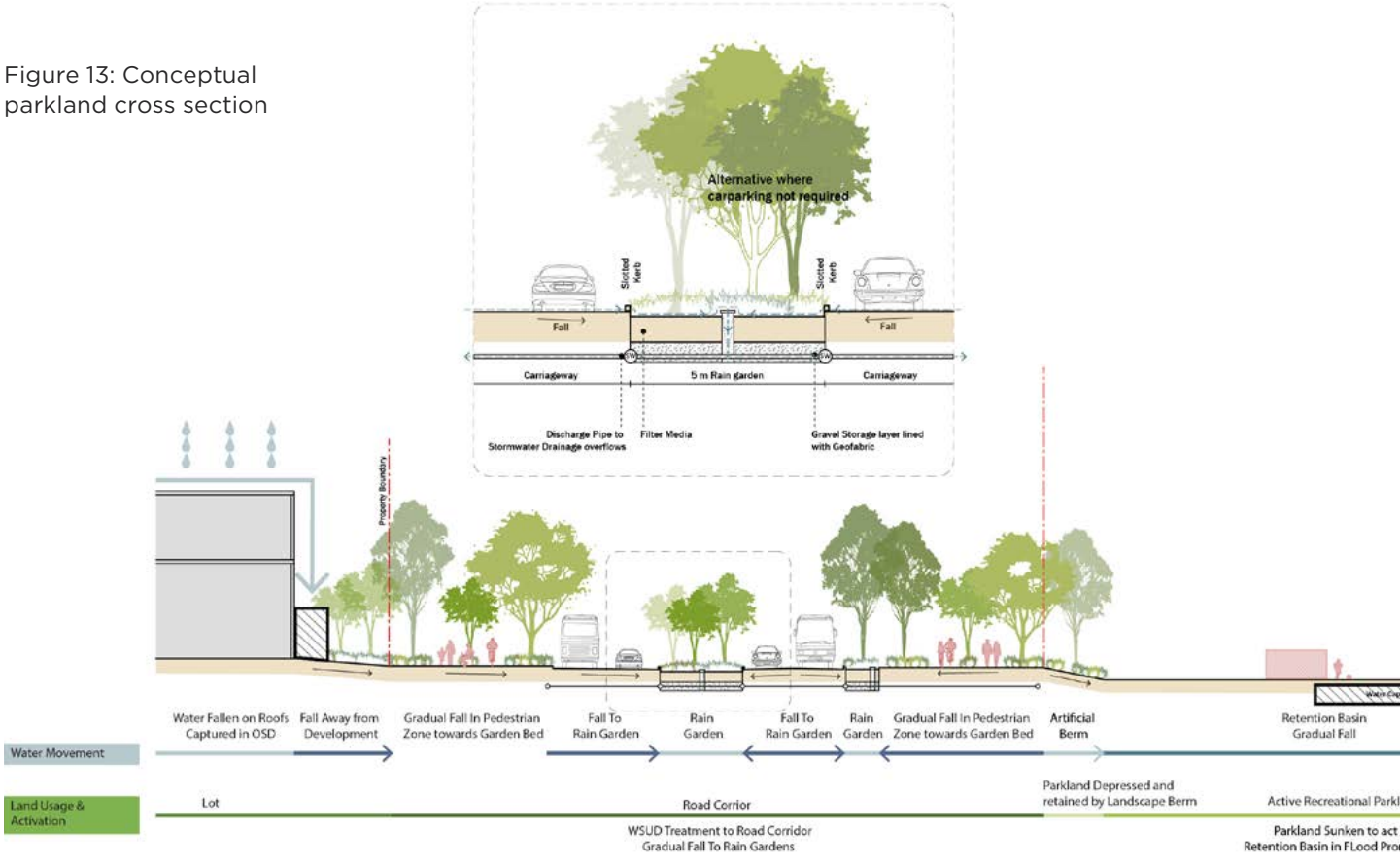
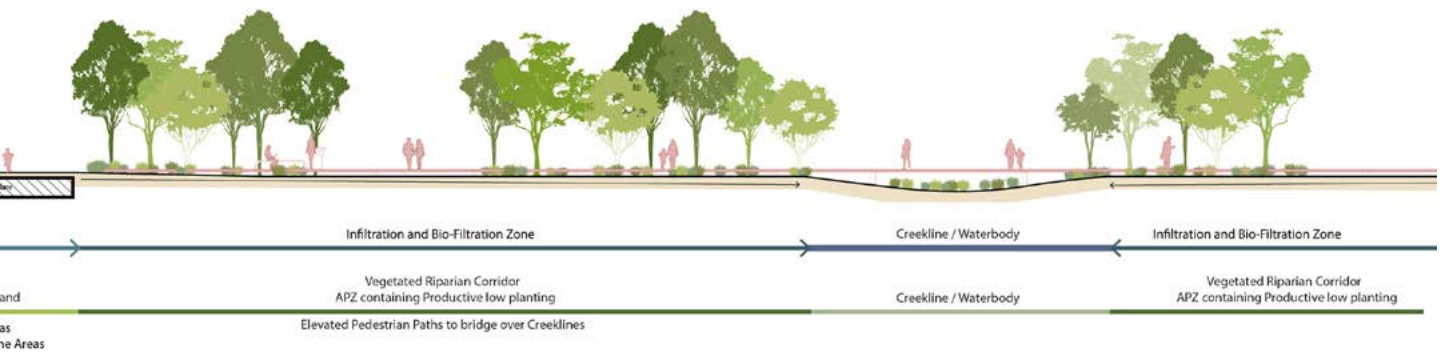


Figure 13: Conceptual parkland cross section

BGO4	Ensure water servicing includes total water cycle management that integrates and balances drinking water, wastewater, recycled water and harvested stormwater.
BGO5	Balance water management to ensure water servicing minimises demands on potable supplies though alternative water sources.
BGO6	Ensure development proposals utilise rainwater, stormwater and recycled water (where available) as alternative water sources to minimise demand on potable water.
BGO7	Provide an allocation of sufficient suitably located land area to allow for stormwater assets.
BGO8	Stormwater systems should manage peak flows for frequent events to minimise the risk of impacts to stream morphology.

Requirements

BG1	Ensure development and public infrastructure complies with and contributes towards the waterway health objectives developed by the Environment Division of Department of Planning, Industry and Environment under the *Risk Based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (OEH/EPA 2017)* and planned stormwater regional infrastructure.
BG2	Urban layouts, streets and drainage are to achieve effective perviousness and flow targets.
BG3	Create multifunctional detention assets in the public realm that contribute to broader objectives and requirements for waterway health, biodiversity, urban greening and cooling, recreation and amenity. Ongoing maintenance and management of these assets will be the responsibility of the relevant stormwater authority.
BG4	Trunk drainage is to be through natural creek lines or constructed natural drainage channels to help detain flows and contribute to biodiversity, public amenity and safety.
BG5	Stormwater systems should manage peak flows for frequent events to minimise the risk of impacts to stream morphology
BG6	Provide an allocation of enough, suitably located land area to allow for stormwater assets



3.2.6 Undisturbed soil network

Objectives

BGO1	Achieve healthy ecosystems and support water retention in the clay landscape of the Cumberland Plain.
BGO2	Retain soils of the Cumberland Plain in (as much as possible) an undisturbed and continuous state allowing for connectivity of soil ecology, resulting in healthier vegetation and increased water retention and increased carbon storage.
BGO3	Retain undisturbed soil networks that occur in riparian corridors, parks, nominated streets and specially designed natural soil corridors.

Requirements

BG1	Ensure any soil disturbed during earthworks is restored to its original soil horizon.
BG2	No stormwater or grey infrastructure should be located within the undisturbed soil network. Water retention is achieved naturally.
BG3	Plan for and implement undisturbed soil networks along streets and blue-green corridors as generally shown on the Precinct Plan following accurate mapping of the soil character and types, stormwater management and topography.
BG4	To achieve maximum canopy cover in streets (excluding intersections), street trees should have the following minimum mature canopy diameter, taking into account driveways and street movement: • large tree = 16m diameter • medium tree = 8m diameter • small tree = 5m diameter.
BG5	To ensure full canopy spread, appropriately sized trees should be planted 8m from the façade of a building maximising shade cover to western-facing facades.

Figure 14: Undisturbed soil network

3.2.7 Public domain and canopy cover

Objectives

BGO1	Create interconnected and accessible public and open space areas that accommodate a range of open space types and recreation diversity.
BGO2	Incorporate regional parklands along the Wianamatta-South Creek Corridor and other major creeks, parklands along tributaries, ridgelines, hilltop parks, urban parks, nature parks, and streetscapes in the open space network.
BGO3	Integrate open space with other green infrastructure and an increased tree canopy to meet the Region Plan's objective of 40% tree canopy cover by 2036.
BGO4	Ensure on-site capacity for trees with dense canopies to provide shading for urban cooling.
BGO5	Plant trees close to buildings and hot surfaces to ensure effective building cooling.
BGO6	Ensure appropriate soil volume, soil type and water availability to sustain trees planted for urban cooling.
BGO7	Support and implement the vision of the Greater Sydney Green Grid and Greener Places by using green and blue links to form connected networks of public open space.
BGO8	Ensure distribution and quantum of public open space provides equitable access for people living or working in employment and residential areas.
BGO9	Enrich the tree canopy along streets to increase street comfort and support continuous deep soil.
BGO10	Create a system of undisturbed soil grid to protect the soil profile and avoid significant engineered topographical work to support sustainability in public domain

Figure 15: Open space network

Requirements

BG1	Consider the open space demands of the worker population along with existing and future (where appropriate) residential demand.
BG2	Provide public open space at the district, local and neighbourhood scale in accordance with *Greener Places* and as located in **Figure 15**.
BG3	Design regional parks to: • provide the immediate and recognisable identity of the Western Parkland City, by connecting the floodplain to the main clusters of urban activity • serve and be accessible to the broader Western Parkland City as well as the local community • accommodate high quality long-stay facilities, large destination play areas and multi-sport facilities • provide areas for different uses or different sporting types (e.g. rectangular fields, ovals, outdoor courts, indoor sports) • include water in the landscape.
BG4	Design linear parks to head from ridgelines/high points down creek lines to larger water networks to maintain and celebrate vistas back to Country, creeks and sky. Generally form linear parks along tributary and ephemeral creeks and use as connectors and active transport corridors.
BG5	Integrate urban parks and pocket parks into the built form and locate them within local and neighbourhood centres.
BG6	Protect existing native vegetation in open spaces to minimise any impact on the remnant vegetation.
BG7	Border public open space with public roads, cycle paths and footpaths (e.g. no back fences onto public open space) to ensure equal access to the open space for employees and residents.
BG8	Consolidate deep soil in setback areas and locate with adjoining deep soil areas in adjoining properties.
BG9	Increase setbacks along the northern and western facades of buildings to enable increased planting of trees with larger canopy and maximise the number of trees in car parks. Design footpaths for tree growth.
BG10	Minimise major earthworks to manage salinity issues and, in open space and public areas, to minimise soil disturbance.
BG11	Embed water sensitive urban in the street design to allow for passive street tree watering while removing pollutants and reducing stormwater outflow.

3.2.8 Biodiversity and vegetation corridors

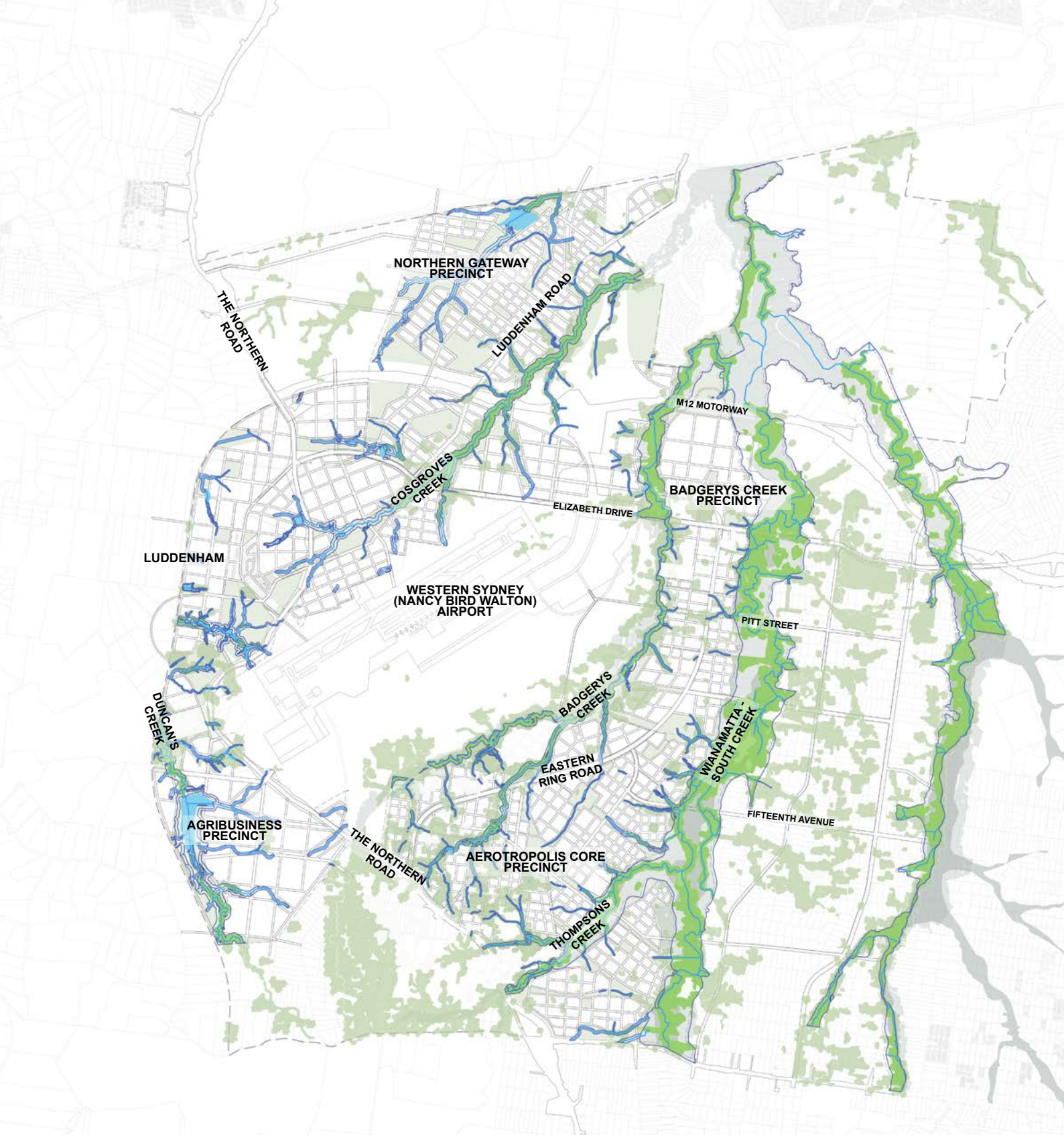
Cumberland Plain Woodland is present across the Aerotropolis, which is a Critically Endangered Ecological Community under the *Biodiversity Conservation Act 2016 (NSW)* and Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)*.

The area to the south of Elizabeth Drive in the Badgerys Creek and Wianamatta-South Creek precincts and all the Aerotropolis Core precinct is subject to precinct planning requirements of the Order to confer biodiversity certification on the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*. The Relevant Biodiversity Measures include a requirement to protect 2,000 hectares of Existing Native Vegetation (ENV) in the Growth Centres. Based on the draft Growth Centres Conservation Plan (2007), this area is required to protect 227.18 ha of ENV Validated land.

Objectives

BGO1	Maintain parity with the Sydney Region Growth Centres Biodiversity Certification Order. This requires the protection of a minimum 227.18 ha of existing native vegetation mapped in the draft Growth Centres Conservation Plan (2007).
BGO2	Achieve the vision of a Western Parkland City and maintain Wianamatta-South Creek Corridor as a regionally significant ecological corridor.
BGO3	Avoid development in areas of high biodiversity value and designate urban capable land to be biodiversity certified in each nominated area identified in the draft Cumberland Plain Conservation Plan.
BGO4	Increase and improve landscape connectivity through conservation and restoration of native vegetation to enable plant and animal communities to survive in the long term.
BGO5	Support long-term viability and ecological connectivity by ensuring development does not encroach on protected land.
BGO6	Mitigate the impacts of development and associated works on threatened ecological communities to improve and enhance their condition over the long term.
BGO7	Achieve the objectives and implement the Cumberland Plain Conservation Plan.

Figure 16 (overleaf): High ecological value (HEV) waterways, riparian vegetation, water bodies (including farm dams) and other water dependent ecosystems in the Western Sydney Aerotropolis



Waterways, Vegetation and Riparian Corridors

Western Sydney Aerotropolis

- Precinct boundary
- HEV waterways and water dependent ecosystems within VRZ
- HEV waterways and water dependent ecosystems outside VRZ
- Water bodies (farm dams)
- VRZ
- Waterways
- Streetscape

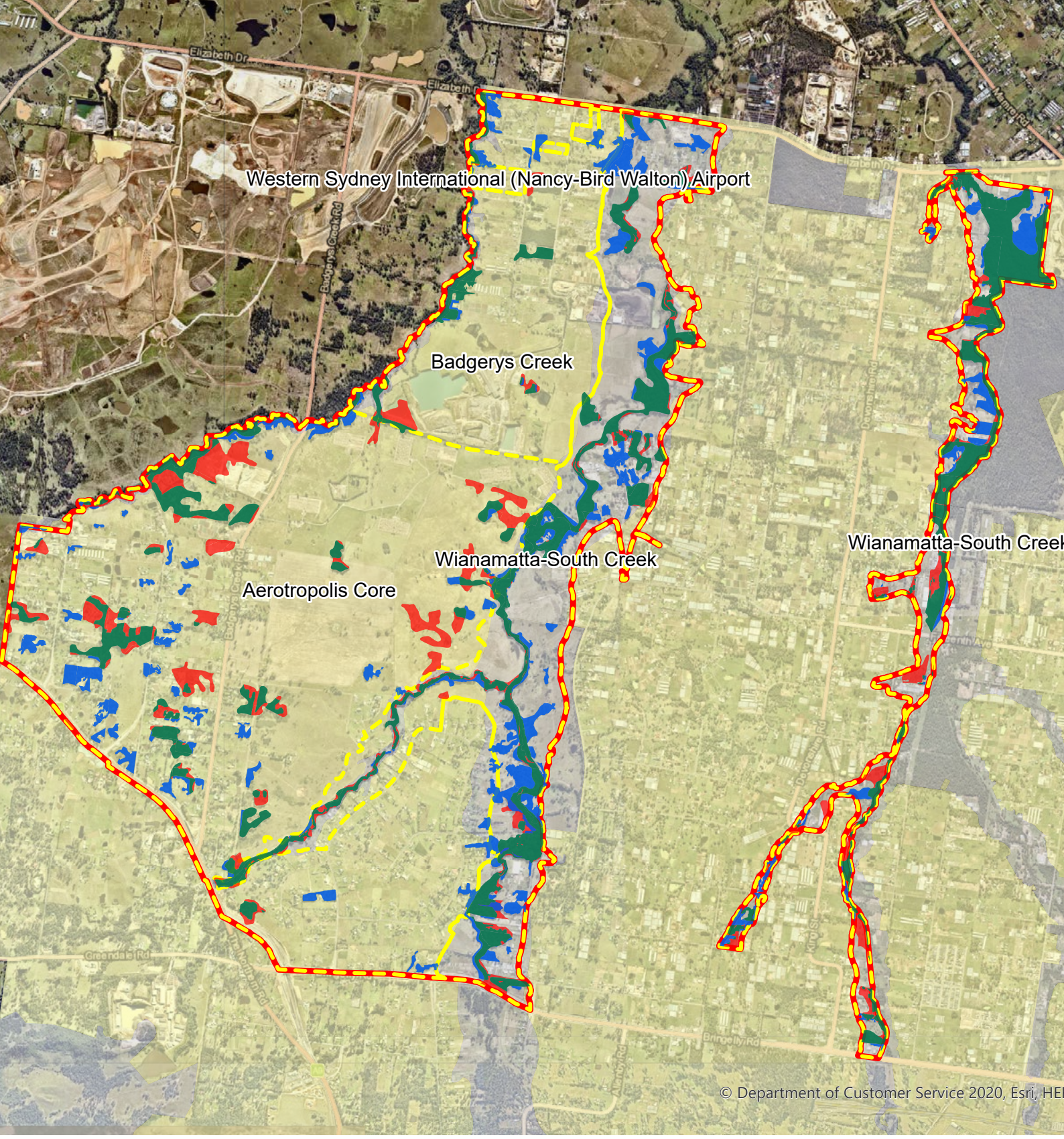
N

The map shows the extent of existing high ecological value water dependent ecosystems both within and outside of the vegetated riparian zone (VRZ). The map has been field-validated and will be finalised following public exhibition of Precinct Plan.

Requirements

BG1	Retain and protect 227.18 ha of Existing Native Vegetation (ENV) within the draft Growth Centres Conservation Plan 2007 for land in the initial precincts of the Aerotropolis that is also within the Sydney Region Growth Centres.
BG2	Protect and enhance 227.18 ha ENV areas under Sydney Region Growth Centres Biodiversity Certification, include generous linear parks along creeks to accommodate water retention within the landscape and include corridors to allow wildlife to migrate. Areas where vegetation exists to meet these targets is shown on **Figure 17**.
BG3	Limit development encroachment along creek lines and waterways to protect and enhance these space and movement corridors.
BG4	Preserve and enhance remnant vegetation clusters through Caring for Country principles.
BG5	Protect and maintain soil landscapes and soil health to sustain environmental health, reduce salinity and create a healthy tree canopy.
BG6	Provide an efficient water source for trees including compact shared utility trenches below footpaths to maximise the area of unobstructed deep soil.
BG7	Design development adjoining conservation areas to provide ecological setbacks that support targeted threatened species.
BG8	Conserve and manage existing vegetation and contribute to the increase of habitat and tree canopy cover within the Aerotropolis.
BG9	Ensure development that affects riparian corridors protects and restores biodiversity. Where possible, seek suitable breaks in vegetation to minimise impacts and reduce disturbance to riparian corridors. Consider requirements under the *Water Management Act 2000* (NSW).
BG10	Where existing trees cannot be retained, provide 2 replacement trees for each tree removed.

Figure 17 (overleaf): Vegetation analysis of lands within the Growth Centres portion of the Aerotropolis



Validated Existing Native Vegetation

Western Sydney Aerotropolis

- Existing Native Vegetation validated
- Additional High Conservation Value validated
- Existing Native Vegetation removed
- Biodiversity Certification - Certified
- Biodiversity Certification - Non Certified

N

3.2.9 Scenic and cultural connection

Objectives

BGO1	Protect and enhance the Western Parkland City's scenic landscapes by preserving and enhancing views and vistas, and high points in particular ridges.
BGO2	Increase the tree canopy cover of ridgelines to accentuate scenic landscapes.
BGO3	Create public parks that provide high quality vantage points to scenic landscapes.
BGO4	Protect ridges from inappropriate development to reduce the dominance of the urban footprint, preserve view lines, and enable provision of open space in locations that will connect the blue and green corridors.
BGO5	Create landscaped gateways on arrival at key threshold access roads.

Requirements

BG1	Retain high quality vegetation on ridgelines and implement tree planting initiatives for ridgelines.
BG2	Locate local parks along ridgelines to coincide with existing, high quality stands of vegetation.
BG3	Design major roads that border ridgelines as tree-lined boulevards.
BG4	Avoid new urban land uses, including residential or employment uses, on ridgelines; instead, focus them below the ridgelines to preserve views to and from ridges.
BG5	Retain vegetated landscapes associated with ephemeral creeks to support the biodiversity value.

Figure 18 (overleaf): Scenic and cultural connections

Scenic and Cultural Connections

Western Sydney Aerotropolis

- Ridges - currently predominantly open, non vegetated
- Landform - subtly undulating
- Filigree of creeks and dams
- Wianamatta, Badgerys Creek and Thomsons Creek riparian corridor with associated vegetation - framing long views
- Existing remnant vegetation - framing long views
- Badgerys Creek Road with adjacent rural landscape setting
- Open space on ridgetops or local high points
- Creek to ridgetop connection through open space (visual and physical)
- Creek to creek connection through open space
- Views from streets towards the creeks and broader landscape (street grid oriented to terminate on a view towards creeks and ridge top)
- Landscape gateway on arrival

N

3 Precinct Plan

3.3 Access and Movement Framework

Substantial investment in transport infrastructure will create the major Access and Movement Framework. The Sydney Metro stations, other public transport and walking and cycling links will combine to create a sustainable transport network that supports proposed land uses and provides for equitable access.

Planning for land uses needs to be balanced against different customer requirements to develop a cohesive transport network, across all modes, that caters for all users. This balance of strategic and local travel demands will facilitate sustainable patterns of movement and mobility.

The Framework considers the long-term planning for freight movements and future corridor protection for the future rail connections to serve the Western Sydney Airport.

The *Aerotropolis Urban Design and Landscape Report* defines key strategic transport corridors and identifies preferred corridor widths and landscaping requirements.

Artist impression of the Aerotropolis Core Metro Station.
Source: Sydney Metro

Planning and Design Guidelines

The following provide broad guidelines for the planning and design for the Precincts.

Principles Guidelines

1	Ensure equitable access to jobs and social infrastructure, including education, health and recreation facilities.
2	Design the street network and transport system to create a well-connected city.
3	Provide attractive and sustainable transport options and prioritise public and active transport.
4	Optimise the movement of people and goods and minimise congestion.
5	Provide freight connections to support the Aerotropolis's productivity.
6	Create a movement system that gives people right across the Western Parkland City convenient access to Aerotropolis jobs and social infrastructure through direct, quick, frequent and affordable public and active transport.
7	Locate public and active transport routes and hubs in a way that creates easy access to jobs, housing and social infrastructure.
8	Provide good rail, freight, public transport and active transport connections to, from and within the Aerotropolis precincts and beyond.
9	Design the street network to provide well-located, frequent and environmentally friendly crossings across creeks and other topographical features.
10	Ensure infrastructure corridors accommodate local connections.
11	Plan for direct and safe walking and cycling connections (e.g. separated, legible, with safe crossings) that are comfortable (e.g. shaded, cool and spacious) and integrate well with the topography to provide convenient gradients for users.
12	Promote a behavioural shift towards public and active transport.
13	Design streets and public spaces to accommodate sufficient bicycle parking facilities, including space and infrastructure for charging stations.
14	Balance parking provision to promote the use of pubic and active transport.
15	Ensure the location and size of loading zones and storage facilities do not compromise the physical or visual amenity of public spaces.
16	Ensure constrained and limited crossings over the Warragamba pipeline
17	Large circular economy infrastructure to be located in close proximity to major freight routes.

3 Precinct Plan

3.3.1 Transport strategy

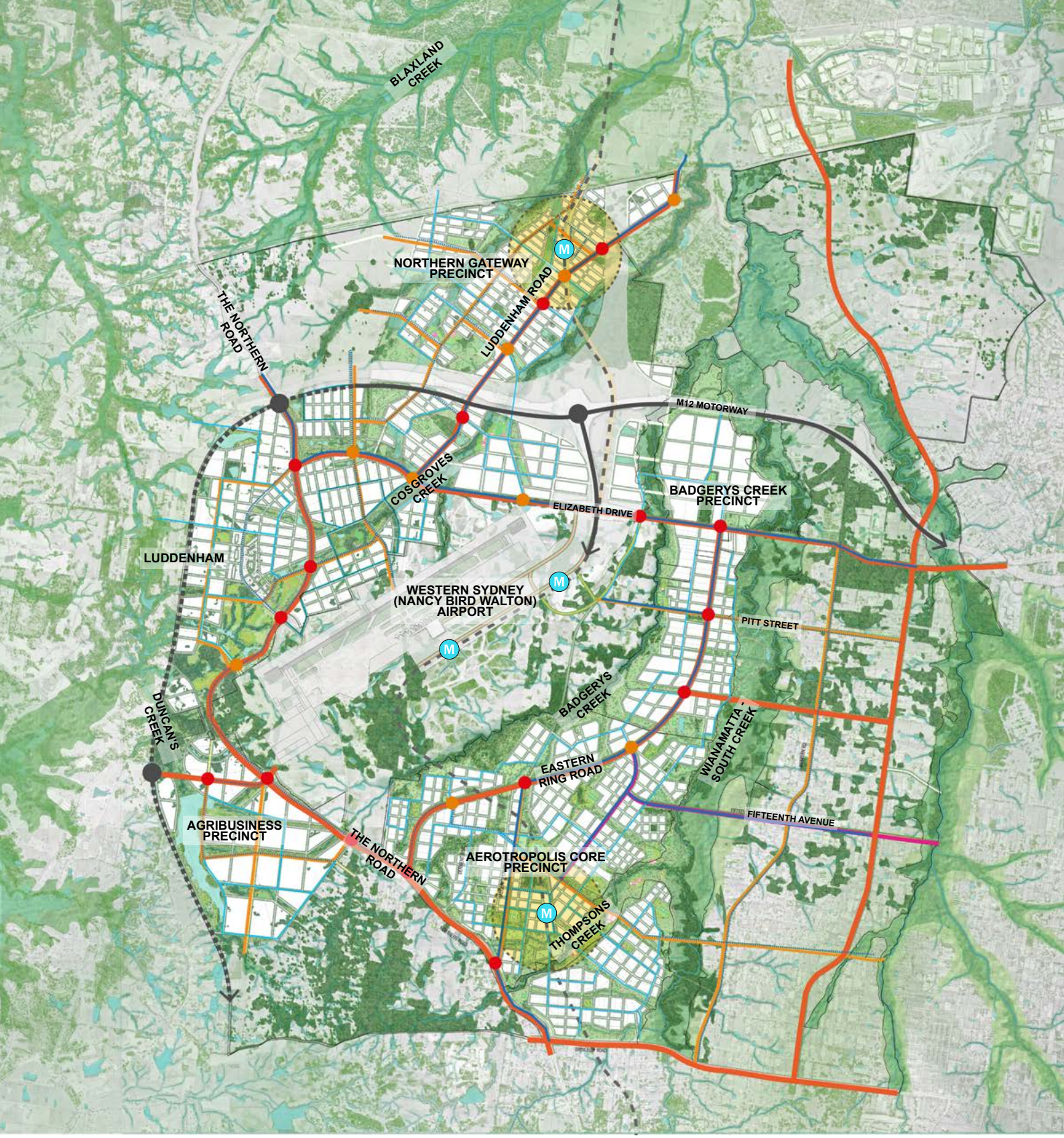
Objectives

AMO1	Use the transport network to move people and goods safely and efficiently and connect places.
AMO2	Plan and deliver a multi-modal transport network which will support the strategic vision and objectives. which considers the relationships between place and customers with the transport networks

Requirements

AM1	Develop a Travel Demand Management strategy which defines and promotes sustainable travel options and choices to influence mobility to deliver sustainable outcomes in terms of mode of travel and volume of travel
AM3	Provide a dedicated walking network with pedestrian footpaths on all roads and streets, so to create a high amenity environment for walking throughout the precincts, as well as priority access to, and within, centres and to key public transport nodes.
AM3	Create an extensive, dedicated bicycle network with separated bicycle facilities on all key roads and streets, to support the needs of all cyclists.
AM4	Provide a highly efficient road network for private vehicles, freight, and all other modes which focuses on local accessibility in centres where accessibility is critical to network function. Intermediate roads have a balanced focus of access, place and movement.

Figure 19 (overleaf): Aerotropolis transport strategy plan



Transport Network

Western Sydney Aerotropolis

- Primary Arterial Road - 60 metres
- Primary Arterial Road - Arterial Bus - 45 metres
- Primary Arterial Road - 40 metres
- Rapid Bus Corridor
- Frequent Bus Corridor
- Local Bus Routes - principal routes
- Key signalised intersection
- Planned signalised intersection (subject to investigation)
- Motorway
- Metro line
- 800 metres walking catchment
- Metro Station

N

3.3.2 Active transport

Objectives

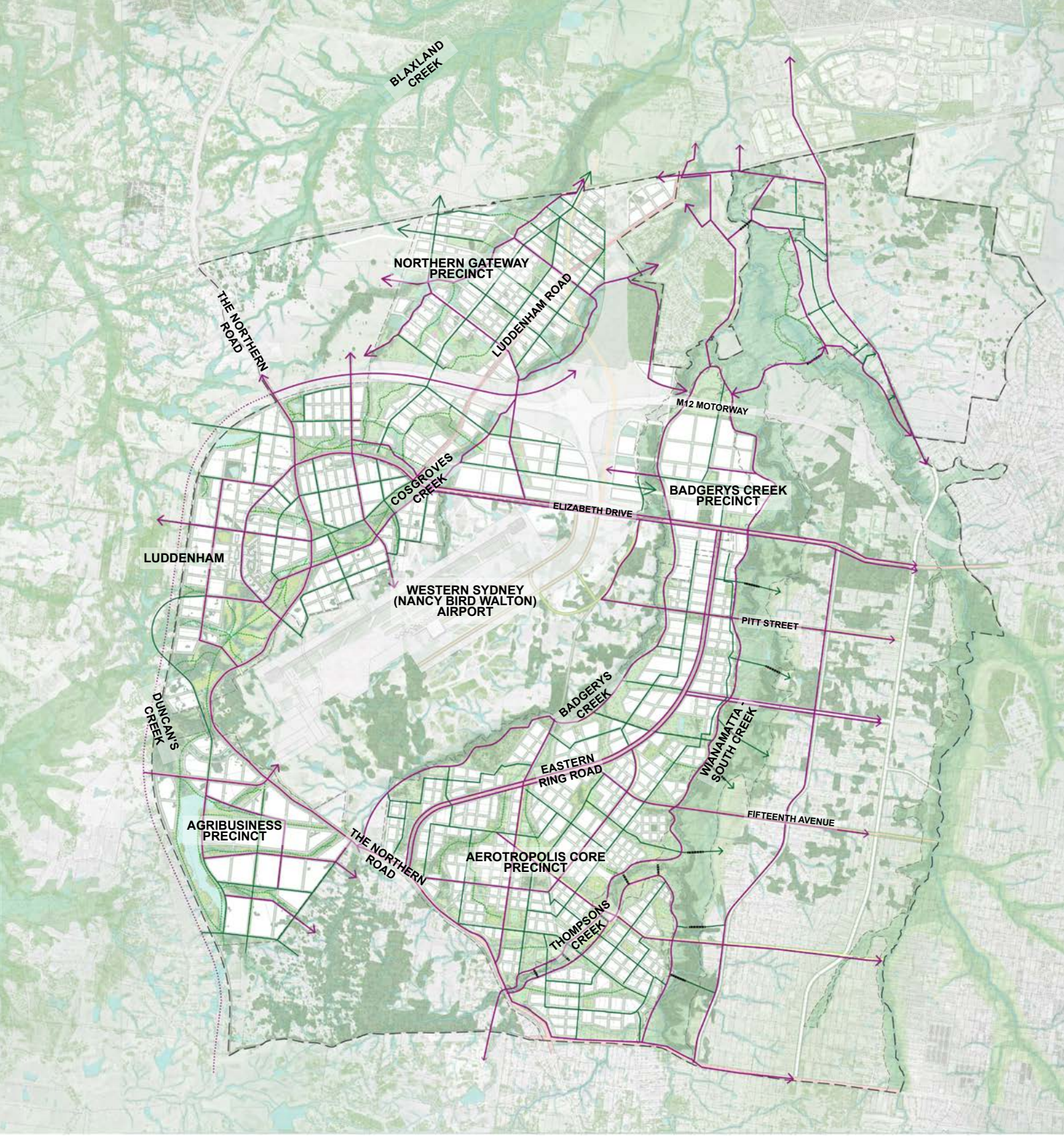
AMO1	Meet the future mode share target for active transport in the initial precincts of 6% as shown.
AMO2	Provide safe, direct and interconnected pedestrian and cycling links to a variety of destinations and transport nodes.
AMO3	Establish a permeable street network that supports the safe and enjoyable movement of pedestrians and cyclists.
AMO4	Connect the local active transport network and complete missing links to the existing or planned regional network.
AMO5	Provide infrastructure that separates bicycle and vehicle movement where appropriate and caters for multi-modal trips at all stages of the journey.
AMO6	Reduce opportunities for crime by implementing Crime Prevention Through Environmental Design principles.

Requirements

AM1 Achieve active transport modal splits (source; AECOM 2020) as tailored to each precinct's land use zoning, density and planned transport infrastructure and services as noted below.

Precinct	Target mode share		
	Active transport	Public transport	Car
Aerotropolis Core	8%	45%	47%
Northern Gateway	6%	38%	56%
Agribusiness	2%	16%	82%
Badgerys Creek	2%	18%	80%
Aerotropolis wide (average)	**6%**	**38%**	**56%**

AM2	Employ the principles of CPTED to create a safe and secure environment that encourages activity, vitality and visibility, enabling a greater level of security.
AM3	Vertical alignment of the Metro rail line is to be confirmed with Transport for NSW prior to any master plan or development application.



Active Transport Corridors

Western Sydney Aerotropolis

- Principal regional cycle path network (off road)
- Cycle paths through open space
- Cycle paths within the streetscape
- Wianamatta - South Creek Crossing

N

Figure 20: Active transport corridors

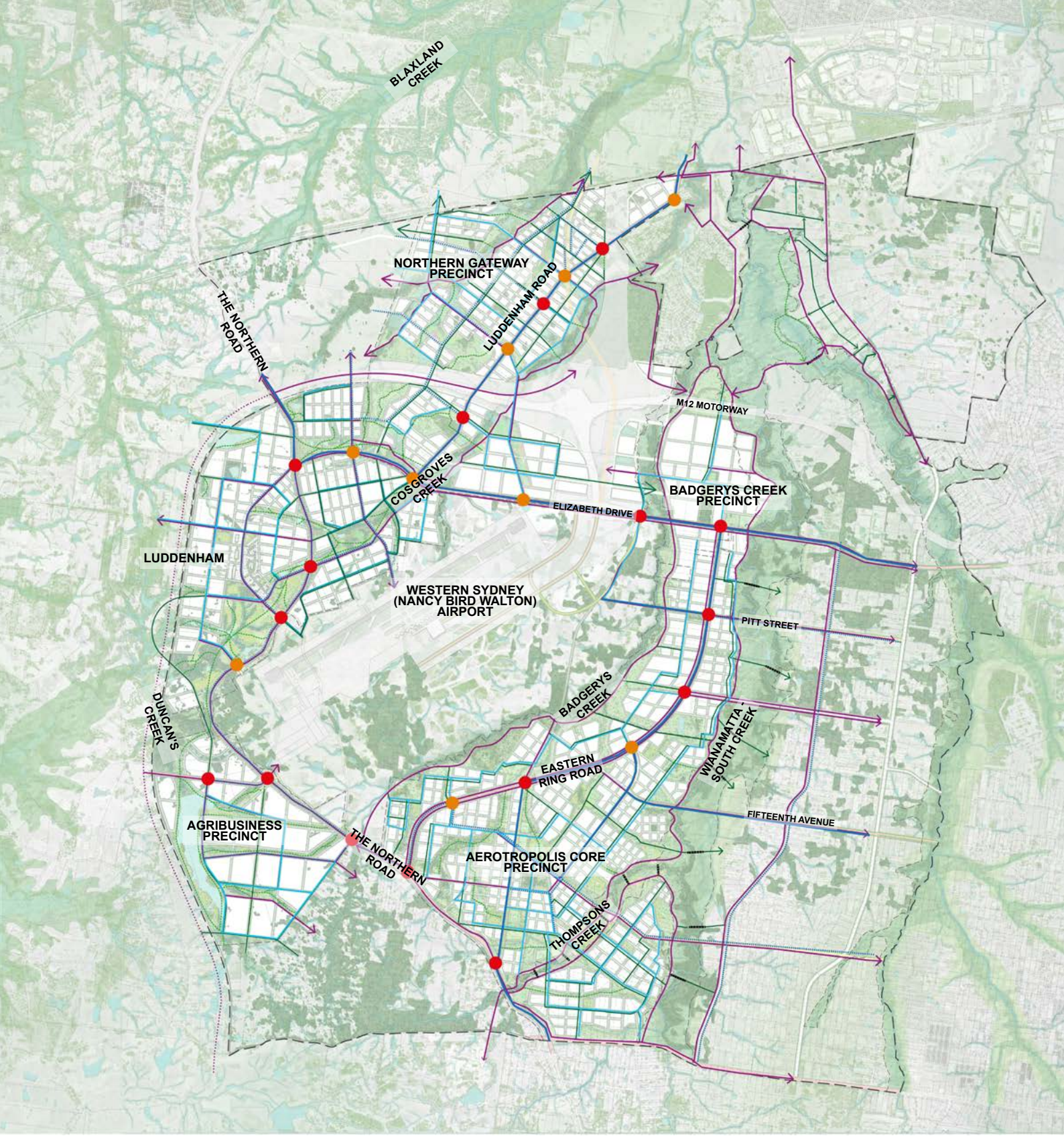
3.3.3 Bus Network

Objectives

AMO1	Integrate land and prioritise public transport to support the 30-minute city and meet current and future demand.
AMO2	Design the public transport network to achieve operational integrity and permeability for buses, both local and rapid, so that as the needs of the network change, bus routes and bus priority can easily adapt.
AMO3	Provide direct access for services through suburbs, centres and directly into transport interchanges within centres.

Requirements

AM1	Plan for a bus network that accords with the network plan in **Figure 21** and design bus routes with the following principles in mind: • **Rapid bus routes** – provide fast, efficient and frequent 'city shaping' or 'city serving' bus services, with a differentiated product (e.g. B-Line services with yellow, double decker vehicles). Space high quality stops farther apart to facilitate faster journey speeds. • **Frequent bus routes** – provide frequent 'city serving' or 'centre serving' bus services that efficiently connect centres and other 'city shaping' public transport services to surrounding areas (e.g. increasing the catchment of Metro services). Plan for services that are on average every five minutes, depending on individual route needs and passenger demand. • **Bus capable streets for local routes** – facilitate future planning of local bus routes with the allocation of roads and streets that can be bus capable, allowing future local bus routes that connect residents and businesses with centres or other public transport connections.



Bus Network

Western Sydney Aerotropolis

- Rapid bus corridor
- Frequent bus corridor
- Local bus routes - principal routes
- Key signalised intersection
- Planned signalised intersection (subject to investigation)
- Principal regional cycle path network (off road)
- Cycle paths through open space
- Cycle paths within the streetscape
- Wianamatta - South Creek Crossing

Figure 21: Bus network

3.3.4 Freight

Objectives

AMO1	Support the safe, efficient and reliable movement of goods around Greater Sydney by providing a high capacity network for moving goods between trade gateways and freight precincts.
AMO2	Support the growth of exports through the Aerotropolis of time sensitive products requiring cold storage such as meat and other fresh food products and other time sensitive exports such as medical products.
AMO3	Enable export of products through the Western Sydney International Airport that are not possible through other export gateways such high-value live animals.
AMO4	Achieve the 2056 Greater Sydney strategic freight network vision as outlined in the *Greater Sydney Services and Infrastructure Plan of Future Transport 2056*, with new north-south and east-west links in the Western Parkland City.
AMO5	Support growth in freight volumes and help manage pressure on local roads by enabling more goods to be moved by rail or on strategic roads.
AMO6	Ensure the transport network servicing the Aerotropolis accommodates freight along connections that maximise effective and reliable movements while protecting local amenity.
AMO7	Support a higher capacity north-south link in the Western Parkland City with additional capacity on the east-west road corridor between Liverpool and the Outer Sydney Orbital.
AMO8	Enable the transition to a greater role for rail for freight movement over time.
AMO9	Enable efficient last-mile delivery for residents and business with a combination of small trucks, vans and cycle delivery.

Requirements

AM1	Position freight and logistics operations to have easy access to the 2056 Greater Sydney strategic freight network vision as outlined in the Greater Sydney Services and Infrastructure Plan.
AM2	Locate freight and logistics operations to access the broader freight and road network, and to minimise noise and other amenity impacts on sensitive land uses such as residential development (both existing and planned).
AM3	Avoid sensitive land uses, such as residential development, in locations that would hinder the effective function and operation of the strategic freight network.
AM4	Freight and logistics operations are positioned in locations where 24 hour operations are suitable with minimal risk of significant amenity and/or environmental impacts to sensitive land uses.

3.3.5 Road Network

Objectives

AMO1	Design street networks must support the objectives of Future Transport 2056 and the NSW Government's Movement and Place Framework.
AMO2	Create a landscaped, safe, functional, adaptable and integrated street network to achieve the hierarchy of streets and prioritising pedestrian amenity.
AMO3	Provide sustainable and safe street grid layouts based on the underlying topography, enhance connections to the open space landscape and increase canopy cover.

Requirements

AM1	Link road networks to identified transport interchange and co-locate interchange points with other destinations.
AM2	Provide safe and sustainable street grid layouts to enhance connections, accommodate tree planting and retain emergency vehicle accessibility.
AM3	Ensure traffic generated by development does not interfere with the sense of place.
AM4	Integrate transport infrastructure into built form to seamlessly promote public transport, walking and cycling.
AM5	Align street grids with landform features.
AM6	Landscape all streets and provide an urban tree canopy in a way which does not inadvertently cause wildlife to become a safety hazard in the operational airspace of the Airport.
AM7	Match street networks to accord with the hierarchy and street network plan in **Figure 22**.

3.3.6 Travel Demand Management

Objectives

AMO1	Ensure that transportation demand generated by development is managed in a sustainable manner
AMO2	Manage parking supply to reduce traffic movements and encourage access by public transport, walking and bicycle
AMO3	Development should not compromise the integrity of existing transport infrastructure assets
AMO4	Traffic generated by development should not interfere with place and amenity outcomes of the surrounding precinct.
AMO5	Minimise long-term on-street car parking and parking at developments located close to transport services
AM06	Prioritise car share and car pool over private vehicles e.g. prime parking spaces

Requirements

AM 1	Development does not compromise the orderly provision and staging of the transport network.
AM 2	Travel plans highlight measures to reduce car dependency for new developments by encouraging sustainable transport modes.
AM 3	Development is located on roads that are appropriate for the nature of traffic generated, having regard to the safety and efficiency of the transport network.
AM 4	Development promotes the reduction of vehicle usage by incorporating alternatives to onsite car parking provisions

3.3.7 Protected transport corridors

The *Western Sydney Aerotropolis SEPP* establishes a Major Infrastructure Corridor across the Aerotropolis Core and Northern Gateway precincts.

The *State Environment Planning Policy (Major Infrastructure Corridors) 2020* (Major Corridors SEPP), protects land for three future infrastructure corridors that will be critical in supporting the passenger and freight network for a growing Western Sydney. The *Western Sydney Aerotropolis SEPP* expands on the protected Major Infrastructure Corridors by requiring consideration of key components of the transport network in the Aerotropolis, including the Eastern Ring Road, Fifteenth Avenue.

Objectives

AMO1	Protect corridors from development or encroachment by sensitive uses until their intended use can be realised.
AMO2	Achieve long-term protection for corridors, subject to the Major Corridors SEPP, by ensuring that development does not adversely impact or prevent the land from being used as an infrastructure corridor in the future.
AM03	Ensure new development does not compromise the effective and ongoing operation and function of classified roads and prevent or reduce the potential impact of traffic noise and vehicle emissions on development adjacent to classified roads.
AM04	Optimise the efficiency and effectiveness of the freight handling and logistics network.

Requirements

AM1	Avoid development on land within an identified protected corridor and maintain it in a natural state as open landscaped areas until the transit corridor is established.
AM2	Protecting current and future freight corridors and shared freight corridors. The land remains as open landscaped area that is maintained by the landowner until the corridor is established.
AM3	All building work adjacent to and within 25m of the rail and road corridor will need approval from the Transport for NSW.
AM4	Protect the safety, efficiency and ongoing operation of a classified road and ensure it is not adversely affected by the development as a result of: • the design of the vehicular access to the land • the nature, volume or frequency of vehicles using the classified road to gain access to the land.

3.3.8 Street hierarchy and typology (including widths)

The classification of main roads, main streets and local streets considers the Access and Movement Framework of this document and the Western Sydney Councils Street Guidelines.

High order roads, such as priority public transport corridors, motorways, primary arterials and freight corridors are fixed, and will be designed in more detail taking into account intersections and utility needs. As motorways, in particular, do not have activated land use adjacent to them, they are denoted in the urban design and landscape reports in grey.

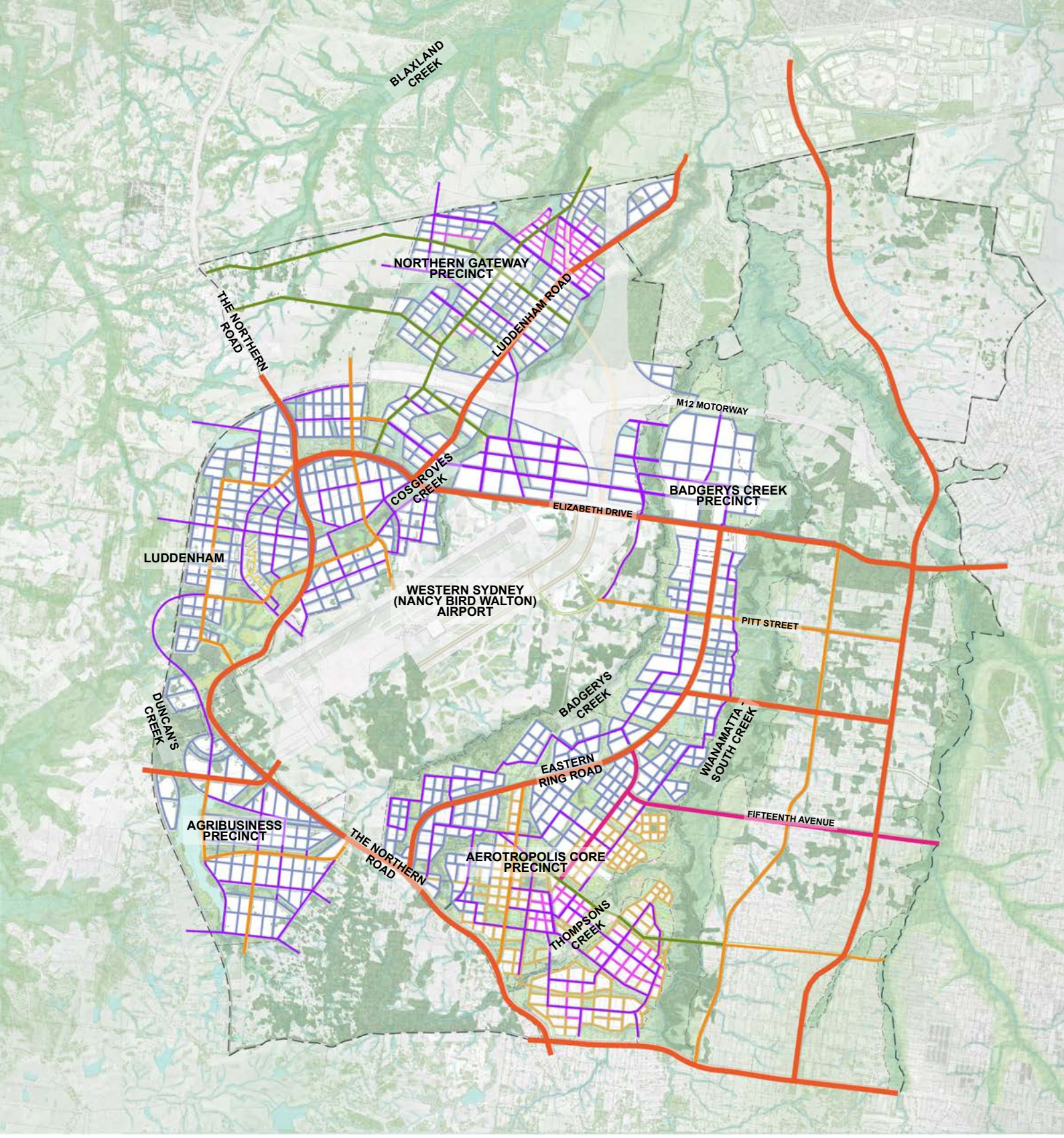
Lower order streets, such as local streets, are not shown in the urban design and landscape reports as these make up all the streets that need to be considered in detail.

Objectives

AMO1	Establish a hierarchy of streets that supports the development of the Aerotropolis and provides streets for good street network and access.
AMO2	Establish a street network that is consistent with the design principles set out in this Precinct Plan.
AMO3	Create streets that are attractive, green, sustainable, safe, functional, adaptable and integrated. Allocate street space to create great local places and prioritise pedestrians.
AMO4	Make street trees and canopy cover an integral part of the street network.
AMO5	Reflect the varied role of streets in urban environments such as public spaces, places for social interaction, service provision, movement connections, water and stormwater management, biodiversity and environmental functions.
AMO6	Use the street network to underpin understanding of the function and form of a road corridor, where movement and place interact.
AMO7	Establish an integrated cycle and pedestrian network linking the mixed use areas, enterprise areas and areas where residents live.

Requirements

AM1	Establish a hierarchy of streets that is consistent with **Figure 22**.
AM2	Develop high order streets that connect people and goods and are fixed in their alignment to ensure efficient movement. High order street can be refined and resolved with further detailed design on intersection and utility planning. Only amend the hierarchy, location or linkage with concurrence from Transport for NSW. Plan for these streets to match their role as outlined in **Table 1**.
AM3	Develop lower order streets in terms of the street hierarchy in **Figure 22** and match the identified road width to ensure consistency across the Aerotropolis as identified in **Figures 23 to 28**.
AM4	Constrain road crossings over the Warragamba pipeline and only allow them with formal approval from the WaterNSW.



Street Hierarchy and Network

Western Sydney Aerotropolis

- Primary arterial road - 60 metres
- Primary arterial road (rapid bus) - 45 metres
- Primary arterial road - 40 metres
- Sub arterial road
- Local collector
- Commercial centre high street
- Industrial street
- Local Street

Figure 22: Street hierarchy and network plan

3 Precinct Plan

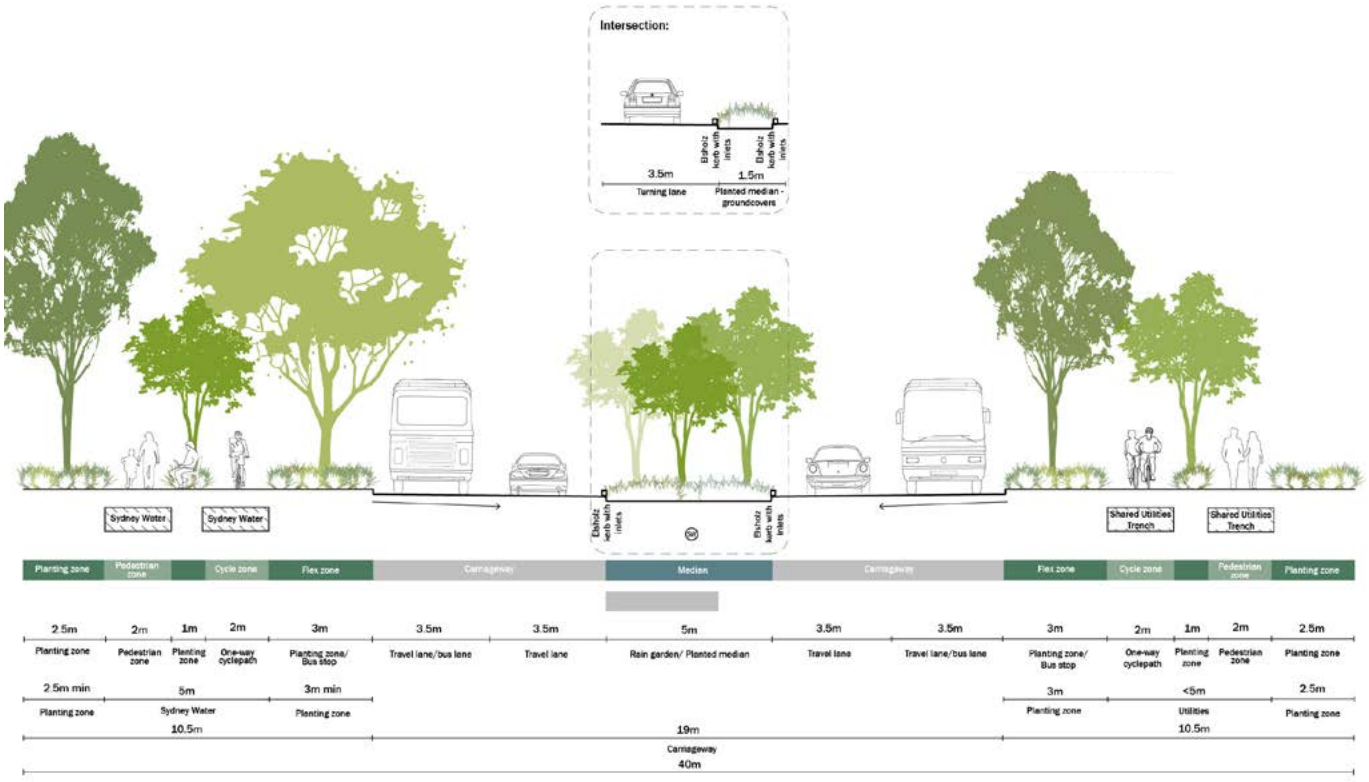
Table 1: High order road network street types

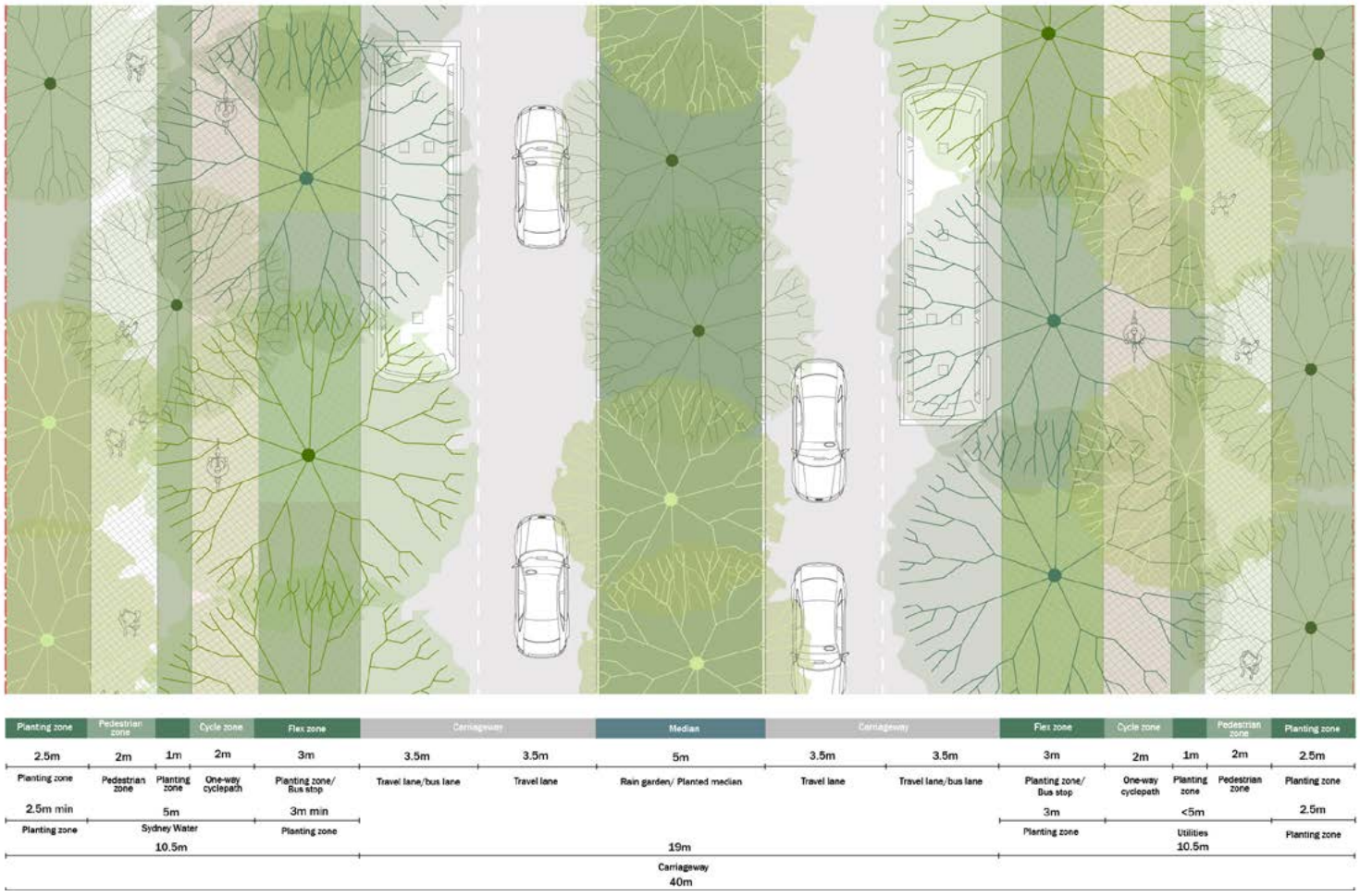
Street type	Role and modal priorities
Movement corridors	
Priority public transport corridor	Higher order road that prioritises the movement of people by public transport. Limited direct access points for private developments. Intersections mostly controlled and prioritise bus movements.
Primary arterial or arterial road (60m)	Movement corridor prioritising movement of goods and people. Roads of State and regional importance. Provides connection between places. Function as primary freight and through traffic routes, while supporting rapid bus routes at key locations. Generally two to three lanes in each direction. Limited or no direct access points from private developments. Intersections controlled and bus and freight movements prioritised. Place activity levels less intense; however, these roads and routes can have significant meaning to local people.
Motorways	Routes central to the efficient movement of people and freight. Controlled access roads with no direct access points for development. No at-grade intersections; grade-separated interchanges only.
Freight corridor	Support highest volumes of goods as generated by freight precincts and metropolitan and strategic centres. Essential to major freight movements, particularly motorways and roads that provide access to centres. As demand grows, more goods will need to be moved by rail. Influences the location of consolidation and distribution facilities given the importance of convenient access to the freight network. Facilities are often clustered around these corridors.


Global

3 Precinct Plan

Sub-arterial roads (40m)	
Function	Provide a higher order function to support freight/general traffic and efficient movement of public transport. Often form part of the frequent bus network and are generally two lanes in each direction. Can be higher order neighbourhood streets that connect arterials roads to local networks. Support public transport as well as pedestrian and cycle movement. **Figure 23** presents a typical cross section.
Principle control	Figure 23: Typical sub-arterial road cross section




Planting zone
Pedestrian zone
Cycle zone
Flex zone
Carriageway
Median
Carriageway
Flex zone
Cycle zone
Pedestrian zone
Planting zone
2.5m
2m
1m
2m
3m
3.5m
3.5m
5m
3.5m
3.5m
3m
2m
1m
2m
2.5m
Planting zone
Pedestrian zone
Planting zone
One-way cyclepath
Planting zone/ Bus stop
Travel lane/bus lane
Travel lane
Rain garden/ Planted median
Travel lane
Travel lane/bus lane
Planting zone/ Bus stop
One-way cyclepath
Planting zone
Pedestrian zone
Planting zone
2.5m min
5m
3m min
3m
<5m
2.5m
Planting zone
Sydney Water
Planting zone
Planting zone
Utilities
Planting zone
10.5m
19m
10.5m
Carriageway
40m

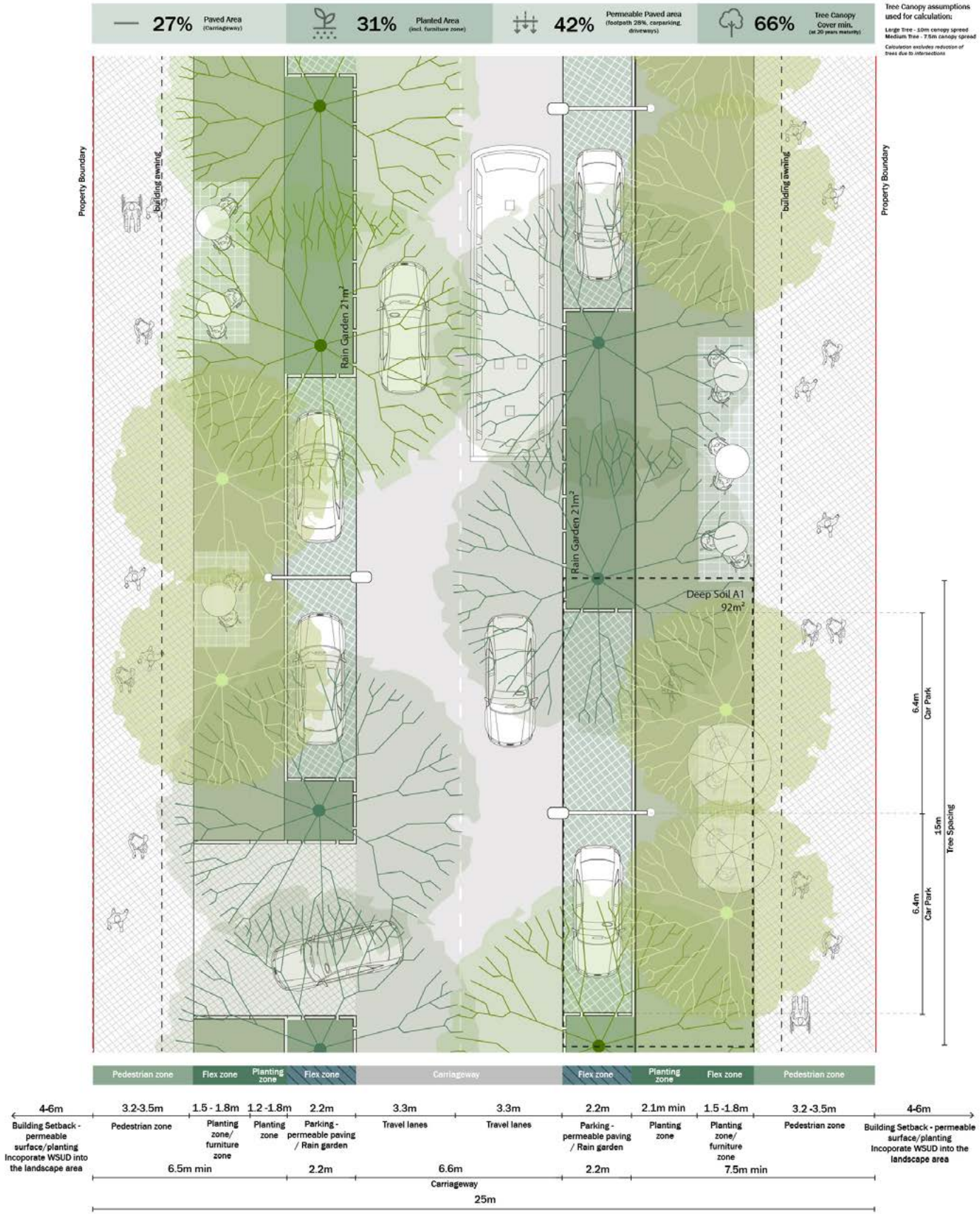
3 Precinct Plan

Local collectors (25 metres or greater)	
Function	Usually carry buses and connect to key local destinations. Function as feeders from local streets into the wider road network. Often support the local bus network, while also providing a local cycle network function. Generally, consideration of environment and local life predominate, with amenity and sustainable transport encouraged over private vehicles. **Figure 24** presents a typical cross section.
Principle control	Figure 24: 25 metre local collector


27% Paved Area (Carriageway)
31% Planted Area (incl. furniture zone)
42% Permeable Paved area (footpath 20%, carparking, driveways)
66% Tree Canopy Cover min. (at 20 years maturity)
Tree Canopy assumptions used for calculation:
Large Tree - 10m canopy spread
Medium Tree - 7.5m canopy spread
Calculation excludes reduction of trees due to intersections
Property Boundary
building awning
Rain Garden 21m²
Rain Garden 21m²
building awning
Property Boundary
9.7m Rain Garden
6.4m Car Park
15m Tree Spacing
6.4m Car Park
Pedestrian zone
Flex zone
Cycle zone
Flex zone
Carriageway
Flex zone
Cycle zone
Flex zone
Pedestrian zone
4-6m Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
3.3m Pedestrian zone
1.5m Planting zone/ furniture zone
6.1m min
2m 1-way cyclepath
0.5m Planting zone
2.2m Parking - permeable paving / Rain garden
2.2m
Flex zone
3.3m Travel lanes
3.3m Travel lanes
6.6m
Carriageway
2.2m Parking - permeable paving / Rain garden
2.2m
0.5m Planting zone
2m 1-way cycle path
1.5m Planting zone/ furniture zone
7.5m min
3.3m Pedestrian zone
4-6m Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
25m

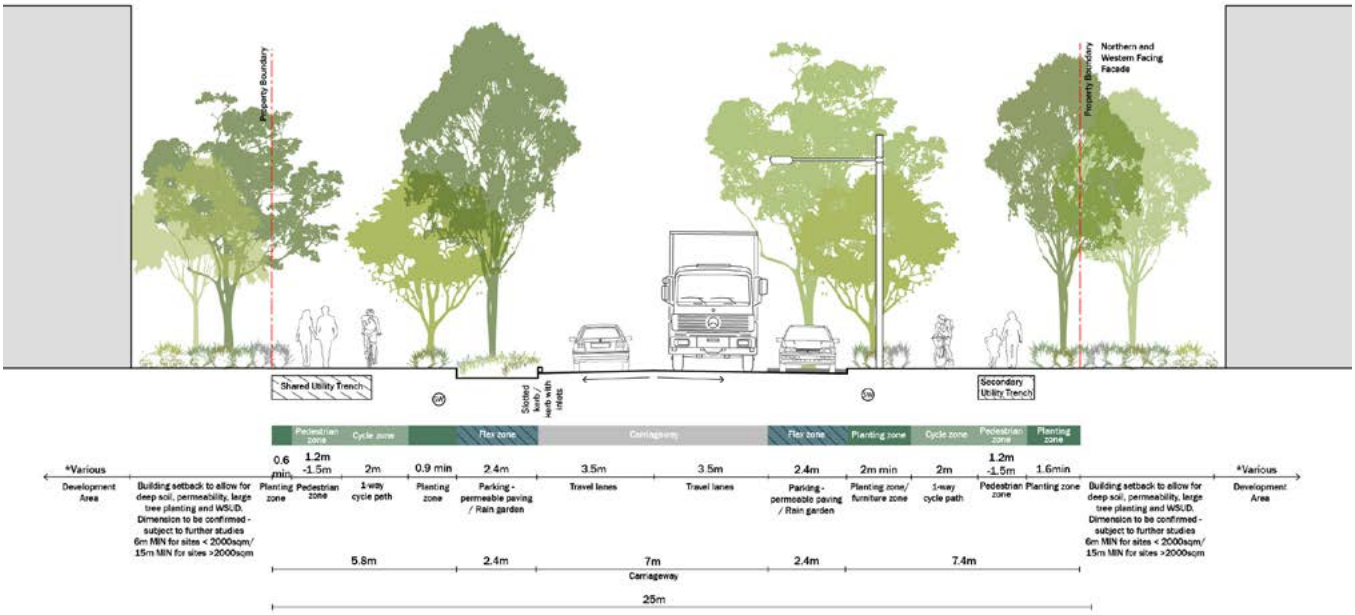
3 Precinct Plan

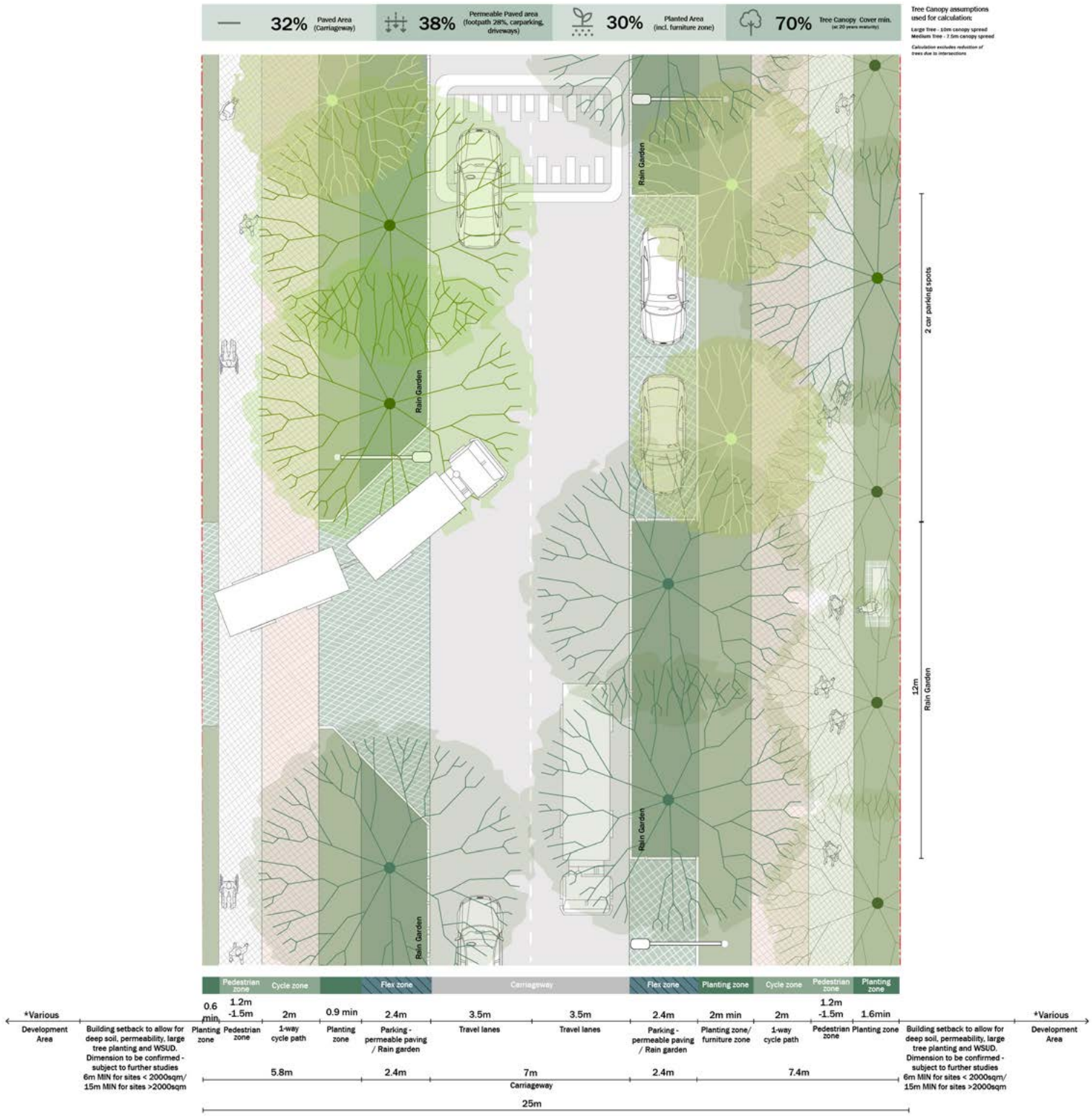
25 metre High streets - commercial centre	
Function	Predominantly applicable to commercial and mixed use centres where ground floor building uses require high quality public domain amenity and generous verge space for street activities, awnings and street trees. Sit within commercial centres, with slow-speed environments, generous verge space and quality public domain and street life. Footpaths accommodate pedestrian traffic, seating and retail spill out. **Figure 25** presents a typical cross section.
Principle control	Figure 25: Typical 25 metre high street - commercial centre


27% Paved Area (Carriageway)
31% Planted Area (incl. furniture zone)
42% Permeable Paved area (footpath 28%, carparking, driveways)
66% Tree Canopy Cover min. (at 20 years maturity)
Tree Canopy assumptions used for calculation:
Large Tree - 10m canopy spread
Medium Tree - 7.5m canopy spread
Calculation excludes reduction of trees due to intersections
Property Boundary
Building awning
Rain Garden 21m²
Rain Garden 21m²
Deep Soil A1 92m²
6.4m Car Park
15m Tree Spacing
6.4m Car Park
Pedestrian zone
Flex zone
Planting zone
Flex zone
Carriageway
Flex zone
Planting zone
Flex zone
Pedestrian zone
4-6m Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
3.2-3.5m Pedestrian zone
1.5 - 1.8m Planting zone/ furniture zone
1.2 -1.8m Planting zone
2.2m Parking - permeable paving / Rain garden
3.3m Travel lanes
3.3m Travel lanes
2.2m Parking - permeable paving / Rain garden
2.1m min Planting zone
1.5 -1.8m Planting zone/ furniture zone
3.2 -3.5m Pedestrian zone
4-6m Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
6.5m min
2.2m
6.6m
2.2m
7.5m min
Carriageway
25m

3 Precinct Plan

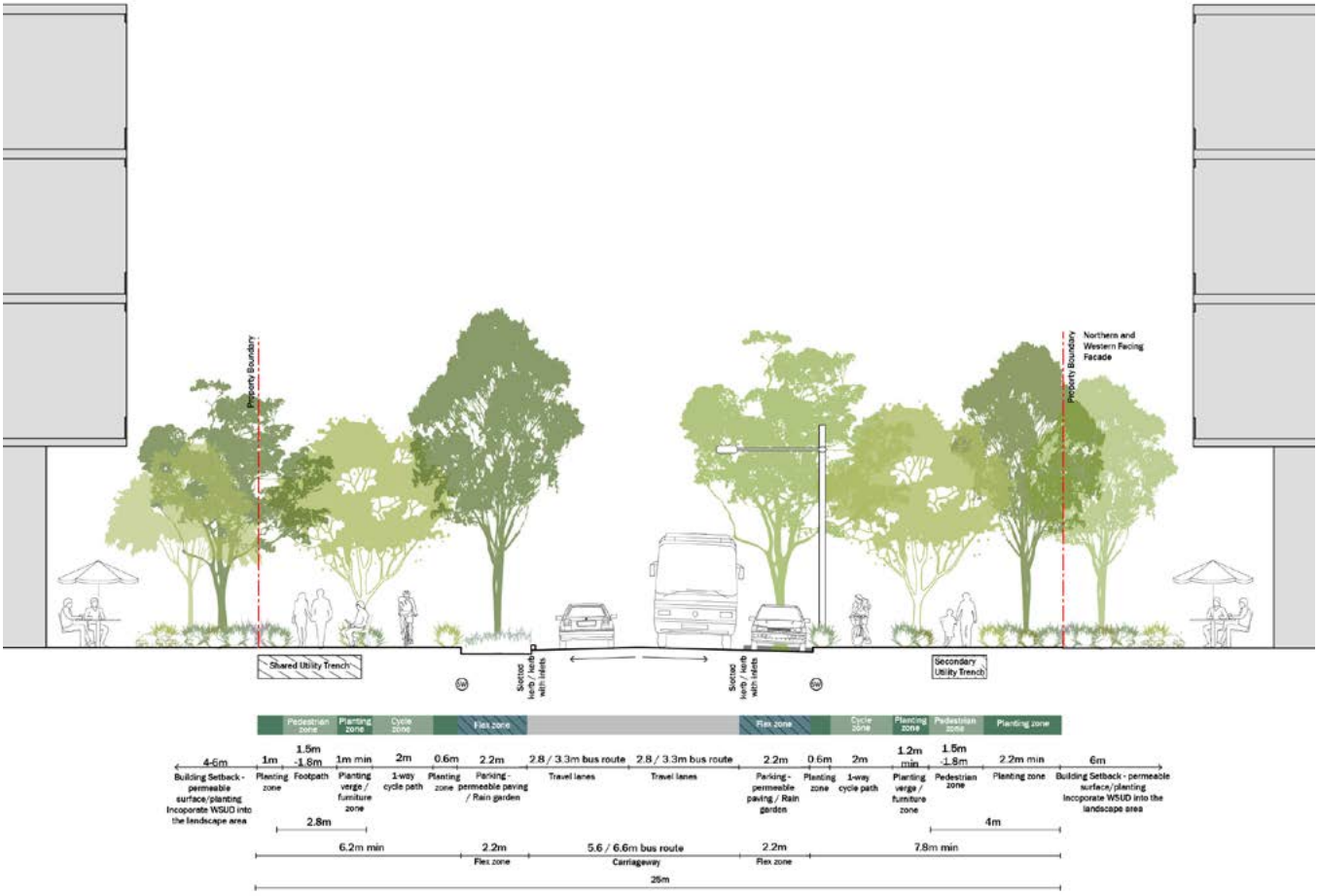
25 metre Industrial streets with cycle paths	
Function	Serve commercial and industrial precincts, with a mix of general traffic, buses and heavy commercial and industrial vehicles with particular design requirements. Sit within commercial and industrial precincts and cater for buses and other heavier vehicles. Increased widths provide for active transport and planting. **Figure 26** presents a typical cross section.
Principle control	Figure 26: Typical Industrial Street cross section




32% Paved Area (Carriageway)
38% Permeable Paved area (footpath 28%, carparking, driveways)
30% Planted Area (incl. furniture zone)
70% Tree Canopy Cover min. (at 20 years maturity)
Tree Canopy assumptions used for calculation:
Large Tree - 10m canopy spread
Medium Tree - 7.5m canopy spread
Calculation excludes reduction of trees due to intersections
Rain Garden
Rain Garden
Rain Garden
Rain Garden
2 car parking spots
12m
Pedestrian zone
Cycle zone
Flex zone
Carriageway
Flex zone
Planting zone
Cycle zone
Pedestrian zone
Planting zone
*Various
Development Area
0.6 min
Planting zone
1.2m -1.5m
Pedestrian zone
2m
1-way cycle path
0.9 min
Planting zone
2.4m
Parking - permeable paving / Rain garden
3.5m
Travel lanes
3.5m
Travel lanes
2.4m
Parking - permeable paving / Rain garden
2m min
Planting zone/ furniture zone
2m
1-way cycle path
1.2m -1.5m
Pedestrian zone
1.6min
Planting zone
*Various
Development Area
Building setback to allow for deep soil, permeability, large tree planting and WSUD. Dimension to be confirmed - subject to further studies
6m MIN for sites < 2000sqm/ 15m MIN for sites >2000sqm
Building setback to allow for deep soil, permeability, large tree planting and WSUD. Dimension to be confirmed - subject to further studies
6m MIN for sites < 2000sqm/ 15m MIN for sites >2000sqm
5.8m
2.4m
7m
Carriageway
2.4m
7.4m
25m

3 Precinct Plan

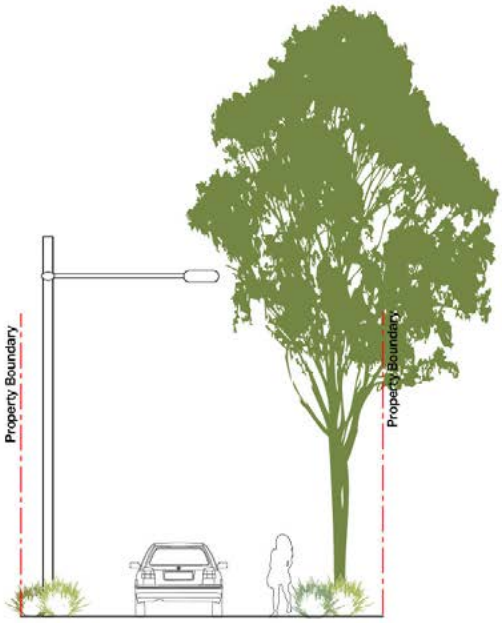
25 metre Local streets with cycle paths	
Function	Slow speed environments within residential neighbourhoods that encourage community uses and informal sharing of street space between all street users. Provide traffic calming and maximise verge space for street tree planting. Prioritise pedestrian and environmental amenity through appropriate vehicle speed limits. **Figure 28** presents a typical cross section.
Principle control	Figure 27: Typical local street with cycle paths cross section

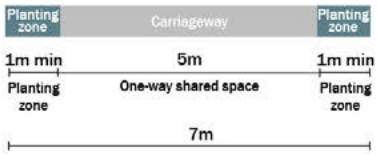



27% Paved Area (Carriageway)
41% Permeable Paved area (footpath 14%, carparking, driveways)
32% Planted Area (incl. furniture zone)
80% Tree Canopy Cover min. (at 20 years maturity)
Tree Canopy assumptions used for calculation:
Large Tree - 10m canopy spread
Medium Tree - 7.5m canopy spread
Calculation excludes reduction of trees due to intersections
Property Boundary
Property Boundary
Rain Garden 23.5m²
Rain Garden 23.5m²
Deep Soil A1 90m²
Deep Soil A2 33m2 min (123 m2 min incl. setback)
10.8m Rain Garden
6.4m Car Park
6.4m Car Park
15m Tree Spacing
Pedestrian zone
Planting zone
Cycle zone
Flex zone
Flex zone
Cycle zone
Planting zone
Pedestrian zone
Planting zone
4-6m
1m
1.5m -1.8m
1m min
2m
0.6m
2.2m
2.8 / 3.3m bus route
2.8 / 3.3m bus route
2.2m
0.6m
2m
1.2m min
1.5m -1.8m
2.2m min
6m
Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
Planting zone
Footpath
Planting verge / furniture zone
1-way cycle path
Planting zone
Parking - permeable paving / Rain garden
Travel lanes
Travel lanes
Parking - permeable paving / Rain garden
Planting zone
1-way cycle path
Planting verge / furniture zone
Pedestrian zone
Planting zone
Building Setback - permeable surface/planting Incoporate WSUD into the landscape area
2.8m
4m
6.2m min
2.2m
Flex zone
5.6 / 6.6m bus route
Carriageway
2.2m
Flex zone
7.8m min
25m

3 Precinct Plan

Laneways	
Function	Facilitate service, delivery and basement access in mixed use, commercial and town centres and could be high quality, intimate public spaces that offer a unique variation in the public life of centres or mixed use zones. Located in commercial and town centres or residential areas within mixed use zones and designed as shared spaces with low speeds. **Figure 27** presents a typical cross section.
Principle control	Figure 28: Typical retail laneway cross section





Residential Laneway - 7m

0 1 2 4m

1:100 @ A3


80% Paved Area (Carriageway)
10% Permeable Paved area (footpath 14%, carparking, driveways)
10% Planted Area (incl. furniture zone)
42% Tree Canopy Cover min. (at 20 years maturity)
Tree Canopy assumptions used for calculation:
Large Tree - 10m canopy spread
Medium Tree - 7.5m canopy spread
Calculation excludes reduction of trees due to intersections
Property Boundary
Property Boundary
Planting zone
Carriageway
Planting zone
1m min
5m
1m min
Planting zone
One-way shared space
Planting zone
7m

3 Precinct Plan

3.4 Land Use and Built Form Framework

The Land Use and Built Form Framework is informed by the land zones established in Aerotropolis Plan: Agribusiness, Enterprise, Environmental and Recreation and Mixed Use.

The Aerotropolis SEPP sets out the land use framework zones and prohibited uses only that are incompatible with the objectives for each zone. This encourages new and emerging uses in precincts such as Agribusiness that are compatible with the zone objectives.

The Aerotropolis will accommodate a hierarchy of centres, that has informed the specific planning controls for the Precinct Plan that support the land use zones and vision for the Aerotropolis. Creating a landscape-led precinct, which is not implementing business as usual, provides the opportunity to consider the typology of the street and block form, the subdivision pattern as well as the types pf open space to make the Aerotropolis a great place for workers, tourist and residents.

Planning and Design Guidelines

The following provide broad guidelines for the planning and design for the Precincts.

Principles Guidelines

1	Create a robust, legible and permeable urban structure based on the Wianamatta-South Creek Corridor, open and public spaces, and major arterial roads.
2	Respect and enhance landforms by minimising major earthworks, and maintain and enhance green ridges.
3	Adopt a landscape-led approach that locates urban amenity and activity at an interface with creek corridors.
4	Create precincts that have a distinct and diverse character.
5	Design the built form in a way that creates quality public places, including solar access.
6	Develop a built form strategy that manages the density, heights, activation and associated applicable land uses.
7	Identify the public space system (e.g. street network, open and public spaces) by creating local and regional parks, linear parks and waterways as well as conservation and biodiversity areas.
8	Connect and reserve the public space system for public use and implement this early.
9	Use precinct plans to establish clear hierarchies for: • public open space (regional, district, local) • movement networks (regional, district, local) • centres of activity.

10	Integrate built form with existing landforms, including: • retained green ridge tops • proposed built forms and civil infrastructure that minimise cut and fill • uses and subdivision patterns that respond to existing topography
11	Provide continuous public access along creek corridors as well as frequent access points to the creek corridor within the street pattern.
12	Anchor and locate public transport routes, activity nodes and social facilities to be within walking distance of main creek corridors.
13	Plan for block structures and open and public space layouts to be accommodate future redevelopment or intensification and adapt to changing land uses, densities or environmental conditions (e.g. climate change).
14	Orientate land uses towards creek corridors to activate the interface with the creek corridor.
15	Retain and enhance landscape qualities and features, and cultural and scenic landscapes.
16	Use street patterns to frame and enhance key vistas and landscape features with a preference for streets to terminate in parks, ridges, creeks or other landscape features.
17	Design open and public spaces in a way that contributes to a strong and cohesive character, diversity of spaces and sense of place in each precinct.
18	Employment and jobs should be focused around Metro stations, with mixed use residential being attracted to the jobs and supporting and providing activation in the centres.
19	Optimise employment lands to facilitate efficient and appropriately sized parcels and avoid separate isolated parcels of land.
20	Use subdivision patterns to facilitate energy efficient built forms (e.g. building orientation and building footprints).
21	Design buildings to have a well-defined address with activity on the ground floor, supporting Crime Prevention through Environmental Design (CPTED) principles and maximising opportunities for people to access the business from the street.
22	Locate higher buildings with a mix of uses around Metro stations.
23	Limit crossings over the Warragamba pipeline

3 Precinct Plan

3.4.1 Hierarchy of centres

The *Western City District Plan* identifies the Aerotropolis as a metropolitan cluster as well as includes Liverpool, Greater Penrith and Campbelltown-Macarthur. The *Western City District Plan* identifies Leppington as a Strategic Centre.

The Aerotropolis Plan identifies three main centres. The **Aerotropolis Core** centre is the primary centre of the Aerotropolis and will be the metropolitan centre. The **Northern Gateway** centre is zoned mixed use with a focus on innovation, science and technology. The Sydney Science Park is proposed to be a 'specialised centre'.

Luddenham Village is a distinctive centre with a significant history within the Agribusiness Precinct. It is designated as a local centre and identified as a 'key site' in the Aerotropolis SEPP and *Western Sydney Aerotropolis: Urban Design and Landscape report* to accommodate its existing or new small scale residential uses.

Other centres in the Aerotropolis will be 'local' centres or neighbourhood business hubs/centres. Local centres provide the goods and services for where people live and work, yet only a few centres in the Aerotropolis will be suitable for residential uses.

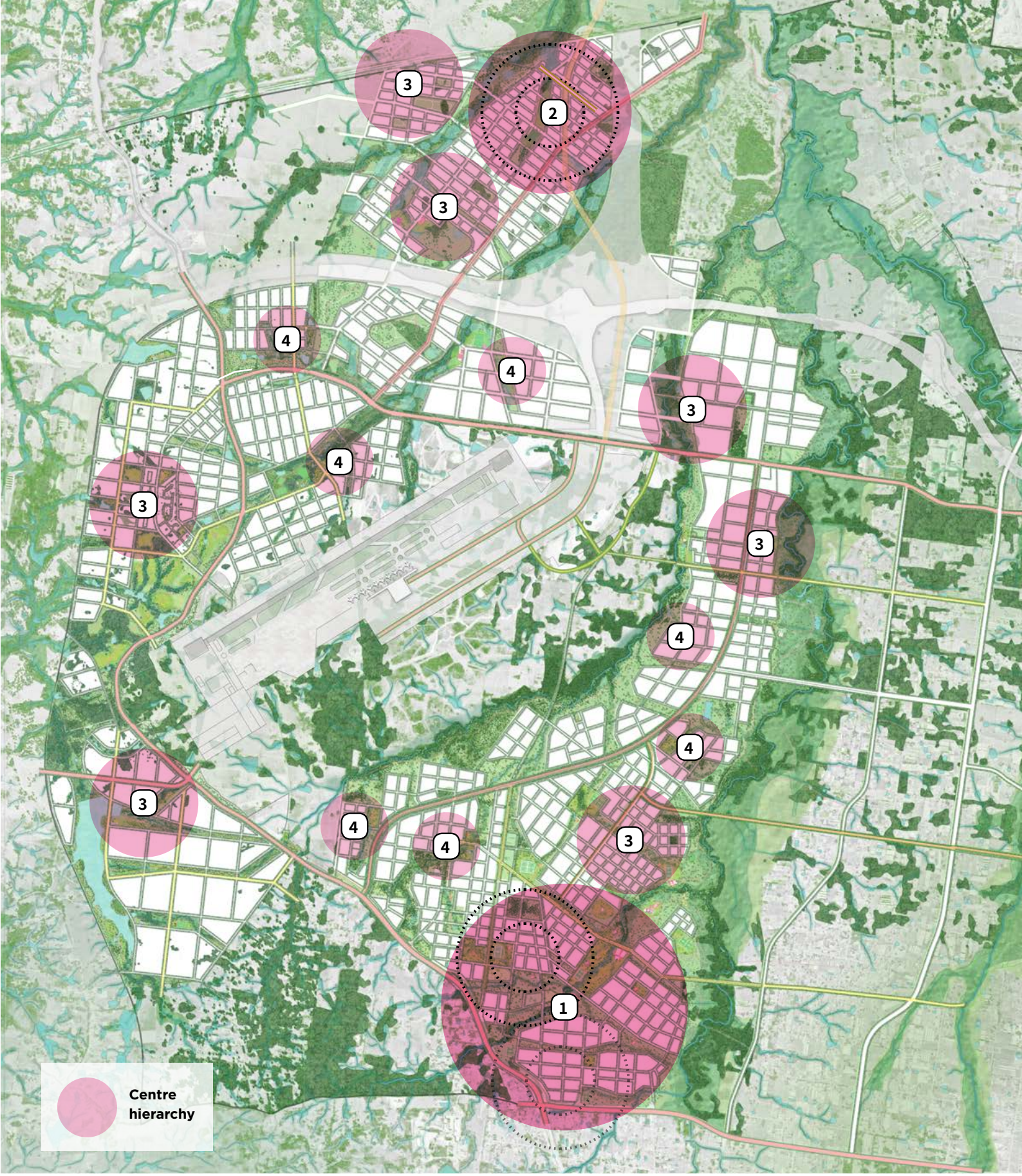
Objectives

LUO1	Develop, support and safeguard a hierarchy of centres to create a 30-minute Western Parkland City with metropolitan, specialised, local and neighbourhood centres.
LUO2	Locate a hierarchy of centres in the Aerotropolis that complements the Airport and considers the economic viability and impacts on existing and proposed centres.
LUO3	Identify the Aerotropolis Core and the specialised centre in the Northern Gateway as higher order centres with social infrastructure and higher employment and residential densities.
LUO4	Locate local and neighbourhood centres in areas of high amenity linked to public transport.
LUO5	Link all centres to, and prioritise, active and public transport access over private vehicles.
LUO6	Suitably space local centres to provide sufficient services to enable walkable residential and working communities.
LUO7	Ensure sufficient distance between existing and proposed centres to ensure economic viability.

Requirements

LU1	Locate centres as identified in **Figure 29**; or ensure the location achieves the role, intent, uses, transport connectivity and locational criteria outlined in **Table 2**.
LU2	Follow the hierarchy of centres within the Aerotropolis outlined in **Table 2** on the following pages.
LU3	Concentrate retail and social infrastructure development to the identified hierarchy of centres to support activity in centres and trip containment.
LU4	Locate bulky good and specialised retail that requires larger floor plates outside of the identified centres and in accessible areas on a collector or an arterial route.

Figure 29 (overleaf): Hierarchy of centres



1. Metropolitan centre – A Metropolitan Cluster or Aerotropolis Centre acts as a regional-scale mixed-use centre focusing on retail, services and business activity, serviced by a metro station.
2. Specialised centre/ precinct – strategic innovation and focused on an employment verleafgenerator or theme - and contains a metro station.
3. Local centre – local convenience and a mix of uses, but does not have to include residential. Smaller scale and more local convenience
4. Neighbourhood hub – the District plan refers to employment activity hub or indigenous business hub. In the enterprise zone this could be a hub of business, with community facilities.

3 Precinct Plan

Table 2: Hierarchy of Centres

Centre type	Role and intent	Typical uses	Transport connectivity	Critical locational criteria
Metropolitan centre Aerotropolis Core	Part of the metropolitan cluster and includes multi use purposes for a diversity of uses and a full range of community uses.	Commercial office development; employment; multiple supermarkets and department stores; higher order services; social infrastructure, including health and education services; creative and cultural uses; residential development that creates residential density but ensures capacity for employment	Located central to the Metro train station, and includes a bus interchange High levels of public and active transport accessibility	Located around metro/mass transit nodes and highly accessible areas Part of a mixed use precinct and contains a regional park. Initially focused around 800m of the Metro to Thompsons Creek, and over time (in stages) will extend east of Thompsons Creek as employment and residential densities increases.
Specialised centre/precinct Northern Gateway	Strategic innovation centre focused on an employment generator. A focal point for public transport and interchanges. A diverse mix of land use and vary in size, with commercial, office development, and innovative employment opportunities	Business, office, industrial, employment focus with a specialised focus e.g. agribusiness, defence, aerospace, health and education; specialty retail, supermarkets and bulky goods; social infrastructure; Residential uses as shop top housing or multiple dwellings to support employment uses.	High levels of public and active transport accessibility and connectivity to green corridors	Provide a specialised land use focus, whether health and education or aerospace and defence as an agglomeration of uses, supported by other mix of uses, including residential to create a living population.

Centre type	Role and intent	Typical uses	Transport connectivity	Critical locational criteria
Local centres Type: Badgerys Creek, and others Luddenham Village* (a unique local centre - see below)	Smaller retail centres that meet the convenience retailing needs of the community while acting as a local gathering place, particularly for employers/ employees. Include a mix of uses, but do not have to include residential uses. Provide fine grain urban form. Protect or expand employment opportunities, and integrate and support creative enterprise Located in areas of high amenity to help activate parkland corridors and link to public transport	Retail facilities, specialty shops and a supermarket or large grocery story; personal services; co-location with social infrastructure (community facilities and open space); smaller scale mix of uses supporting industrial, office and employment uses with a diversity of commercial spaces, community and public places	Active transport infrastructure that supports frequent trips to access goods and services, within and between centres and to green corridors. High level of pedestrian accessibility from surrounding development, provision of bus access, drop off points and car parking between buildings and the street	Located approximately 1.5km apart and adjacent to areas of open space. Ideally located on a frequent public transport spine.

3 Precinct Plan

Centre type	Role and intent	Typical uses	Transport connectivity	Critical locational criteria
Luddenham Village	An existing village that will support the Agribusiness Precinct and broader Aerotropolis. Transformed into an agri-village close to fresh food markets and high value agricultural operations. Historic elements revitalised to better suit the needs of the existing and emerging as well as visitors.	Support services as well as places for cultural activities, tourist facilities and uses, research facilities, retail, commercial, agribusiness uses, visitor accommodation and existing residential	The old Northern Road through Luddenham Village is transformed into a green boulevard. Truck movements are limited.	Luddenham Village is an existing local centre.
Neighbourhood centres or business hubs	Provide daily convenience goods and small range of services to support workers and include	Some retail floor space (not a supermarket, or significant specialised retail); multiple retail premises (not just a petrol station or one standalone store); activity or business hub; community facilities. Does not include residential uses.	Focus for bus network High level of pedestrian accessibility from surrounding development, provision of bus access, drop off points	Located adjacent to areas of open space. Ideally located on a frequent public transport spine. Location must consider the barrier impacts of major roads and different sizes

3.4.2 Land use and built form

Objectives

LUO1	Provide a range of employment across the Aerotropolis with other mixed uses such as residential, community, social and open space to meet the residential, working and visitor demand, specific to place.
LUO2	Achieve the objectives of land use zones, by providing the requirements for the type and location of land uses to achieve the Aerotropolis vision, including creating a 24/7 centre.
LUO3	Design a built form (height and footprint) that: • matches the character of the place • allows smaller footprints on steeper land to minimise soil disturbance and character of topography • contributes to the public domain • allows solar access to public places • is of an appropriate scale to creek interfaces • transitions to heritage and other places of significance • facilitates sustainable forms of transport and amenity • protects the importance of employment uses in the longer term • accommodates appropriate pervious surfaces to contribute to the management of urban stormwater and provide space for trees on lots and in streets.
LUO4	Incorporate a height and density appropriate to centre hierarchies to optimise accessibility, with the: • highest built form and densities in major centres served by Sydney Metro • moderate built form and densities in local centres in scale with its surrounds • appropriate densities close to frequent transport within walking distance of blue-green infrastructure.
LUO5	The maximum height (including temporary structures) should comply with any OLS requirements, and the OLS controls overrides any other height controls or guidelines in the documents.
LUO6	Locate high intensity employment/jobs and higher densities in particular close to Metro stations, but also adjacent to creeks and open space
LUO7	Consider wildlife attraction when determining the appropriate location and type of new land uses within the Aerotropolis to manage the risk of collisions between wildlife and aircraft. Certain high risk wildlife attracting uses have been identified within the Aerotropolis SEPP and will not be permitted. Other high risk uses will only be allowed where it can be demonstrated that adequate mitigation measures can be implemented.
LUO8	Design built form to optimise the retention of urban stormwater within the urban environment to reduce the need for end of pipe infrastructure and protect waterway health values and objectives.
LUO9	Provide for the continuation of existing uses, including residential dwellings, in Luddenham as part of a Key Site.
LUO10	Create Thompsons Creek as a regional recreation and leisure destination for workers, tourists and residents, while providing a critical ecological corridor.

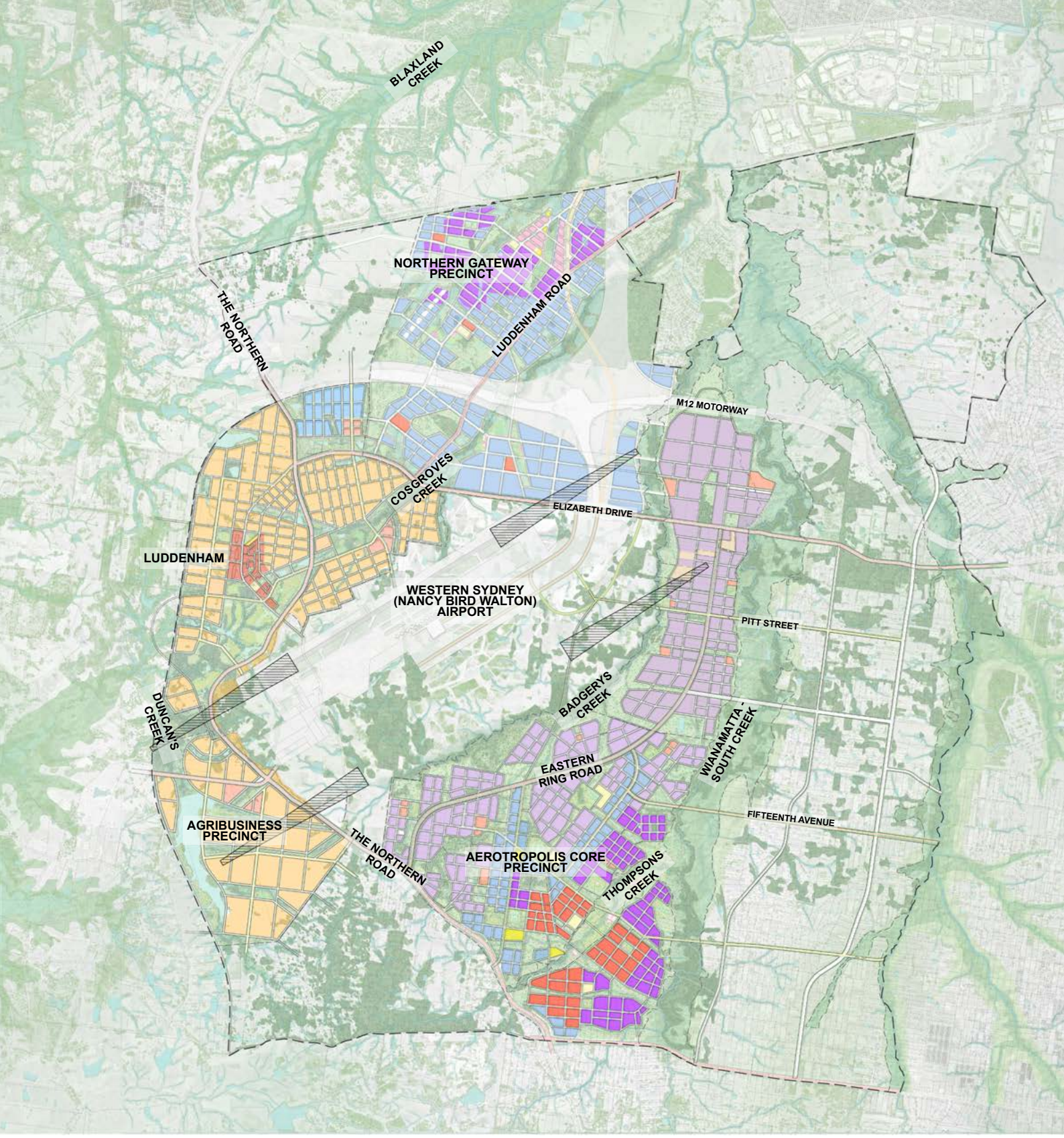
3 Precinct Plan

Requirements – all precincts

LU1	Provide the types of permissible uses in general consistency with the locations of the land uses included in each precinct as shown on the Combined Land Use Plan (**Figure 30)**.
LU2	Prioritise mixed use employment and residential development within 800m of the Metro station; if residential is outside of 800m, co-locate with areas of high amenity e.g. local centre with frequent public transport or open space.
LU3	Master planning around the Metro stations will need to evolve in response to Sydney Metro detailed design and include staging to accompany delivery of development over time.
LU4	Create neighbourhood centres or business hub centres in the Enterprise Zone with worker amenity within 400m of where they are shown in the Combined Precinct Land Use Plan, with agreement by Council.
LU5	Apply Enterprise and Light Industry Zones to provide flexibility for low density industrial uses in initial developments, with the land to transition over time for more dense employment.
LU6	Provide a minimum of 5% affordable housing in any mixed use development
LU7	Achieve the locational criteria of particular social and public domain uses (such as education, open space, drainage and conservation) as well as neighbourhood and local centres
LU8	Use the landscape-led approach to ensure built form is orientated to the blue-green infrastructure, particularly close to public transport.
LU9	Create open space network from ridgelines down to Wianamatta-South Creek Corridor and Badgerys Creek through linear parks ensuring visual connection from Thompson Creek to the hilltops.
LU10	Ensure built form is appropriate for its use and ensure natural cross ventilation, improved internal thermal comfort and reduced reliance on air conditioning.
LU11	Provide for high quality architectural and design outcomes which take cognisance of the topography and site characteristics and require buildings to face and activate creek lines, contributing to the character of the Precinct

Requirements – Aerotropolis Core

LU12	Prioritise mixed use employment and residential development within 800m of Metro stations; if residential is located outside 800m, co-locate with areas of high amenity e.g. local centre with frequent public transport or open space.
LU13	Use the Kelvin Park Homestead site as a residential mixed use or public use, such as a future education, tourism or community land use, unless otherwise agreed by the consent authority.
LU14	Develop land adjacent to Wianamatta-South Creek and Thompsons Creek as a regional park.
LU15	Create a civic square and space within the city centre.



Combined Land Use Plan

Western Sydney Aerotropolis

- Airport public safety areas
- Commercial centre - mixed use
- Enterprise centre
- Business and enterprise
- Mixed use residential
- Agribusiness
- Enterprise and light industry
- Education
- Indoor Recreation and Community
- Airport uses
- Specialised centre mixed use
- Creek lines

Figure 30: Combined Land Use Plan

Requirements – Agribusiness

The Agribusiness Precinct can be a place that connects local producers and manufacturers with interstate and overseas markets, due to its proximity to the airside cargo terminal. An Integrated Logistic Hub could enable a safe, secure, and seamless speed-to-market delivery of products. It should be supported by technology to assist supply chains in delivering efficiency, resilience and enhanced visibility. Connectivity to other freight terminals, rail and road networks is also critical.

Initial criteria to inform the selection of a suitable site include supply chain connectivity, future capacity, operational suitability, environmental and community impact, and ease of implementation, including cost. Further consultation with stakeholders and industry partners will inform the planning to ensure the ILH has sufficient space to grow, access to utilities and world leading technologies, and is future proofed against encroachment.

LU16	Luddenham Village local centre should be a gateway area to the Aerotropolis especially when entering from the direction of the OSO.
LU17	Intensive Food production is to be supported on the large land holdings in the northern area of the Precinct.
LU18	Provide for agricultural value-added industries and freight and logistics facilities particularly in areas where they can gain access to the Outer Sydney Orbital and access to the Airport.

Investigations are underway to identify the most efficient transport network for Agribusiness Precinct, including freight rail connections to the Outer Sydney Orbital.

Artist impression of
Luddenham Village

3.4.3 Height

Objectives

LUO1	To design building heights to align with the role of each centre, its typology and residential/employment density.
LUO2	Apply the greatest height and urban density in the Aerotropolis Core and Northern Gateway around the Metro station

Requirements

LU1	Ensure maximum height of buildings including construction activity does not encroach into the Obstacle Limitation Surface (OLS), and the OLS controls overrides any other height controls or guidelines in the documents
LU2	Apply the maximum height of buildings as illustrated in the Precinct Plan, and as shown in **Table 3**
LU3	Ensure development on land within each precinct demonstrates that it has satisfied that: a. building heights will not adversely impact on the amenity of the public domain and adjacent residential areas in mixed use zones b. Site topography has been considered.
LU4	Within the Agribusiness Precinct, maintain landscape vistas and character by limiting height to within tree canopy heights and to avoid blocking key vistas.

Table 3: Maximum heights of buildings

			Aerotropolis	Badgerys Creek	Northern Gateway	Agribusiness
			Maximum Height (metres above ground level)	**Maximum Height (metres above ground level)**	**Maximum Height (metres above ground level)**	**Maximum Height (metres above ground level)**
Mixed Use	**Centre – Metropolitan**	**Core**	55 - 70	-	-	-
		Frame (area that supports the core)	40 – 52.5	-	-	-
	Centre – Specialised	**Core**	-	-	30 - 45	-
		Frame (area that supports the core)	-	-	20 - 27	-
Enterprise / Agribusiness	**Luddenham Village**		-	-	-	Existing height controls
	Centre – Local		24	24	20-27	10 - 20
	Centre – Local Employment		24	24	20-27	10 - 20
	Enterprise / General Employment		24	24	20	10 - 20

Note: Notwithstanding maximum heights, all buildings and structures, including equipment used during construction (such as cranes) are required to be contained within Obstacle Limitation Surface (OLS) limits established in the Western Sydney Aerotropolis Plan.

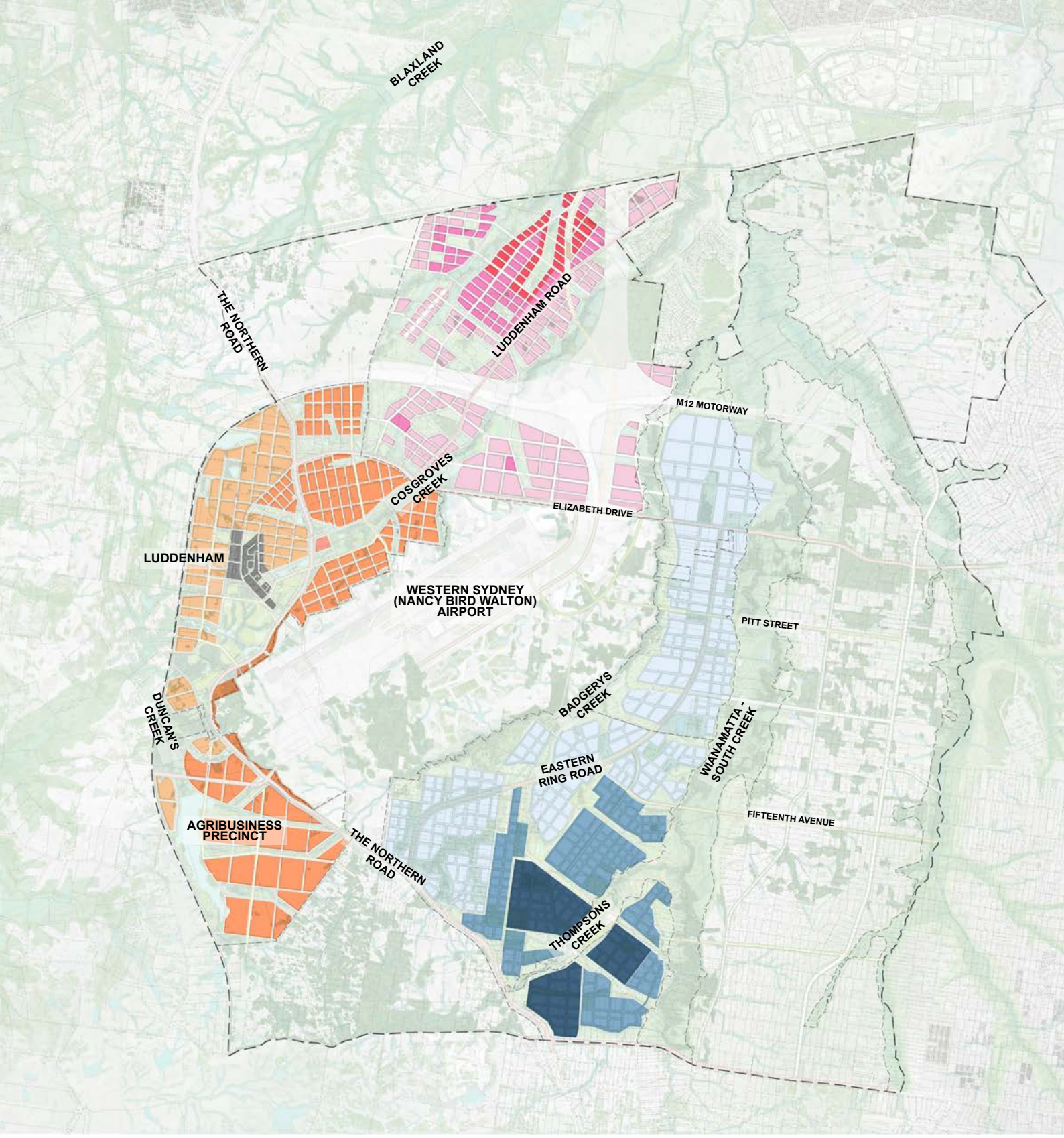


Figure 31: Height Plan

3.4.4 Floor space ratio in mixed use centres

Floor space ratio (FSR) controls apply to development across the Mixed Use Zone. They are based on the desired built form outcome, employment and population targets, and the need to ensure appropriate bulk, massing, articulation and separation of development within the mixed use areas of the Aerotropolis.

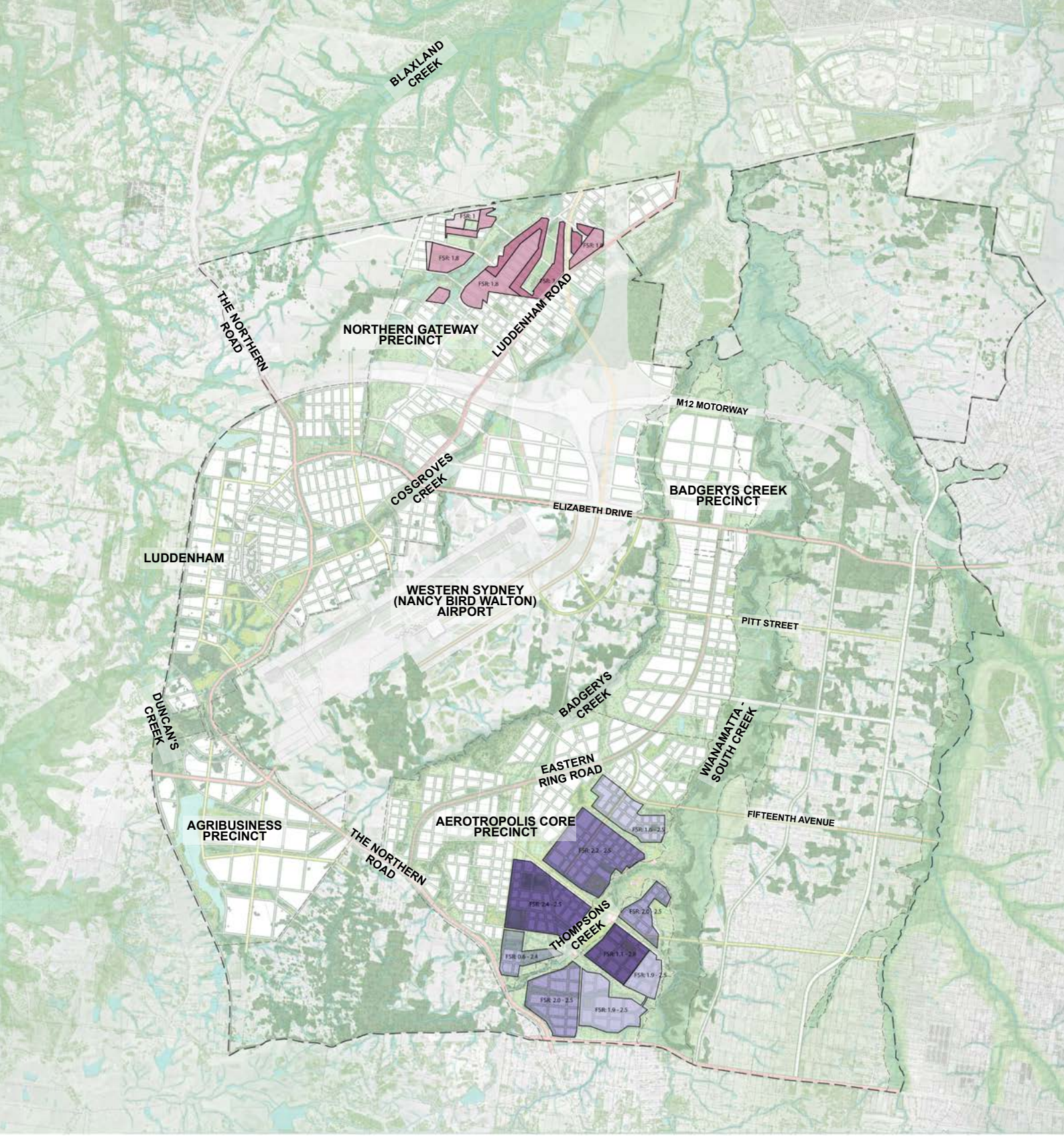
Objectives

LUO1	Apply FSRs to Mixed Use Zone areas to achieve the appropriate mix of employment, business, social and residential development.
LUO2	Achieve a density of employment in mixed use areas to ensure residential uses are not the predominant use.
LUO3	Locate higher intensity mixed use employment and residential densities within 800m of the Metro station.

Requirements

LU1	Apply the maximum FSR for the Aerotropolis Core as it complies with the Phase 1 DCP (until superseded by the Phase 2 DCP) in relation to bulk, mass, articulation and adequate separation of buildings, demonstrated as follows and as shown in the **Figure 32**, and as outlined below: Aerotropolis City Centre • Metropolitan Centre - FSR range 3:1 – 3.5:1 (net over a block) • Centre – FSR range 2.5:1 – 3:1 • Frame Area: FSR range from 1.5:1 – 2.5:1 Northern Gateway Specialised Centre • Specialised Centre - FSR range 1.8:1 – 3:1 (net over a block) • Local Centre – FSR range 1.8:1 • Frame Area: FSR range from 1.0:1 – 1.8:1
LU2	Stage residential development in the Aerotropolis Core and Northern Gateway Mixed Use Zone should occur in association with the achievement of floor area related to employment. When the employment floor area in the Mixed Use Zone is greater than 10,000sqm one residential dwelling for every 50sqm of employment floor area can be provided. See **Table 4** under Yield and density for guidance.
LU3	Development for the purpose of residential accommodation on land at Sydney Science Park should not result in the total number of dwellings and lots used for the purpose of residential accommodation on land at Sydney Science Park exceeding 3,400.
LU4	Any additional floor space capacity that may result from the Aerotropolis Metro Stations will require a detailed transport study during master planning to demonstrate the movement network can function to standards satisfactory to Transport for NSW the approval authority.

Note: In some locations (especially close to runways and the like), height limits of developments will need to be checked against the heights of the Obstacle Limitation Surface to maintain the airport's protected operational air space.



Floor Space Ratio Plan

Western Sydney Aerotropolis

- 3.0 - 3.5
- 2.5 - 3.0
- 1.5 - 2.5
- 1.8 - 3.0
- 1.8
- 1.0 - 1.8

Figure 32: Combined Floor Space Ratio Map

3.4.5 Yield and density framework

Objectives

LUO1	Provide a mix of uses in the Mixed Use Zone, which supports employment and residential uses, and ensure employment densities occur concurrently with residential development.
LUO2	Achieve the average employment density per hectare per precinct in the Enterprise and Agribusiness Zones.

Requirements

LU1	Provide a mix of uses in the Mixed Use zone at a rate which supports employment to occur concurrently with residential development.
LU2	Approve residential uses within the Residential Mixed Use in a staged manner linked to the achievement of the 2036 employment target for the entire Mixed Use Zone. , as identified in **Table 4** below. (Atlas Economics 2020, pg61)
LU3	Achieve employment targeted densities per precinct, unless supported with a written justification on the type and number of direct and indirect jobs, as outlined in **Table 4**.
LU4	Outline if employment uses around Metro stations in the Aerotropolis Core and Northern Gateway can provide additional yield capacity, in particular for jobs.
LU5	Smaller site development applications should justify and demonstrate achievement of densities of employment as outlined in Western Sydney Aerotropolis Market Analysis and Economic Feasibility report.

Table 4: Guideline for employment density

Precinct	Jobs/hectare
All Precincts	City Centre: 130 – 400 jobs/ hectare Urban Services: 25 – 35 jobs/ hectare Office Park: 130 – 250 jobs/ hectare Campus Style Business Park: 75 – 130 jobs/ hectare General Industrial: 25 – 30 jobs/ hectare Large Logistics: 18 – 25 jobs/ hectare Education/ Community: 30 – 50 jobs/ hectare High Density Residential/ Mixed Use: 100 – 150 persons/ hectare Medium Density Residential Mixed Use: 35 – 85 persons/ hectare
Agribusiness	For Agribusiness zone, the employment density for Large Logistics: 10 – 30 jobs/ hectare

3.4.6 Urban typologies

A landscape-led approach integrates landscape and urban development. This will achieve higher land use efficiencies by co-locating uses such as recreational open space and conservation areas. Urban typologies reflect a place-based approach and ensure that the environmental performance requirements are appropriate to the various development types.

Urban typologies are areas net of the following:

- 1% AEP areas of flood
- regional open space and playing fields
- major infrastructure, motorways and regional roads
- riparian areas
- areas of high biodiversity value for conservation.

Urban typologies in the Initial Precincts are:

Major centre – mixed use – includes commercial, retail, community cultural, visitor, high density residential uses.

Minor centre – non-residential/mixed use – includes some commercial, local employment, local services, medium density residential uses (only in mixed use developments).

Employment – business and light industrial – includes lower density business uses with or without associated warehouse, production, smaller scale warehousing, ancillary uses.

Employment – large footprint industrial – includes logistics, larger scale warehouses, production.

Objectives

LUO1	Retain water in the landscape and irrigate tree canopy to support urban cooling within an individual lot, super lot area as well as a master plan scale.
LUO2	Contribute to the broader integrated water management strategy
LUO3	Integrate development, landscape and water cycle management.

Requirements

LU1	Adopt urban typologies and permeability outcomes as described in **Table 5**, which may also require other permeability and stormwater measures to achieve the requirement.
LU2	Achieve the permeability outcomes set out in Section 3.6.3, **Table 5**, to support the overall environmental performance requirements.
LU3	Consider varying permeability outcomes in individual lots, streets and open space within the urban typology to better achieve the overall typology outcome.

3 Precinct Plan

Acceptable solutions to site coverage and permeable areas are provided in the table below.

Table 5: Urban typologies – acceptable solutions

Urban typology	Lot requirements			Typology elements					
	Site Cover	Permeability		Lot area		Streets		Open space	
				% of Overall Area	Perme-ability	% of Overall Area	Perme-ability	% of Overall Area	Perme-ability
High density mixed use centre	60%	40%	Base scenario	50%	35%	35%	35%	15%	90%
			Alternative	58%	30%	32%	35%	20%	90%
Medium density mixed use centre	50%	50%	Base scenario	55%	50%	30%	35%	15%	90%
			Alternative	58%	35%	32%	38%	20%	90%
Employment – business and light industrial	60%	40%	Base scenario	55%	40%	30%	30%	15%	90%
			Alternative	55%	30%	30%	30%	20%	90%
Employment - Large format industrial	70%	30%	Base scenario	60%	30%	25%	35%	15%	90%
			Alternative	65%	15%	20%	35%	15%	90%

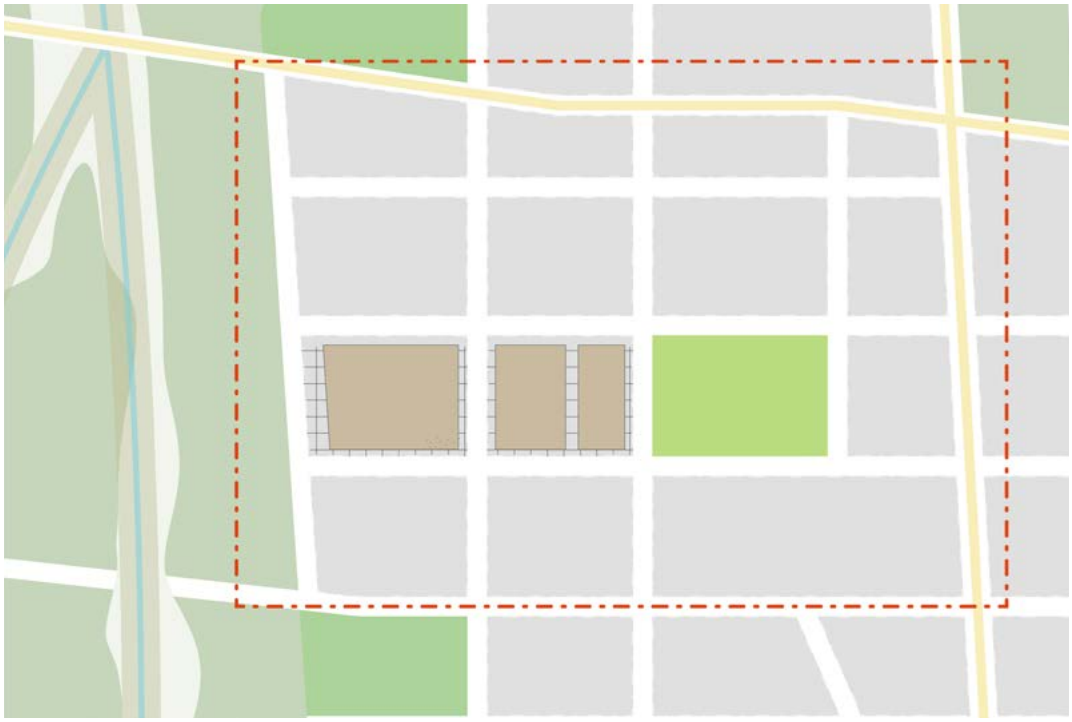


Figure 33: An example of Employment - Large Format Industrial typology

Typologies to Achieve the Parkland City

The concept of an Urban Typology has been developed as part of the 'Beyond Business as Usual' vision of the Western Parkland City. A landscape led approach integrates landscape and urban development so work together. This approach also achieves higher land use efficiencies by co locating uses such as recreational open space and conservation areas.

Urban areas will play an important role in urban cooling by ensuring there is sufficient areas of tree canopy and water to sustain the landscape. Urban Typologies are areas of urban development comprising the range of uses typical of the place.

Urban Typologies explore how development can achieve the Parkland City benchmarks of permeable area and canopy cover, at a range of scales:

- from an individual lot (or amalgamated lots);
- a super lot large enough to create a public domain of streets and public open space;
- or at a large master plan or sub precinct scale.

The more land is amalgamated the more flexibility there is for development footprint:

- the public domain can work harder
- individual lot requirements can be simpler

This reflects a place-based approach and ensures that the environmental performance requirements are appropriate to the various development types. A one size fits all approach won't work.

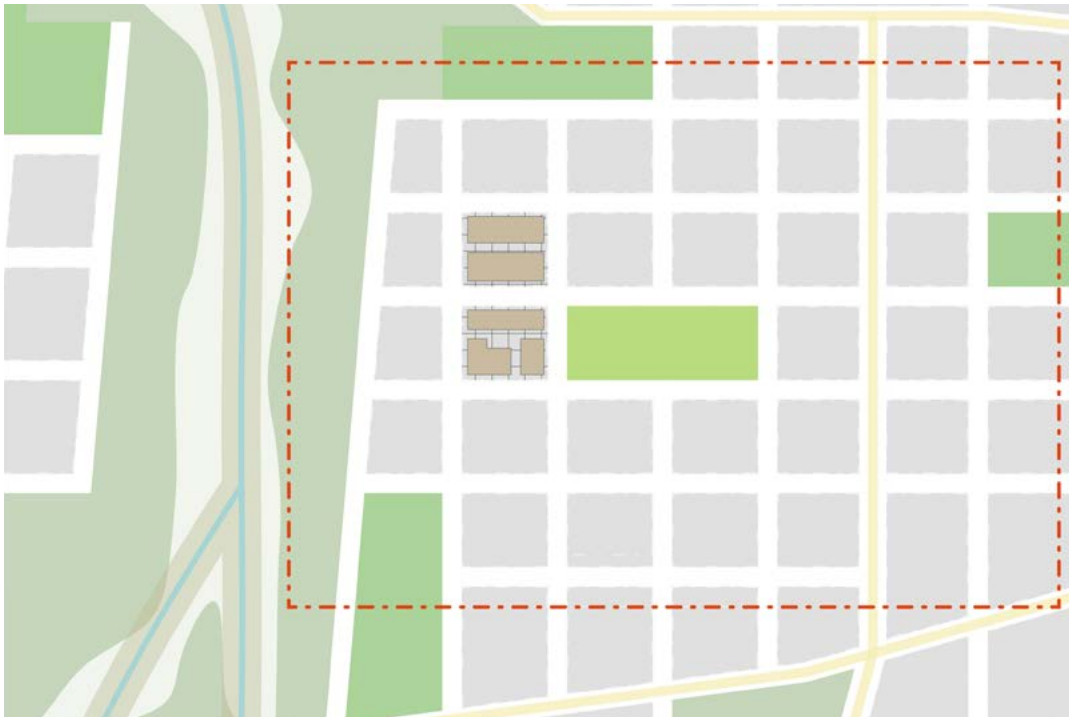


Figure 34: An example of High Density Mixed Use Centre typology

3 Precinct Plan

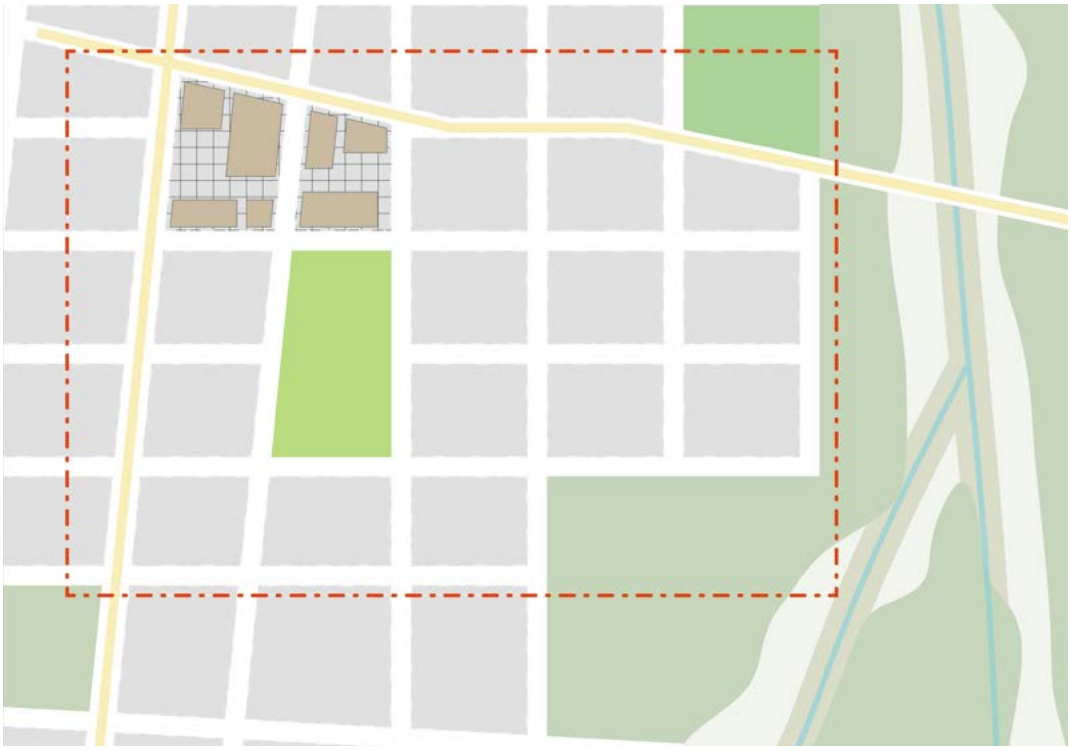


Figure 35: An example of Medium Density Mixed Use Centre typology

Figure 36: An example of Employment – Business and Light Industrial typology

3.4.7 Evolution or temporal land use and development

The evolution of land uses and development will occur as the Airport matures, development occurs and precincts become more attractive to new workers, businesses and residents.

Objectives

LUO1	Allow flexibility for development and land uses to evolve as precincts mature and the Airport consolidates within the Aerotropolis.

Requirements

LU1	Continue to apply existing use rights where current land uses are lawfully established with development consent.
LU2	Respect current land uses, scale and character in Luddenham Village, in the area identified as a Key Site in the Aerotropolis SEPP.
LU3	Permit residential flat buildings and attached dwellings with some residential at ground floor in the Mixed Use Zone beyond 1,200m of the Metro station in the shorter term to support early uses. On this basis, the ground floor of these developments shall all have a higher floor to ceiling height to allow for conversion from residential to employment uses at a later stage.
LU4	Do not allow future urban and employment development land uses to alienate the land or result in further fragmentation of land holdings.
LU5	Allow land within 200m of the Aerotropolis Core Metro Station to include temporary and/or adaptable commuter car parking in initial stages.
LU6	Allow low rise mixed use residential to be converted or redeveloped in the longer term to achieve the vision of the Mixed Use Zone.
LU7	Sydney Science Park is already rezoned and has current approvals. Future application needs to comply with the Precinct Plan and master plan.
LU8	Extractive industries should provide a plan of management to demonstrate the management of land use conflicts with adjacent uses during the transitional period.

3.4.8 Subdivision and block structure

A sustainable walkable precinct structure requires subdivision patterns and block sizes that facilitate active transport and encourage local trips on foot. The subdivision pattern is to facilitate efficient public and active transport routes between original and destination places. A 'finer grain' block pattern is required in areas of high pedestrian traffic in particular close to mass transit and high-density employment and mixed-use density. Whilst larger block pattern is required in the enterprise and agribusiness precincts.

Objectives

LUO1	Integrate landscape and urban development in the subdivision to achieve high land use efficiencies, co-location of uses and the required pervious, appropriate permeability, landscape tree canopy and open space areas.
LUO2	Enable the block and street needs to suit the various land use and development types.
LUO3	Design lots that respond to the natural topography and street pattern of the precinct.
LUO4	Ensure block sizes facilitation good pedestrian and active transport connectivity.

Requirements

LU1	Ensure subdivision layout and block sizes generally accord with **Table 6**.
LU2	Design block structure to ensure efficient public transport routes

Table 6: Maximum block sizes

Land Use	Subdivision Block Size
Mixed use centre	Maximum 150x150m
Employment zone centres	Maximum 150x150m
Business uses	Maximum 150x150m
Light industry enterprise	Maximum 150x150m
High density residential mixed use	Maximum 150x150m
Medium density residential mixed use	Maximum 150x150m
Community infrastructure and schools	Maximum 150x150m
Agribusiness (outside centres including local)	Maximum 350 x 350m
Enterprise zone (outside centres including local)	Maximum 350 x 350m

3.4.9 Open Space Typology

Open space typologies in the initial precincts are:

- **Regional Parklands along Wianamatta-South Creek and Major Creeks:** regional and alluvial parklands are the core ecological corridors. These parklands include active recreation and community amenities of a regional and district character outside of the 1% AEP floor extent.
- **Riparian / Linear Parklands:** linear parklands are generally formed along tributary, often ephemeral creeks and are essential to riparian vegetation preservation and waterway health. These parklands are district and regional in terms of ecological importance and water retention. Higher order creeks will be retained and undisturbed in terms of their soil profiles, with sufficient width to allow for a vegetated riparian corridor. Riparian parks provide passive recreation, cycle and pedestrian connectivity while also helping with water management, particularly when water is held higher in the catchment and away from saline and sodic soils.
- **Ridgeline and Hilltop Parks:** ridgetop parks connect Country, topography, sky and landscape and are established on the local high points to capture the breeze and allow for long views. Dependent on size; ridgeline and hilltop parks are district or local in character and are to incorporate sports fields, active and passive recreation and associated park amenities in areas of lesser gradients.
- **Urban Parks and Pocket Parks:** urban parks and pocket parks associated with the strategic centre, local centres and enterprise areas will provide open space and facilities within walking distance for most people, while also meeting landscape requirements such as vegetation protection, tree canopy, water management and soil preservation. They are generally associated with community and cultural amenities. More 'urban' in nature these parks can accommodate passive and active recreation and community and park amenities of district and local character.
- **Nature Parks:** nature parks will be designed to protect and preserve areas with remnant vegetation and/or that will be used for retaining and managing stormwater flow through the Precinct. These offer passive recreation such as paths, seating and viewing areas and could provide either local or district park facilities. A non-structured, low impact recreation focus of a district and local character is incorporated, ensuring no negative impact on the remnant vegetation.
- **Streetscape:** streetscapes provide for continuous tree canopy and ground cover planting rich in diversity. The streets also provide shaded connections from creek to ridge for pedestrians. Street planting shades adjacent facades to help mitigate urban heat island effects and provide pleasant micro climate for activation.

Conceptual examples of these open space typologies are shown on the following pages.

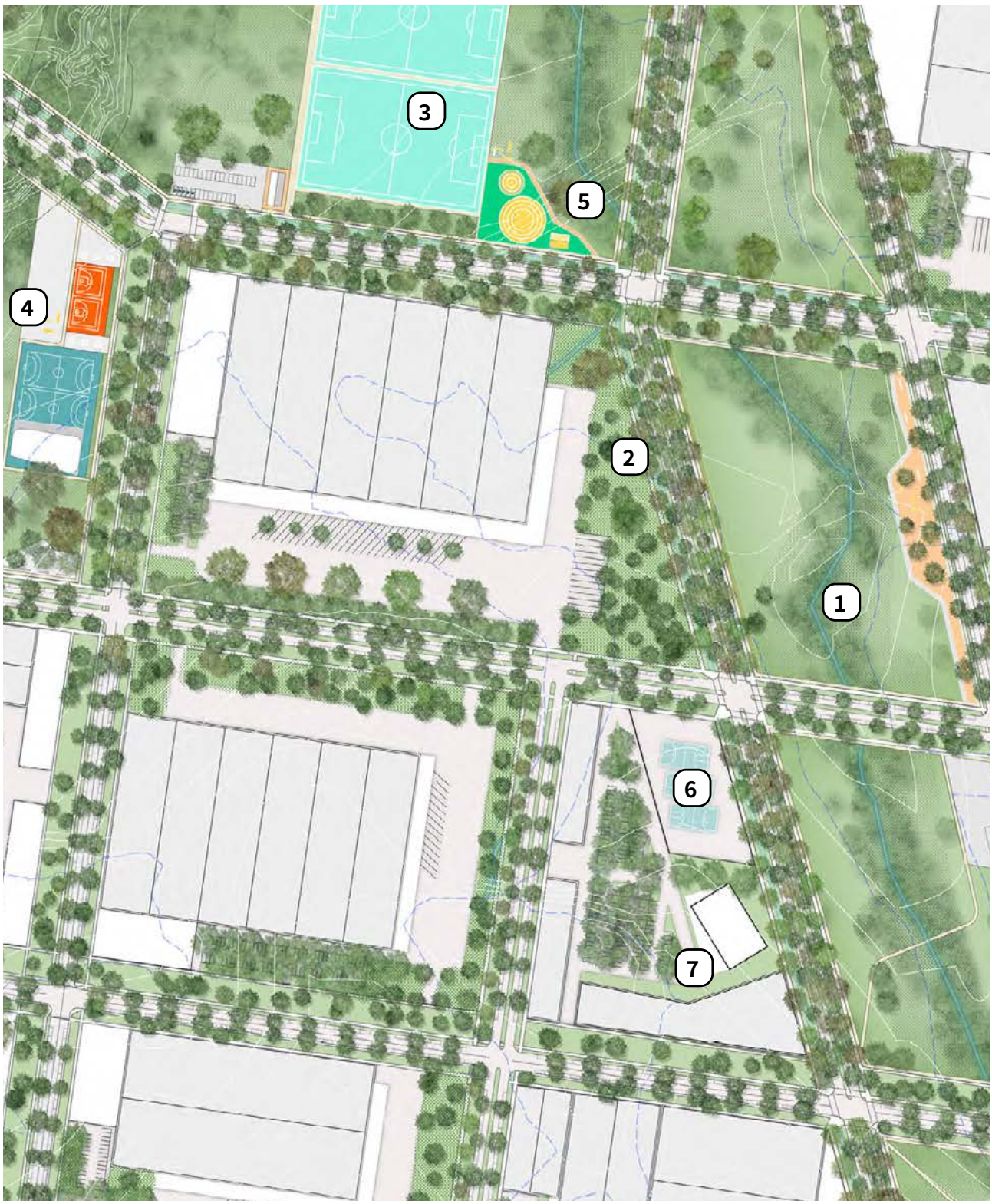
Regional Parkland - Figure 37

Active recreation:

1. Sportfields & associated amenities - regional | district
2. Playground & associated amenities - regional
3. Youth play - district
4. Indoor sport facility - district
5. Aquatic centre - regional
6. Passive & non-structured recreation
7. Dogs park - regional
8. Eco tourism
9. Park amenities, community lawn, BBQ & picnic shelters

Community & culture amenities:

10. Cultural & community facility
11. Schools
12. Education & Library



Riparian / Linear Park - Figure 38

1. Linear riparian wetland park
2. Existing woodland
3. Potential location of outdoor playing fields
4. Potential location of outdoor courts
5. Playground and associated facilities
6. District indoor sports centre
7. Local centre

Ridgeline and hilltop parks - Figure 39

1. Ridgeline Park - district and local
2. Linear Parklands along tributary (often ephemeral) creeks - pockets of passive and active recreation of local character

Active recreation:

3. Sportfields & associated amenities - district
4. Indoor sport facility - district
5. Passive recreation:
6. Passive & non-structured recreation

Community & culture amenities:

7. Park amenities, community lawn, BBQ & picnic shelters

Urban and pocket parks - Figure 40

1. Urban parks - local and district
2. Linear Parklands along tributary (often ephemeral) creeks - pockets of passive and active recreation - local

Active recreation:

3. Sportfields & associated amenities - district

Passive recreation:

4. Passive & non-structured recreation
5. Community & culture amenities:
6. Village green with associated park amenities
7. Adjacent education & community facility

Nature parks - Figure 41

1. Creek-line riparian revegetated zone
2. Land dedicated to Aboriginal planting & management
3. Shared paths and cycleways
4. Rest and rehabilitation stops
5. Natural play parks
6. Teaching/Gathering plinths

Streetscapes - Figure 42

1. Continuous street tree canopy
2. Water Sensitive Urban Design embedded in the street profile
3. Generous pedestrian zone under tree canopy
4. Active transport integral part of street profile
5. Tree canopy and ground cover planting rich in diversity integral part of Blue -Green system
6. Shared utility trenches
7. Ground permeability maximised consistent with Sydney Water WSUD principles

Objectives

LUO1	Provide for the open space and recreational needs of existing and future workers and residents.
LUO2	Retain high quality scenic and culturally significant views and view corridors.
LUO3	Protect and enhance existing biodiversity, habitat corridors and links.
LUO4	Provide opportunities for a range of passive, active and formal recreational activities, as well as education and tourism.
LUO5	Increase urban cooling by encouraging provision of tree canopy cover and green space.
LUO6	Open space network is to assist to celebrate the unique topography and views of land in the Aerotropolis
LUO7	In Agribusiness precinct, reinforce the rural character and agricultural history of the precinct through appropriate landscaping.
LUO8	Retain and protect the waterways, Cumberland Plain and linear parks to create a network of blue-green infrastructure

Requirements – general

LU1	Adopt open space typologies as described above and provide open space generally in accordance with Open Space Maps shown **Figure 15**.
LU2	Locate parks along ridgelines and hilltops.
LU3	Contain active and passive recreation opportunities, playgrounds, fitness nodes and community amenities at both district, local and along linear parks.
LU4	Establish areas of open space in conjunction with remnant vegetation to act as both recreational opportunities and environmental protection.
LU5	Design open spaces within streetscape design to contribute to overall open space framework.
LU6	Ensure continuous tree canopy cover and ground cover to encourage and promote diversity through the urban fabric.

Requirements – Agribusiness Precinct

LU7	Duncans Creek Reservoir is to reinforce its role as an aquatic focused recreation park.
LU8	The Luddenham Agribusiness Park is to interpret and bring together past and future agricultural uses.
LU9	Cosgroves Creek Parkland is to form the basis for expansion of the blue-green grid across the Precinct.

3.4.10 Interface and management with existing uses

Objectives

LUO1	Protect existing use rights provisions, as per Division 4.11 of the *Environmental Planning and Assessment Act 1979*.
LUO2	Consider conflicts with any surrounding existing uses, together with future proposed uses identified within the *Urban Design and Landscape Reports*, during the design development phase.

Requirements

LU1	Consider the interface of new development with existing development and land uses (under existing use rights) and create a suitable interface and relationship through appropriate setbacks, building separation and protection of amenity for the adjoining and nearby properties.
LU2	Respond to proposed land uses ensuring appropriate setbacks, building separation and protection of amenity for adjoining and nearby properties.

3.4.11 Sites greater than 5,000sqm

For large sites 5000sqm and above, an appropriate street pattern will ensure a fine grain, highly connected urban place, except in the Agribusiness Precinct. The emphasis on fine grain urban form will create better places and sustainable transport options.

Objectives

LUO1	Provide an appropriate block size for the Zone and ensure a finer grain to the urban structure, to improve public transport, pedestrian, bike and vehicular access, permeability and connectivity through large sites.
LUO2	Establish a clear hierarchy of public streets that are well connected to the existing street network.
LUO3	Improve access and visibility to public open spaces.
LUO4	Provide a clear public address for all buildings within a development.
LUO5	Allow for a diversity of building footprints to achieve the zone objectives within Precinct.

Requirements

LU1	Provide through-site links and narrow building frontages to create permeable street blocks, which facilitate access to public transport, major destinations and open space.
LU2	Ensure streets align and connect with the surrounding street network, maximising connectivity and creating view corridors.
LU3	Provide adequate open space within the blocks to support amenity for residents and workers.
LU4	Sites greater than 5,000sqm should allow for through-site connections by providing pedestrian pathways, cycle ways or new streets that are consistent with the Precinct Plan.

Figure 43 (overleaf): Sites greater than 5,000sqm and through site links

Existing lot boundary

3.4.12 Amalgamation

Land sizes and ownership varies across the Initial Precincts. The size of land parcels vary from less than 1,000sqm to 220ha or greater. Under the current LEPs the precincts have a current minimum lot size of 10ha or 40ha.

Precinct planning needs to achieve land use and development objectives in key areas and key sites. Fragmented lands can hold up development or impede the scale of mixed use or employment development. This Precinct Plan does, and the future Phase 2 DCP will, include provisions to encourage amalgamation of lands.

General objectives

LUO1	Rationalise and consolidate landholdings, and discourage land fragmentation, in key areas where appropriate and identified.
LUO2	Encourage amalgamation of allotments to allow orderly redevelopment to occur.
LUO3	Ensure that development lots are of a sufficient block size and area to provide areas for permeability, retain key existing natural environment and not isolate adjoining land uses.
LUO4	Provide opportunities to create allotments of varying size and dimension to satisfy and respond to market demand for housing and business uses.

In addition, the following objectives are also applicable to the zoned land.

Mixed use objectives

LUO5	Encourage land amalgamation around potential future Metro stations.
LUO6	Promote the orderly development of centres.
LUO7	Negate any potential for the creation of isolated sites.

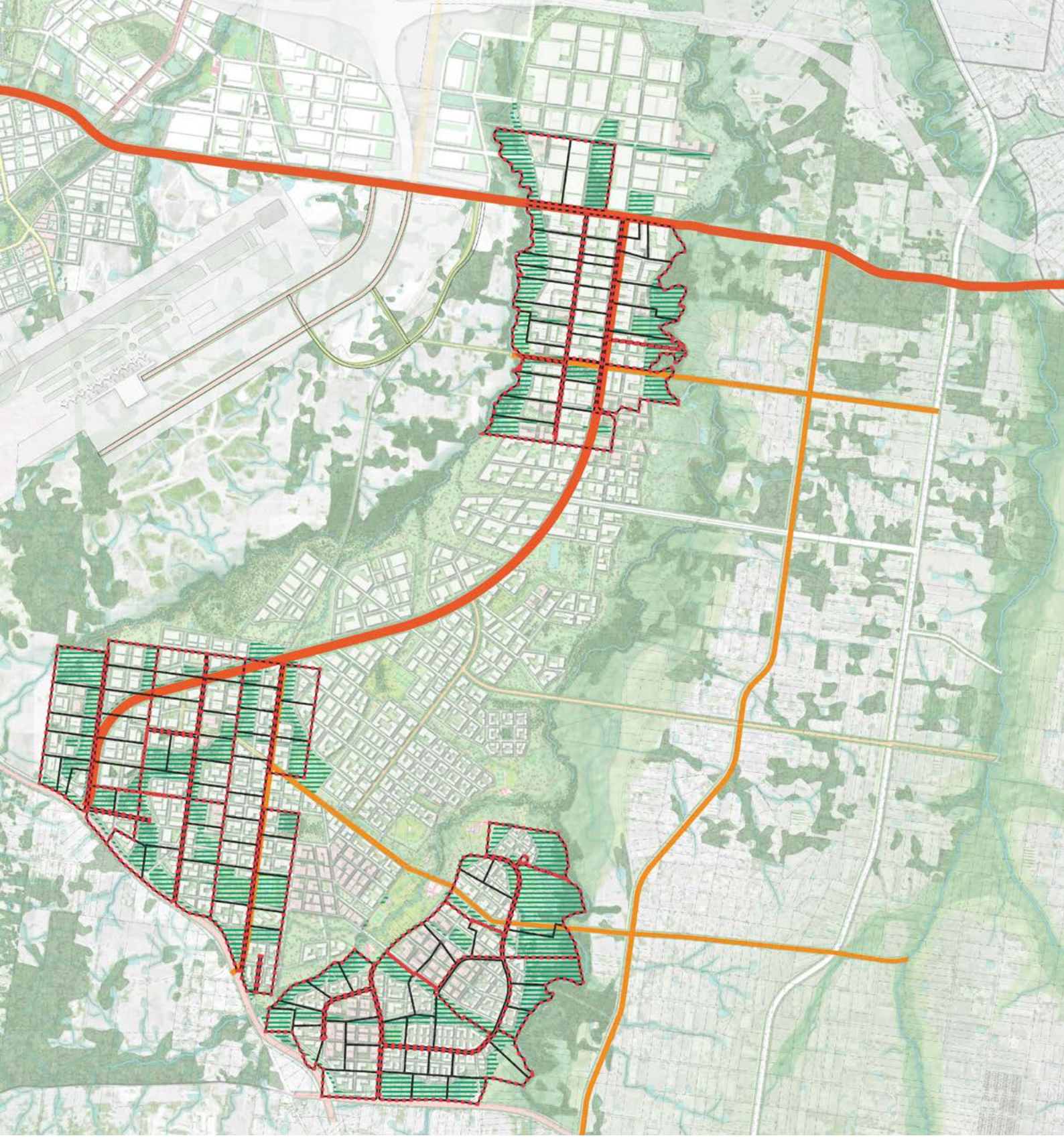
Enterprise objectives

LUO8	Encourage diversification in lot sizes and regularisation in shape, orientation and density.
LUO9	Promote the creation of allotments that maximise the opportunity for design excellence, the incorporation of landscape-led approach and promote sustainable and energy efficient use of land.
LUO10	Provide opportunities for development of a range of mixed use, commercial and industrial land uses.
LUO11	Promote the orderly development of centres.
LUO12	Negate any potential for the creation of isolated sites.

Environment and recreation objectives

LUO13	Amalgamate to protect significant landscape features, trees and vegetation and any heritage items.
LUO14	Encourage amalgamation to create an interconnected Wianamatta-South Creek Corridor and green-blue infrastructure.
LUO14	Facilitate the creation of well connected, useable, permeable, vibrant and functional public open space.
LUO15	Protect areas of high significance biocertified land or identified areas of biodiversity.
LUO16	Encourage the rejuvenation of the Wianamatta-South Creek Corridor into a high-quality central green spine for amenity, recreational and environmental conservation.

These controls apply to the land on the following map **(Figure 44)**.



Amalgamation Plan
Western Sydney Aerotropolis

- Conceptual amalgamation parcels
- Sub precincts where coordinated urban design outcomes is required for roads and open space
- Major Roads requiring coordinated development
- Open space requiring coordinated development

N

Figure 44: Amalgamation Plan within the Aerotropolis Core and Badgerys Creek

3 Precinct Plan

Requirements

LU1	Subdivision of land should not occur unless it has considered the implications of the fragmentation of large lots of land, how it will affect the supply of land for employment purposes, and whether the subdivision will preclude other lots of land from having reasonable access to roads and services.
LU2	Amalgamation of lots should not result in the isolation of lots or reduce the development potential of adjoining land. Applicants are required to submit plans clearly identifying the future development potential of adjoining land to ensure its development potential will not be adversely impacted.
LU3	Create lots of a size which achieves the scale to support the objective of the zone by enabling development with sufficient amenity, retention of landscape, provision of open space and parking.
LU4	The development should achieve the urban typology and street connection outlined in the precinct plan to ensure efficient employment development can occur.
LU5	Amalgamation should protect significant features of the land, including landscape features, trees and significant vegetation and any heritage items.
LU6	Amalgamation of land is required to a minimum of 5ha in areas shown on **Figure 44** (and conceptually described in **Figures 45 and 46**), to support the development of efficient mixed use development.

Figure 45: Conceptual urban arrangement for Kelvin Grove

3 Precinct Plan

Figure 46: Conceptual urban arrangement
West of Badgerys Creek Road

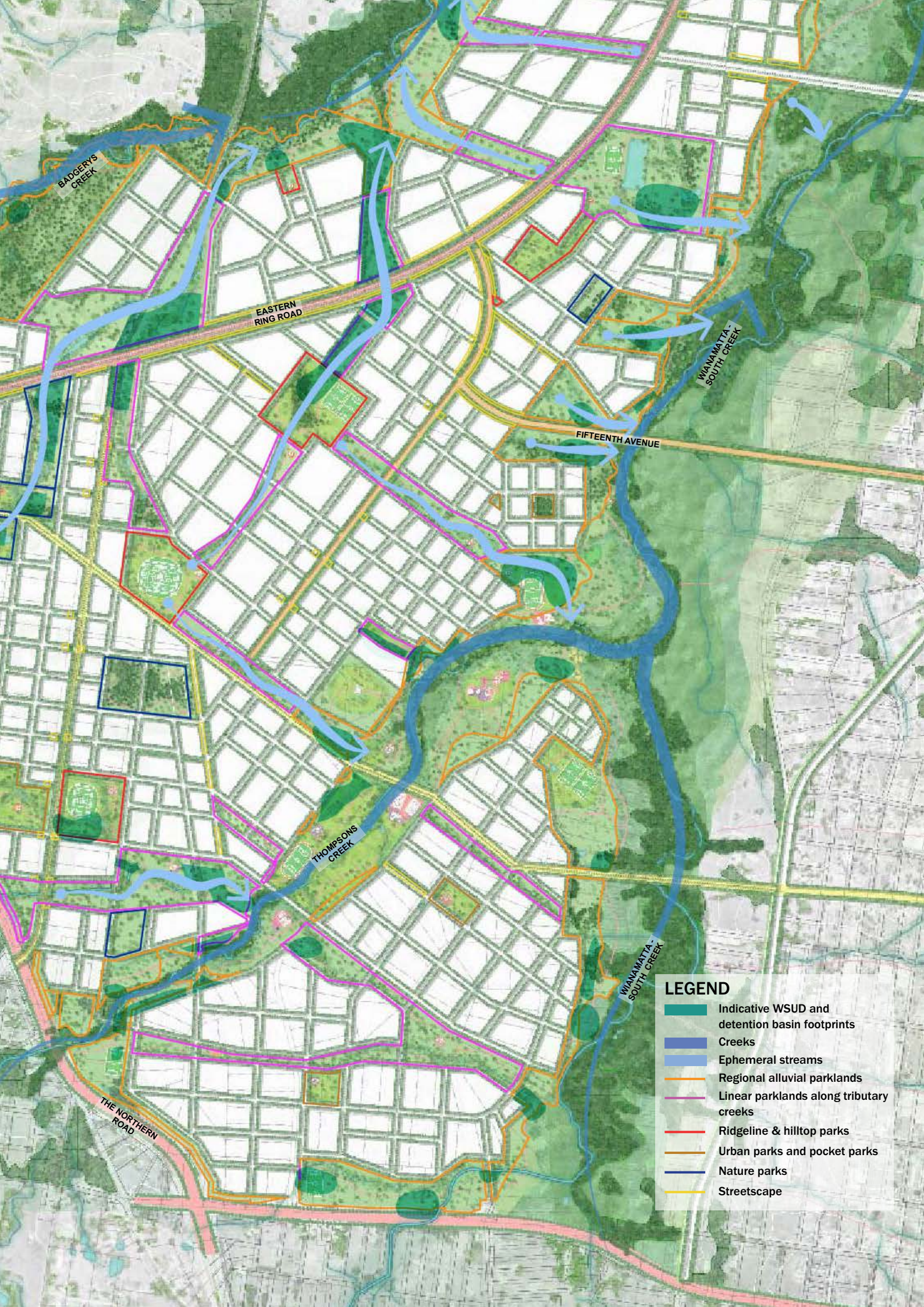
Requirements

LU7	Amalgamation of land is encouraged to a minimum of 5ha directly to the west of Badgerys Creek Road in order to achieve a consistent and feasible employment land development on the major arterial road, in areas shown on the **Figure 44**.

Requirements

LU8	The creation of a consolidated Environment & Recreation Zone is to be integrated into the overall development, to become an area of useable open space, meeting the landscape-led and connection to Country objectives of the Precinct Plan.
LU9	Existing mature trees, in particular areas of Cumberland Plain, areas identified as having biodiversity values, and areas of enhanced urban tree canopy are to be protected.
LU10	Consolidated high biodiversity areas are to support the landscape and achieve the Biodiversity Order.
LU11	Consolidated blue-green grid linkages are to support drainage, water design, green canopy and linkages across the Precinct.
LU12	Establish a landscape buffer on the western boundary of the Wianamatta-South Creek Corridor.

Figure 47 (overleaf): Conceptual arrangement for amalgamation along the Wianamatta - South Creek corridor.


BADGERYS CREEK
EASTERN RING ROAD
WIANAMATTA - SOUTH CREEK
FIFTEENTH AVENUE
THOMPSONS CREEK
WIANAMATTA - SOUTH CREEK
THE NORTHERN ROAD
LEGEND
Indicative WSUD and detention basin footprints
Creeks
Ephemeral streams
Regional alluvial parklands
Linear parklands along tributary creeks
Ridgeline & hilltop parks
Urban parks and pocket parks
Nature parks
Streetscape

3 Precinct Plan

3.4.13 Roofscapes

Objectives

LUO1	Utilise the roofscape of the buildings to improve environmental performance of buildings and Aerotropolis as a whole.

Requirements

LU1	Industrial and commercial development is to provide some portion of roofscape for purposes including: • solar power to be used on site or linked to the broader energy network of the Precinct • rainwater detention for re-use in a closed or open system depending on scale.
LU2	The appearance, material, reflectivity and aesthetics of the roofscapes should consider the flight path and flight zone.

3.5 Social and Cultural Infrastructure Framework

Recreation and open space infrastructure together with other social infrastructure should be the basis for place-based planning that will create places tourists, residents and workers.

Planning and Design Guidelines

The following provide broad guidelines for the planning and design for the Precincts.

Principles Guidelines

1	Use all land productively to optimise: • infrastructure and services provision • open and public space provision • the wellbeing of ecosystems • subdivision patterns relating to expected uses (e.g. employment, recreational, mixed uses) and topography.
2	Locate and cluster uses in centres and density to support urban vibrancy.
3	Integrate Precinct Plans with the broader planning for key infrastructure and land uses.
4	Provide for appropriate social infrastructure, particularly co-located with each other or other non-residential uses, to support workers and residents and to foster inclusion, amenity, health and wellbeing.
5	Co-locate complementary land uses and infrastructure, where possible: • co-locate public facilities in infrastructure corridors and centres • optimise or co-locate ecology, recreation and productive landscape uses, where complementary • co-locate cultural places with educational and other recreational facilities, where appropriate.
6	Identify sites for social infrastructure that are accessible (location) and meet projected needs (quantity).

3 Precinct Plan

3.5.1 Social, community and cultural infrastructure

Objectives

SCO1	Provide local, state and regional social, community and cultural infrastructure to support research/ innovation, health, training and education (including tertiary and vocation education training institutions and secondary school level), and support workers, visitors, tourists and residents.
SCO2	Provide social infrastructure to meet the needs of different worker groups, given different job types create different needs for the workforce.
SCO3	Provide welcoming, safe and accessible social infrastructure which meets the needs of the community.
SCO4	Integrate and co-locate social infrastructure with green infrastructure to create better health and wellbeing for the community.
SCO5	Provide for cultural celebration in place naming, artwork and installations, cultural design and dedicated gathering spaces for the Aboriginal community.

Requirements

SC1	Provide educational uses and schools in the location shown on the Land Use Plan (**Figure 30**) to ensure appropriate distribution and provision of social facilities.
SC2	Provide community infrastructure within each precinct as generally shown on the Land Use Plan (**Figure 30**), and arranged to activate open spaces and the Wianamatta-South Creek Precinct.
SC3	Integrate social infrastructure within centres to be accessible, co-located or multipurpose, with other services and facilities and encourage connections to spaces such as community centres and recreational facilities.
SC4	Plan and provide social facilities by considering the following criteria: a. Existing need: informed by an audit on existing facilities that could service the initial precincts. b. Identified need: Recommendation or outcomes from the consultation undertaken with State agencies. c. Demographic need: Based on the residential population projections and profile d. Comparative need: The rate of provision identified to assess infrastructure provision.
SC5	Equitably distribute social, community and cultural infrastructure as indicated in **Table 7** and **Figure 48**, and as outlined in the draft Aerotropolis Special Infrastructure Contribution.
SC6	Provide active recreational facilities and sport fields in locations and quantity outlined in the Special Infrastructure Contribution and Local Contribution Plans.
SC7	Include cultural celebration and interpretation in the design of social infrastructure to promote social inclusion, sense of place, wellbeing and cultural identity, or through the development of an iconic building with aspirational architecture.
SC8	Design community facilities in response to the surrounding landscape features and green infrastructure.
SC9	Provide social infrastructure in each precinct as set out in **Table 7**.
SC10	Incorporate green infrastructure elements into design and construction to increase the resilience of facilities.

3 Precinct Plan

Table 7: This table demonstrates the social infrastructure requirements for each Aerotropolis Precinct to be provided by 2036 as well as any further infrastructure required by 2056. This is informed by the Greater Sydney Region Plan, the Aerotropolis SIC, the Future Transport Strategy 2056, and the PIC. Recommend change to This table demonstrates the social infrastructure requirements for each Aerotropolis Precinct to be provided by 2036 as well as any further infrastructure recommended by 2056 based on current development yield estimates. This is informed by the Greater Sydney Region Plan, the Aerotropolis SIC, the Future Transport Strategy 2056, and the PIC.

Precinct	**Aerotropolis Core, Badgerys Creek & Wianamatta-South Creek**		**Northern Gateway**		**Agribusiness**	
Timeline	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**
Education	One new primary school with 31 teaching spaces. One new secondary school with 25 teaching spaces One Aerotropolis outreach innovation / centre of excellence facility Nine teaching spaces for specific purposes to be integrated with existing schools Allow for flexible zoning that enables education uses and associated infrastructure to support the Aerotropolis Multiversity. Aerotropolis Core: Establishment of a permanent VET facility	One new primary school with 28 teaching spaces. Support needed in Aerotropolis Core to allow the private sector to develop an additional primary school. Upgrade existing secondary school with 23 new teaching spaces Additional eight teaching spaces for special purposes SSP to be integrated with existing schools	One new primary school with 30 teaching spaces. Catholic Education has also committed to a combined K-12 school in the Northern Gateway	Upgrade existing primary schools with 11 new teaching spaces. One new secondary school with 33 teaching spaces	Expand Bringelly Public School or Luddenham Public School	

Precinct	Aerotropolis Core, Badgerys Creek & Wianamatta-South Creek		Northern Gateway		Agribusiness	
Timeline	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**
Health	Aerotropolis Ambulance Station with 12 bays	One community health facility / IHHub. Specialised Indigenous Health Facility				
Emergency services	New fire station – Badgerys Creek Fire Station Badgerys Creek: Multipurpose Police Hub with specialist resources e.g. traffic, highway and forensics. Also to be considered for use as a state emergency management centre for government and local authorities.	Aerotropolis Core Fire Station One police station One new courthouse attached to the Police Station as part of the establishment of a Justice Precinct	One police shop front in a shopping precinct.	One police shop front in a shopping precinct.		
Community facilities	One local community space	Two local community spaces One district community centre co-located with the district library.	One local community space.	One local community space/ centre. One district community centre co-located with the district library.		

3 Precinct Plan

Precinct	Aerotropolis Core, Badgerys Creek & Wianamatta-South Creek		Northern Gateway		Agribusiness	
Timeline	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**
Aged care	Residential aged care (moderate to high need care): 45 places Residential aged care (low care needs): 54 places Community care: 22 places Short term restorative care: 2 places	Residential aged care (moderate to high need care): 77 places Residential aged care (low care needs): 93 places Community care: 39 places Short term restorative care: 4 places	Residential aged care (moderate to high need care): 49 places Residential aged care (low care needs): 58 places Community care: 24 places Short term restorative care: 2 places	Residential aged care (moderate to high need care): 36 places Residential aged care (low care needs):44 places Community care: 18 places Short term restorative care: 2 places	Residential aged care (moderate to high need care): 15 places Residential aged care (low care needs): 18 places Community care: 7 places Short term restorative care: 1 places	Residential aged care (moderate to high need care): 5 places Residential aged care (low care needs): 5 places Community care: 3 places Short term restorative care: 2 places
Cultural facilities	One local cultural facility Aboriginal cultural infrastructure facilities in multiple precincts Aboriginal Arts and Cultural Centre	One local cultural facility Cultural Performance Centre	One local cultural facility. One Western Sydney Screen Industry Production Hub.			
Library	One district library connected to maker spaces and / or community services. one branch library to incorporate cultural and maker spaces.	One district library that is joined with the Multiversity	One district library connected to maker spaces and / or community services One branch library		One branch library	

Precinct	Aerotropolis Core, Badgerys Creek & Wianamatta-South Creek		Northern Gateway		Agribusiness	
Timeline	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**	**By 2036**	**Further indicative infrastructure by 2056**
Sports field	Two district sports field (2 x rectangles and 1 x oval) One indoor sports facility One district sports field (2 x rectangles and 1 x oval) for Wianamatta-South Creek Ten netball courts	One football field	One district sports field (2 x rectangles and 1 x oval)		Add three netball courts to the existing three courts	
Local outdoor multi-purpose centre		One youth focussed outdoor recreation facility				
District indoor sports facility	One indoor sports facility					
Swimming facility	One indoor aquatic/ swimming facility	One indoor aquatic / swimming facility	One indoor aquatic / swimming facility			
Youth focused outdoor recreation	One youth focussed outdoor recreation facility		One youth focussed outdoor recreation facility			
Open space	Three local parks One district park Central Wianamatta Park (105 ha)	12 local parks Six district parks	Five local parks Three district parks Gateway Park (98.5 ha) Sydney Science Park (71 ha)	Three local parks One district park	Two local parks One district park	One local park

Social, Community and Cultural Infrastructure

Western Sydney Aerotropolis

- Outdoor sports fields
- District / Local multi purpose sport centre
- Regional playground
- District youth recreation area
- Additional local outdoor sports courts
- District indoor sport facilities
- Education (schools / tertiary education)
- District acquatic centre
- District / Local community place
- District / Local library
- Aboriginal and Torres Strait Islander Cultural Centre
- Local cultural facility
- Child care centre (suggested location only)

N

3.6 Sustainability and Resilience Framework

Planning for the Aerotropolis will provide opportunities for new sustainability initiatives and targets, where sustainability is regenerative and strives to integrate the city and precinct design, supported by cyclical resources and net positive ecological, social and economic outcomes. This planning will be place-based and respond to the ecosystem.

The growth of the Aerotropolis precincts will be staged. Best industry practice will be targeted for the first three to five years, moving to a target of regenerative sustainability as an exemplar for long-term resilience.

The Precinct Plan has the statutory weight of the Aerotropolis SEPP and can provide the opportunity for energy and water BASIX targets and other sustainability rating tools to be exceeded. More detailed principles and potential performance outcomes will be included within the Stage 2 Aerotropolis DCP.

Planning and Design Guidelines

The following provide broad guidelines for the planning and design for the Precincts.

Additional principles to achieve the water, waste, energy and heat sustainability outcomes in the Aerotropolis are available at Section 4.2 of the Sustainability and Heat Report.

Principles	***Guidelines***
1	Design and configure infrastructure corridors to optimise urban amenity, whereby infrastructure (e.g. electricity pylons, water mains) is integrated into the urban structure and the public domain so that tree canopy cover can be optimised.
2	Ensure telecommunications and digital infrastructure is in place to support productivity of the smart city.
3	Favour circular economy systems such as local waste management strategies, food production, clean energy distribution, water treatment and recycling.
4	Support sustainability initiatives and high levels of resilience by • delivering outcomes to reduce heat island effects, provide electric vehicle charging stations and using appropriate construction materials • ensuring continuous energy, water, data supply even during extreme events like drought, heat waves or pandemics.
5	Essential waste and recycling services in the Aerotropolis and public places should not impact on the amenity for workers, residents, and the public such as visually unpleasant waste storage areas, noise, traffic and odours from waste collection services
6	Design and locate buildings, structures and infrastructure to create cool buildings and vegetated car parks and manage the release of saline soils into the water system.

Figure 48 (overleaf): Combined social cultural map

3 Precinct Plan

Architectural built form precedents that illustrate the following objectives:

- Sustainable design practices
- Active interface between street and facade
- Sustainable materials
- Biophillic design approach
- Green Roofs
- Passive solar
- Adaptability in use
- High canopy cover

Objectives

SRO1	Support opportunities for sustainable and efficient use of resources to minimise waste and deliver a circular economy, and water and energy from development to result in a carbon positive precinct by 2050.
SRO2	Transition to a net zero or net positive outcome over the medium to long term, with particular regard to waste management, water management, energy and carbon consumption.
SRO3	Set water and energy targets that exceed BASIX.
SRO4	Plan for green infrastructure that provide for water treatment and retention, urban cooling, ecosystem services and amenity and integrate it into built, landscaped and natural environments
SRO5	Minimise land use conflict and provide for a mix of uses in appropriate locations.
SRO6	Embed circular economy design principles into the buildings and infrastructure throughout the Aerotropolis to maximise the recycling and reuse of materials.
SRO7	Maximise the use of recovered materials in buildings, infrastructure and the public domain.
SRO8	Collect and transport waste and extractive materials in a manner that is safe, efficient, cost effective and does not negatively impact on liveability and the environment.
SRO9	Protect existing recycling and resource recovery infrastructure and identify new locations for waste recycling and circular economy infrastructure.
SRO10	Encourage innovative approaches to sustainable design, construction and management of buildings and precincts.
SRO11	Facilitate the design, construction and operation of environmentally sustainable buildings and precincts, including energy efficiency, renewable energy, efficient resource and energy use and reduced emissions and waste.
SRO12	Provide for a transition to a sustainable regenerative outcome by enabling sustainable innovations as the Aerotropolis evolves.
SRO13	Recognise waste as a resource and the collection and transport of waste and recycling as an essential service that must be undertaken in a manner that is safe, efficient, cost effective and does not negatively impact on liveability and the environment.
SRO14	Facilitate and support a circular economy around repair, reuse, recycling, remanufacturing and reprocessing
SRO15	Embed circular economy design principles into the buildings, public domain and infrastructures throughout the Aerotropolis to maximise the recycling, recovery and reuse of materials

Requirements

SR1	Utilise sustainable energy, water and waste systems to encourage a circular economy that improves efficiency and results in low-carbon developments.
SR2	Provide a diversity and integrated system of renewable energy supply including solar, green hydrogen, bio-energy and the like.
SR3	Ensure waste and recycling collection infrastructure is integrated within developments and where possible across separate developments while addressing storage, safety, efficiency, accessibility to waste, reuse and recycling services without compromising the safety and amenity of the public domain.
SR4	Ensure waste collection, power and water use, where relevant and possible, is communicated throughout to encourage the creation of sustainable regenerative outcomes.
SR5	Develop integrated systems for energy generation – waste and water
SR6	Design places to enable air flow, ventilation and appropriate building morphology to support the cooling of the built form and public spaces
SR7	Plan for, and achieve, leading industry targets by 2025 and from 2026 beyond to achieve sustainable regenerative targets:

	Leading industry practice	**Sustainable regenerative**
	Target 2020 and 2025	**Target 2026 and beyond**
BASIX	BASIX (energy) – 45-60 BASIX (water) - 60	BASIX (energy) – 45-60 BASIX (water) - 60
Non-residential uses (subject to final modelling)	GreenStar Communities – 5+ stars Green Star – 5+ stars NatHERS – 7 star	GreenStar Communities – 6+ stars Green Star – 6+ stars NatHERS – 8+ star/ Passive home
Circular economy targets	10% reduction of waste generation 85% reduction in construction waste	100% recovery and re-use of organic waste 90% reduction in construction waste

SR8	Development to prioritise procurement of building materials from within a 30km radius of the development site, where feasible.

SR9	Circular economy activities must be located in appropriate locations with consideration given to: • adjacent land uses, considering the likely construction and operational impacts of the proposed development in order to prevent land use conflict • proximity of the proposed development in relation to the Airport, and associated risks to airport and aircraft operations (in reference to the proposed development's risk assessment) • alignment with land use zone objectives, including adjacent land uses • proximity to Environment and Recreation Land Use zone and potential impacts to public space and its useability • proximity to major transportation routes, considering safe transportation of extractive and waste materials
SR10	Waste or resource management facilities should be located within an acceptable distance from the servicing customer base.
SR11	The distances from a circular economy activity to material processing plants or landfills should be minimised.
SR12	An appropriate buffer distance should be kept between the circular economy activity and residential areas or other sensitive land uses. *An appropriate buffer distance is a distance which can be demonstrated to prevent unmitigated environmental nuisance.*
SR13	Any circular economy or extract industry activities involving filling of land, including approved activities that have resulted in a change in landform, upon completion of the approved activity, the land form is to be returned to its original state through the use of Virgin Excavated Natural Materials (VENM) or Excavated Natura Material (ENM) or other soils under a specific resource recovery order and exemption. *Note: Any material received for this purpose must be validated by a suitably qualified independent person to demonstrate that it is VENM or meets the requirements of the relevant resource recovery order/exemption and is fit for its intended purpose.*
SR14	Development must be consistent with circular economy principles as defined in the *NSW Circular Economy Policy Statement*.
SR15	Incorporate Public Place Circular Economy Infrastructure into large commercial and mixed use developments to ensure adequate opportunity for people to participate in reuse and recycling schemes

4 Specific Precinct Plan – Performance Criteria

To support the landscape-led approach, each of the initial precincts have some critical place-based performance criteria that inform the future development, investment and retention of the blue-green connections across the Aerotropolis.

These particular place-based performance criteria are outlined in this section.

4.1 Aerotropolis Core, Badgerys Creek and part Wianamatta-South Creek Precinct

4.1.1 Active frontages

Objectives

ACO1	Create the Aerotropolis Core as a highly activated place with significant amenity.

Requirements

AC1	Create active frontages in the Mixed Use Zone with shops, cafes, business services, commercial offices, lobbies and similar land uses, particularly within 800m of the Metro station.
AC2	Ensure large scale industrial developments in the Enterprise Zone have active uses (offices, showrooms, cafes, childcare centres and similar land uses) orientated to the street.

4.1.2 Special site: Metropolitan centre

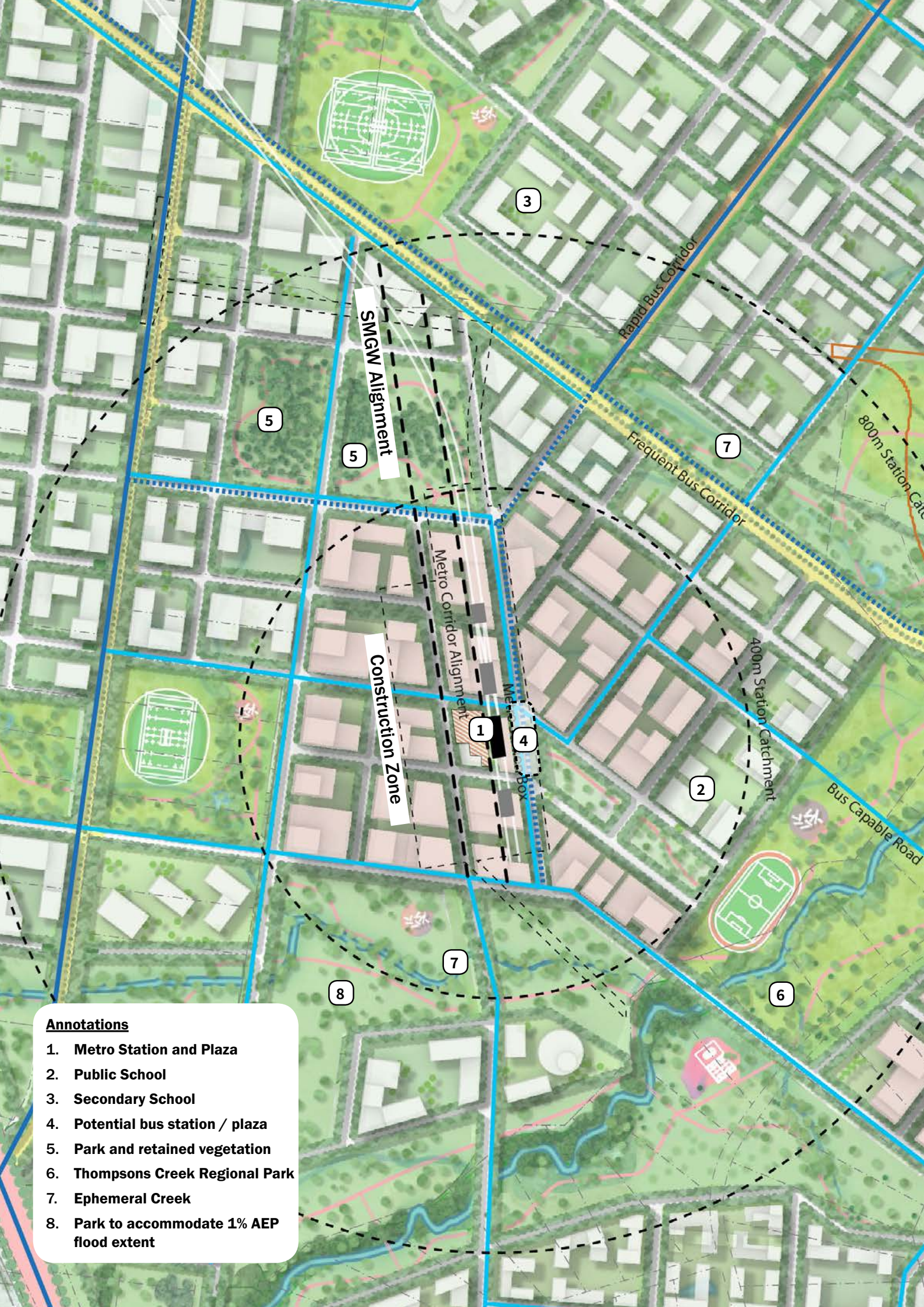
Objectives

ACO1	Use the Metro station as a catalyst for employment, liveability and connectivity and create a 24/7 centre to support a night time economy.

Requirements

AC1	Create a connected grid of streets at the core of the Aerotropolis that provides a framework for high intensity, mixed use development.
AC2	Design streets to provide a direct link between the city core, Metro station and creek system.
AC3	Consider integrated over-station development, and once confirmed, consider a civic plaza to support the Metro arrival experience at the time of master planning.
AC4	Consider connectivity between bus and Metro transit, and a bus-only interchange during master planning.
AC5	Create a high quality public realm, including streets, parks and civic plazas.
AC6	Activate streets within an 800m walk of the Metro station.

Figure 49: Metropolitan Centre



Annotations

1. **Metro Station and Plaza**
2. **Public School**
3. **Secondary School**
4. **Potential bus station / plaza**
5. **Park and retained vegetation**
6. **Thompsons Creek Regional Park**
7. **Ephemeral Creek**
8. **Park to accommodate 1% AEP flood extent**

4 Specific Precinct Plan – Performance Criteria

4.1.3 State heritage site: Kelvin Park Homestead

Kelvin Park Homestead in the Aerotropolis Core, is a state heritage item and the only surviving example of a large pastoral estate within the Aerotropolis. The main farm complex and Homestead survive substantially intact. Although only a small remnant (7ha) of the original 1200-acre site remains intact, the Kelvin Park Homestead and farm buildings in their current setting with extensive views over rural land, demonstrates the principles of 19th century farm estate architecture, planning and design.

The Homestead, complete with the Georgian single-storey residence, service wings and servants' quarters, farm buildings and landscaping represent the form, relationship and function of colonial Georgian and Victorian farm complexes and are a rare example of continuity of land used for farming over 200 years.

The site retains views to the east to Thompsons Creek and beyond to Wianamatta-South Creek. The site also retains views of other historically related rural landscapes such as the pasture and stands of trees to the north. Both views contribute to the site's significance and must be a consideration.

This item is protected under the *Heritage Act 1977*, which requires any change that affects the item's significance to be subject to assessment and approval by the NSW Heritage Council. Any major changes such as structural alterations and extensions, demolition or relocation would require approval. Assessments must consider the impact on the significance of the place and required mitigations such as archival recording, salvage, adaptive reuse, interpretation, or commitments to conservation planning.

Kelvin Park Homestead
Source: Extent Heritage, 2020

Kelvin Park Homestead
Source:Extent Heritage, 2020

4 Specific Precinct Plan – Performance Criteria

Objectives

ACO1	Retain the relationship between Kelvin Park Homestead and Thompsons Creek, both physically and visually, consistent with the approved Kelvin Park Homestead Conservation Management Plan.
ACO2	Respect and reflect the heritage principles associated with architectural built form within and around the Homestead.
ACO3	Connect future development on the site or changes in use to secure the long-term conservation outcomes.
ACO4	Consider potential archaeological impacts with any future development on this site.

Requirements

AC1	Ensure any change that affects the item's significance is subject to assessment and approval by the NSW Heritage Council.
AC2	Ensure development in the vicinity of Kelvin Park Homestead maintains sufficient distance to retain the open space and views that are part of its significance.
AC3	Design buildings in a contemporary style with recessive colours and materials that do not overwhelm the Homestead or associated buildings or impact on the curtilage of the place.
AC4	Design development to accommodate the preservation and use of the site as a historical resource, such as educational, residential, residential-related uses or suitable retail or commercial uses (such as a restaurant or wedding venue), while ensuring alterations are compatible with the architectural elements and historical significance of the place. Undertake any development in accordance with the Conservation Management Plan and the Burra Charter 2013.
AC5	Include heritage interpretation in any landscaped linkages to optimise engagement.
AC6	With any ground disturbance subject to the *Heritage Act 1977*, assess impacts that may require permission or management before proceeding with any excavation works

Figure 50: Kelvin Park Diagram

1. Existing Kelvin Park homestead building complex
2. Development area to be consistent with any approved conservation management plan
3. Visual connections between homestead and Thompsons Creek and from the surrounding precinct to the homestead grounds
4. Open landscape areas enabling clear visual connectivity

4 Specific Precinct Plan – Performance Criteria

4.2 Northern Gateway and part Wianamatta - South Creek

4.2.1 Active frontages

Objectives

NGO1	Mixed Use Core must contain active frontages so to ensure safe and activated streets.

Requirements

NG1	Mixed Use Core should contain active frontages (shops, cafes, business services, commercial offices, lobbies and similar land uses) particularly within 800m of the Metro Station. Ground floor residential is not permissible in the Mixed Use Core.

4.2.2 Scenic values

Objectives

NGO1	Establish the prominent north-south ridgeline as the primary structuring element.
NGO2	Preserve landscaped views to and along landmarks including Cosgroves Creek, Mulgoa Creek, Badgerys Creek and the Blue Mountains beyond, from hilltop parks set on the prominent north-south ridgeline.

Requirements

NG1	Align the street network with views to landscape. Streets will run from the ridge line to creek lines to enhance visibility of the landscape and run along edges of creek corridors and hilltop parks.
NG2	Vistas should be considered as extending from the immediate contextual elements to the broader landscape and sky.
NG3	The Outer Sydney Oribital should be designed to enhance, not compromise the scenic values of the Precinct. This includes consideration of its vertical alignment.
NG4	New development must not impact on significant views.

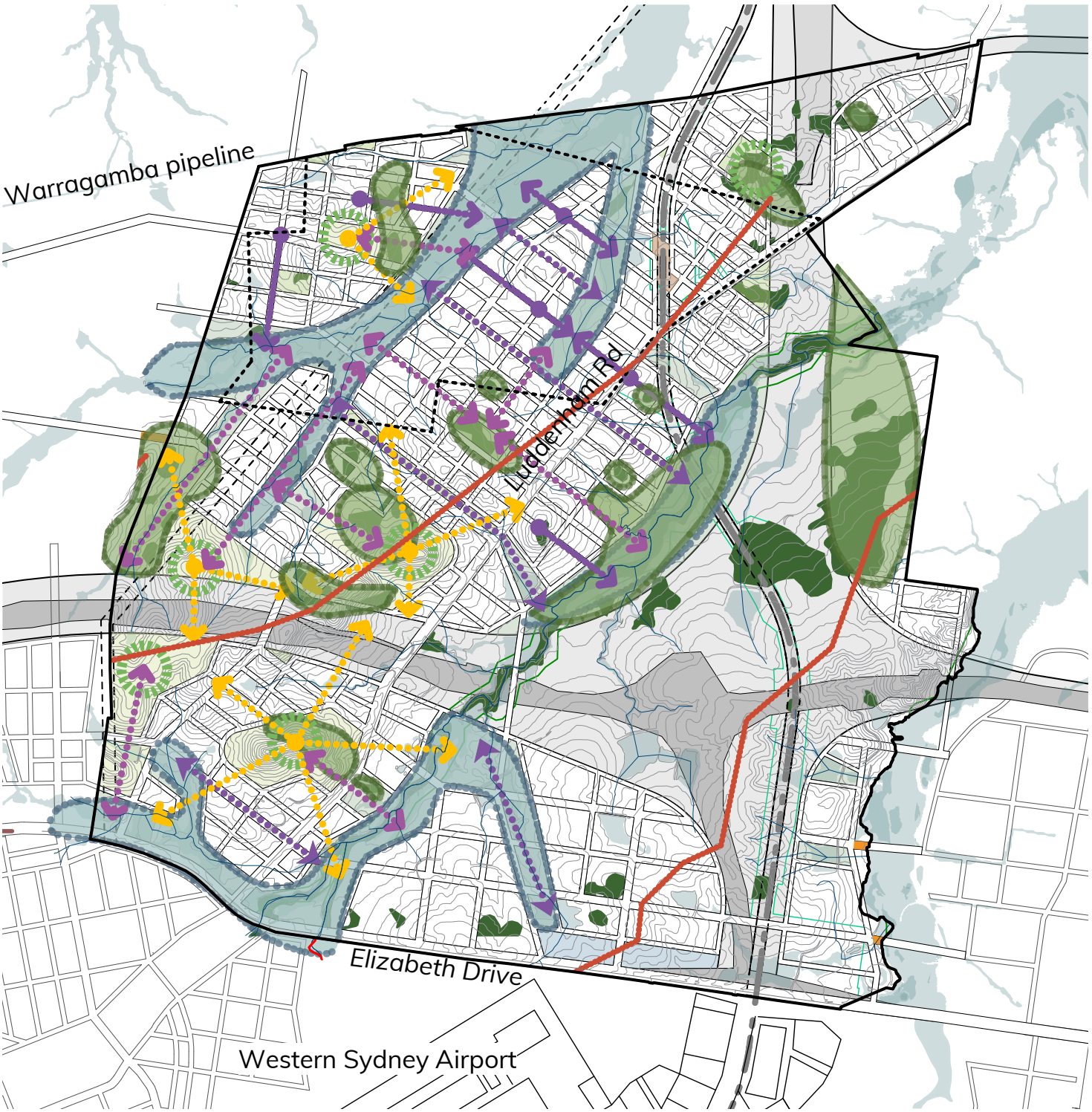


Figure 51: Northern Gateway Scenic Values

4 Specific Precinct Plan – Performance Criteria

4.2.3 Heritage

The Northern Gateway Precinct Plan is centred around the alignment and character of Luddenham Road, which is a listed heritage item of local significance. This significance is derived from the road's alignment, which was a historically significant link for pastoral activities in the 19th century between Bringelly and St Marys. The Precinct also includes the McGarvie-Smith Farm, which is significant for its use as a veterinary research centre for the University of Sydney since 1936, which contains buildings that demonstrate representative qualities of an inter-war research facility.

The Northern Gateway also includes four potential heritage places of significance that will be investigated. One of these, the McMaster Field Station, was used for pastoral and agricultural research undertaken by CSIRO from the mid-1930s. This experimental farm worked collaboratively with McGarvie-Smith and cultivated fields and built dams, livestock yards, dwellings, farm buildings and other infrastructure such as sheep dips. As such the land was culturally modified for work specific to this agricultural research. For some time, parts of the site were used in radio-astronomy research. The potential heritage significance of this site warrants further investigation.

The Precinct includes some areas of high and moderate aboriginal heritage sensitivity, mostly along Cosgroves Creek and the riparian areas. In addition, several Aboriginal artefacts and potential archaeological deposits have been identified (not shown in map due to sensitivity reasons) and two areas are identified in the Precinct Plan as potential conservation corridors due to their Aboriginal cultural heritage significance.

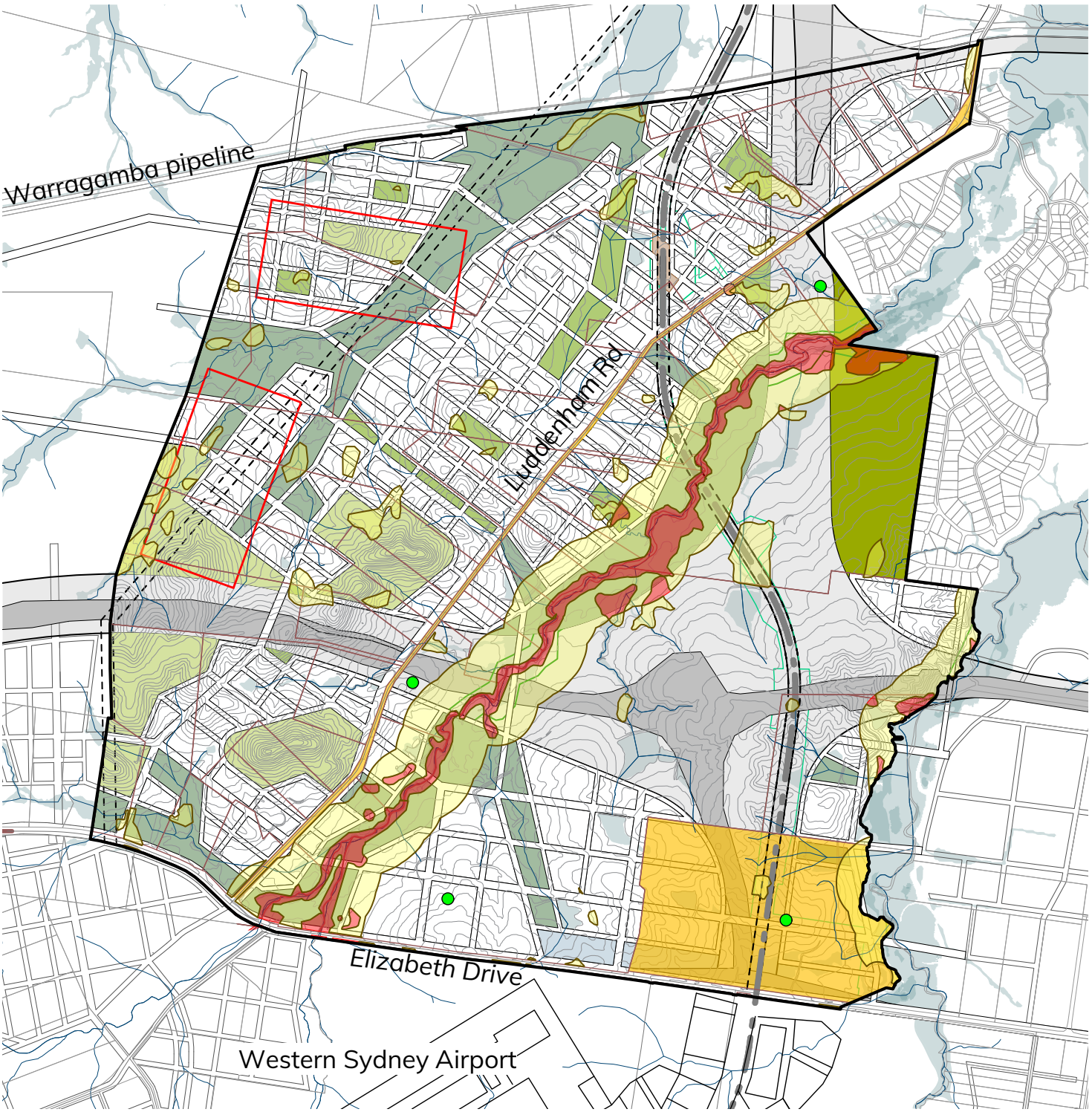
Objectives

NGO1	Ensure development in the vicinity of heritage items is designed and sited to protect the heritage significance of the item and its setting
NGO2	Encourage design that maintains and enhances the character and heritage significance of Aboriginal and non-Aboriginal heritage items
NGO3	Protect places of Aboriginal cultural heritage significance and provide opportunities to connect to Country.
NGO4	Further investigate the heritage significance of potential heritage items and potential areas of archaeological significance which are to be retained and conserved, where possible.
NGO5	Undertake further engagement and cultural mapping with relevant Aboriginal stakeholders to improve understanding of cultural values, stories and places.
NGO6	Keep heritage relevant and sustainable and ensure long-term conservation outcomes.

Requirements

NG1	New development in vicinity of heritage items should be sympathetic to the significance of the item and its setting.
NG2	New development should not impact on significant views to and from a heritage item.
NG3	Development should be avoided by design in and around specific Aboriginal heritage site types, such as modified trees (carved or scarred) and grinding grooves.

Figure 52 (overleaf): Northern Gateway and heritage items.



Cadastre

Aboriginal Heritage Sensitivity High

Aboriginal Heritage Sensitivity Moderate

Proposed street network

Proposed Riparian Park

Proposed Ridgetop Park

Proposed Urban Park

Proposed Nature Park

Potential conservation corridors

Unlisted hertiage Item

Listed local significance item

0 500 1000 M

N

NG4	Development should be avoided in areas of High Aboriginal Heritage Sensitivity, minimised in areas of Moderate Sensitivity, and focused in areas of Low and Very Low Sensitivity.
NG5	New development within the Wianamatta-South Creek Corridor should consider impacts to Aboriginal cultural heritage and potential archaeological sites.
NG6	Landscaped linkages should include heritage interpretation in appropriate areas to optimise engagement with active and passive audiences.
NG7	Any works that may impact a known, or potential archaeological site should have an archaeological assessment undertaken to determine the significance and correct management requirements.
NG8	Historical road alignments should be maintained as main arterial roads connecting people from within the precinct to other precincts in the aerotropolis. Subdivision and secondary road alignments can reference / follow significant historical allotments.
NG9	A heritage assessment of the McMaster Field Station site is to be undertaken prior to development of the site to ascertain the site's significance as an individual place, and within its wider context. The heritage assessment will be able to establish gradings of significance, which will assist in determining the correct conservation management recommendations for the place and individual elements, if necessary.
NG10	In the former CSIRO areas (Fleurs, MacGarvie-Smith), built and landscape features such as remnant radio-telescope equipment and installations, the Fleurs aerodrome, and radio-telescope "cross" alignments should be retained, salvaged and incorporated or interpreted into the urban design

4.2.4 Transport framework

Particular street types have been adapted to suit place-based requirements for each Precinct.

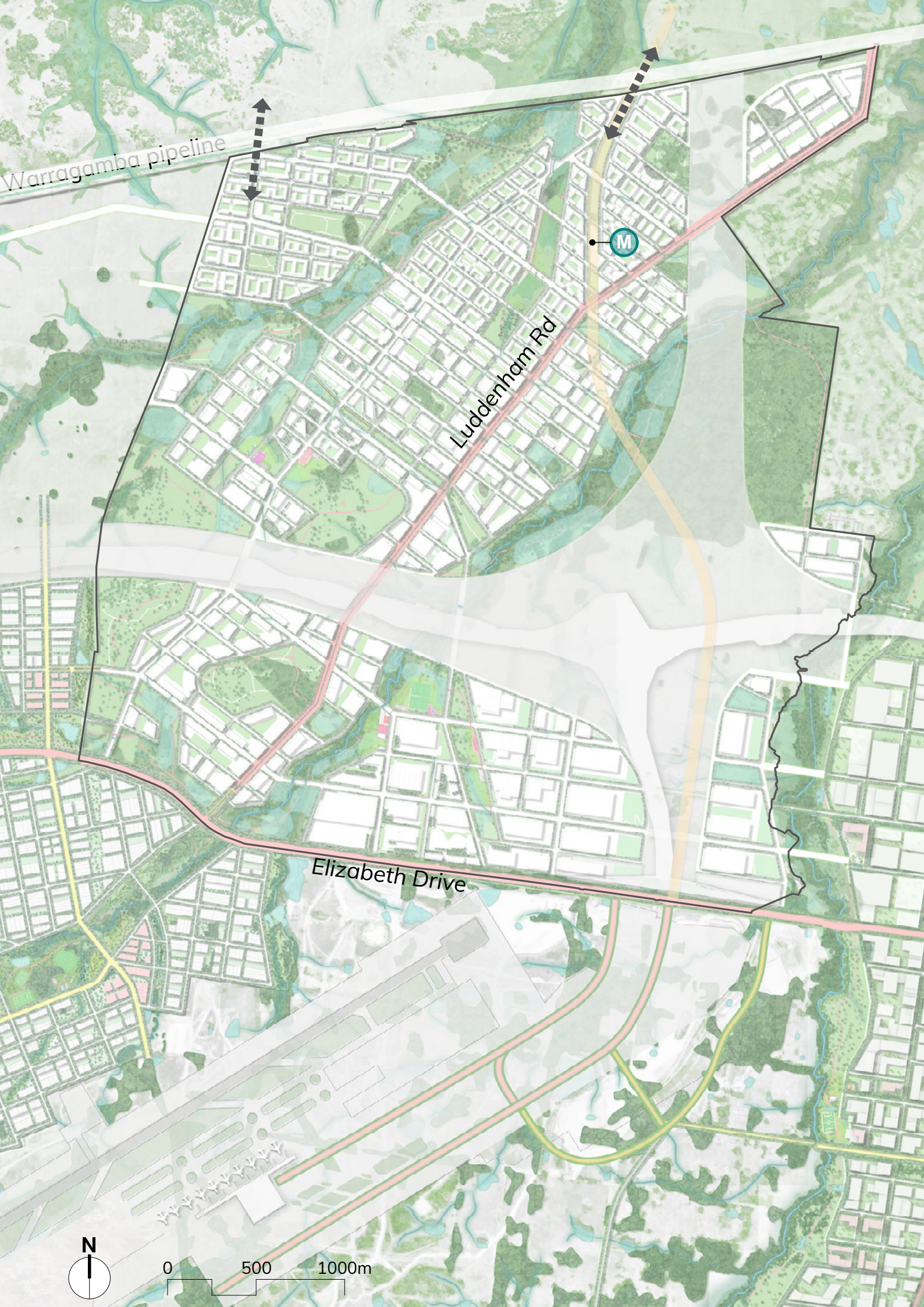
Objectives

NGO1	Establish a hierarchy of streets that supports the future development and potential uses of the Northern Gateway and provides streets for the movement economy, however respond to the topography of the area.
NGO2	Contribute to the network of public space where people can live healthy, productive lives, meet each other, interact and undertake daily activities.
NGO3	Any streets crossings over the major pipeline is constrained and needs formal approval by the relevant Authority

Requirements

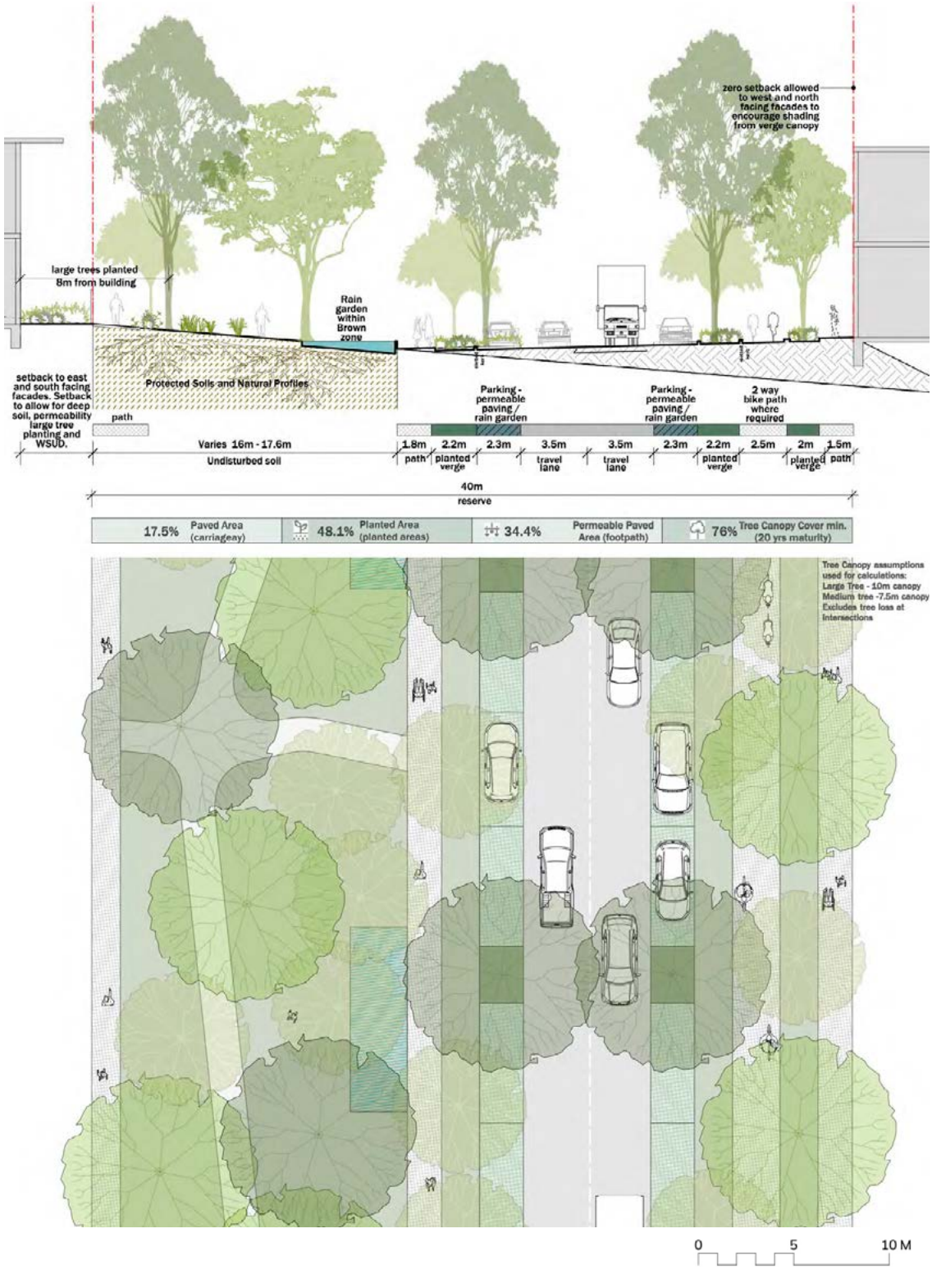
NG1	Two street connectivity crossings over the pipeline as shown in **Figure 53** will be provided, subject to approval by the relevant Authority.
NG2	Provide for particular streets due to the topography as outlined in **Figures 54 to 57**.

Figure 53 (overleaf): Northern Gateway Precinct showing connections across the Warragamba Pipeline.

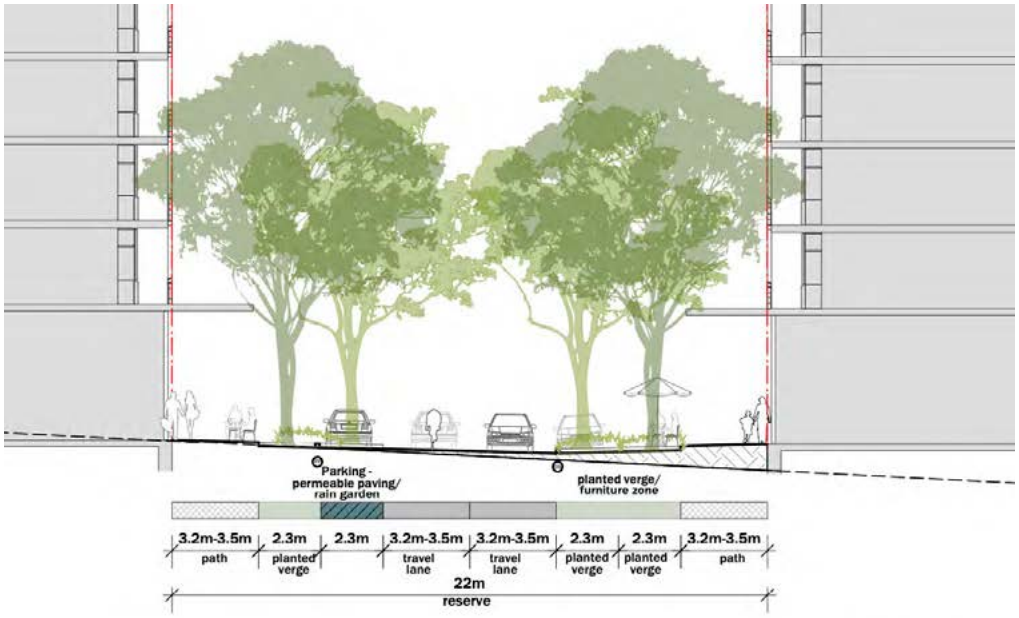

Warragamba pipeline
Luddenham Rd
Elizabeth Drive
M
N
0
500
1000m

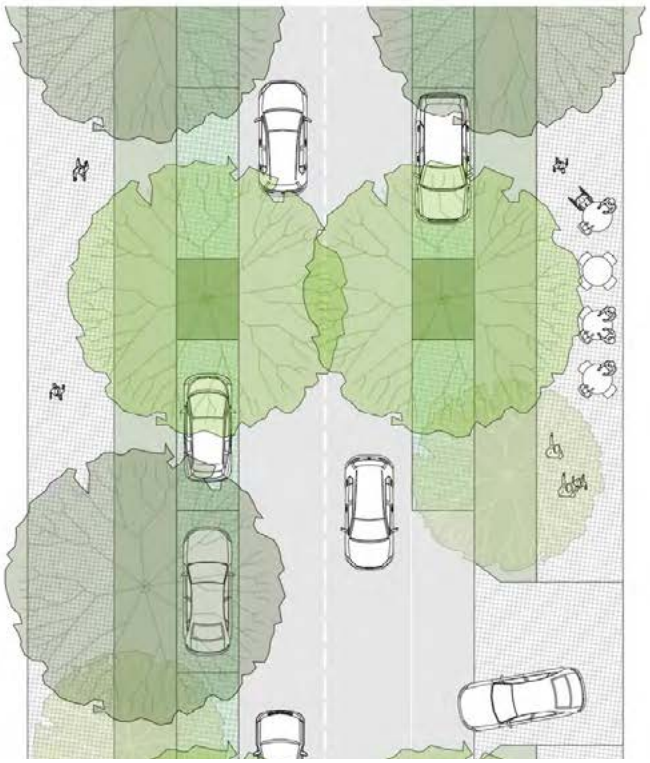
4 Specific Precinct Plan – Performance Criteria

Local Collector	
Principle control	Figure 54: Local Collector - Undisturbed Soil Network

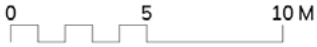


High Streets 22 metres	
Principle control	Figure 55: 22 metre High Street



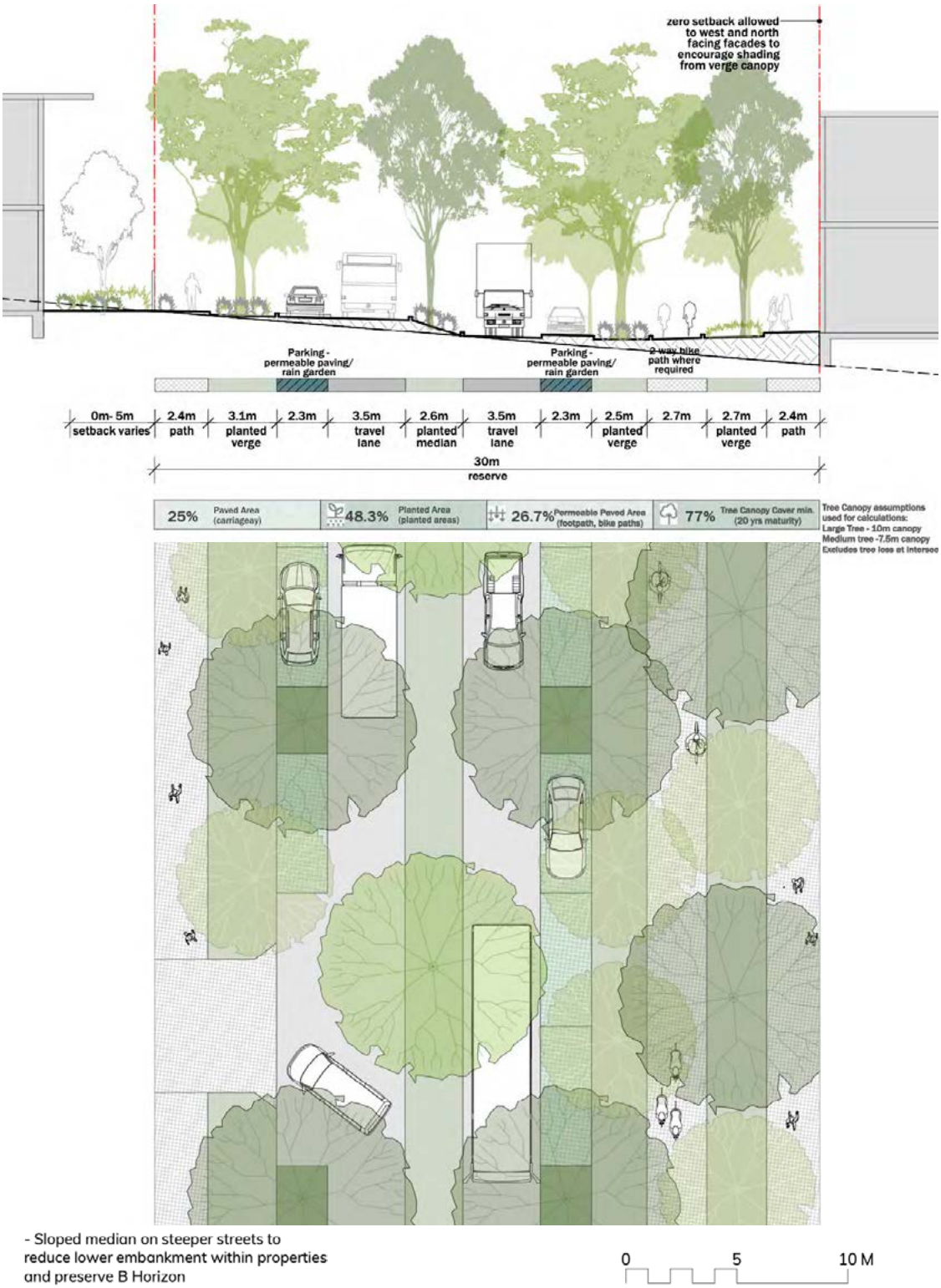


- Western Sydney Street Design Guide width

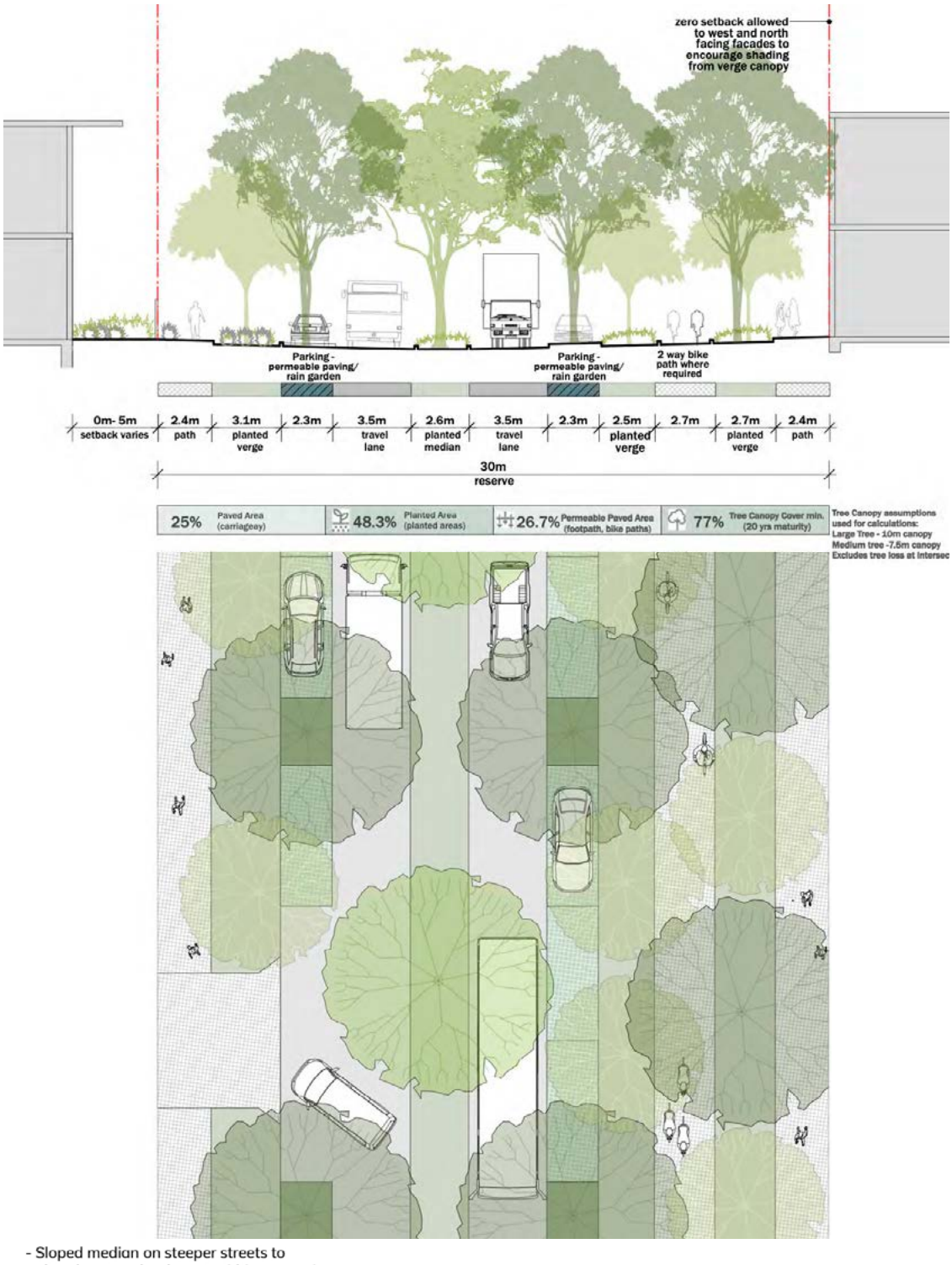


4 Specific Precinct Plan – Performance Criteria

Industrial Streets Function	
Principle control	Figure 56: 30 metre Local collector with sloped median



Industrial Streets Function	
Principle control	Figure 57: Local collector with bicycle lanes



4 Specific Precinct Plan – Performance Criteria

4.3 Agribusiness Precinct performance criteria

4.3.1 Special site: Luddenham Village

Luddenham Village will support the growth of the broader Aerotropolis as well as the Agribusiness Precinct. It is already home to several businesses, agricultural land and residences.

The Village will become a destination for local, regional, national and international visitors to celebrate the merging of the rich history of Western Sydney with its future position on the global stage due to the construction of the Airport.

Luddenham Village will be a tourism and cultural hub for the Aerotropolis and a destination for food and arts. Key sites will be anchors in a highly pedestrianised environment. Cultural wayfinding will guide visitors as they navigate through the village.

The Village will remain compact but will be a distinctive centre that protects and enhances it heritage sites. New and emerging technologies will be embraced alongside design excellence and appropriate development while maintaining the village's character, amenity and lifestyle

Objectives

AO1	Celebrate the heritage, character and agricultural history of Luddenham Village and ensure long-term conservation outcomes for heritage items and places of significance.
AO2	Support the growth of Luddenham Village as the core of the Agribusiness Precinct and promote uses that will support workers and residents within the precinct.
AO3	Provide for sensitive revitalisation of community facilities in Luddenham Village to support existing and emerging community.
AO4	Ensure Luddenham Village local centre is a be a highly activated place that provides significant amenity for the benefit of knowledge focused workers and businesses.
AO5	As a centre for agritourism, Luddenham Village local centre will be a unique destination close to the fresh food markets and high value agricultural operations attracting viable development and commercial activities.
AO6	Encourage and promote tourism and innovation in Agribusiness.

Requirements

A1	New development is to respond to the historical significance of space and should include interpretation of the rural village character of Luddenham Village.
A2	Development in and around Luddenham Village should respect the extant heritage fabric of Luddenham Village.
A3	Development to heritage items in Luddenham Village should ensure significant fabric and features are maintained and design is sympathetic to the heritage character.

Figure 58 (overleaf): Luddenham Local Centre

Heritage Listed Items

- A Showground
- B Brick Cottage
- C Weatherboard Cottage
- D Weatherboard Cottage
- E Luddenham Progress Hall
- F Luddenham Uniting Church
- G St. James Anglican Church
- H Luddenham Public School
- I Wilmington Reserve
- J Lawson's Thistle Inn

- Landscape Gateway to Village
- Luddenham Village boundary (WSAP 2020)
- Main Street - The Northern Road
- Streets
- Primary active frontage
- Pedestrian and cycle links
- ANEC20 noise contour
- Schools

A4	To provide for the continuation of existing uses, including residential dwellings, in Luddenham as part of a Key Site. Existing residential uses in noise affected areas will remain initially, but transition over time to agribusiness uses. A small amount of additional housing will be permitted in the Luddenham Village outside the ANEC / ANEF 20 and above contours subject to appropriate noise mitigation measures.
A5	The agricultural history, heritage and character of Luddenham Village should be celebrated, recognising the high concentration of heritage items and reflective of its significance as an historic pastoral village. Heritage buildings should be conserved and adaptively reused to activate the village and cater to the needs to the existing and emerging community as well as workers and visitors
A6	Design of new industrial and commercial buildings should be of a contemporary design in recessive colours and materials that do not overwhelm any adjacent heritage items.
A7	Significant views west between Luddenham Village, the Metropolitan Rural Area and the Blue Mountains are to be retained.
A8	Planning around the village should seek a balance between not obscuring or diluting the heritage fabric, but at the same time promoting viable commercial opportunities through activated spaces

4.3.2 Minimum lot sizes

Objectives

AO1	Ensure lot sizes in the northern area of Agribusiness Precinct are large to support sustainable land for food production.

Requirements

A1	Land within the northern area of Agribusiness Precinct should be a minimum of 20ha as shown on the Minimum Lot size map (**Figure 59**) in order to support food production.

4.3.3 Scenic values

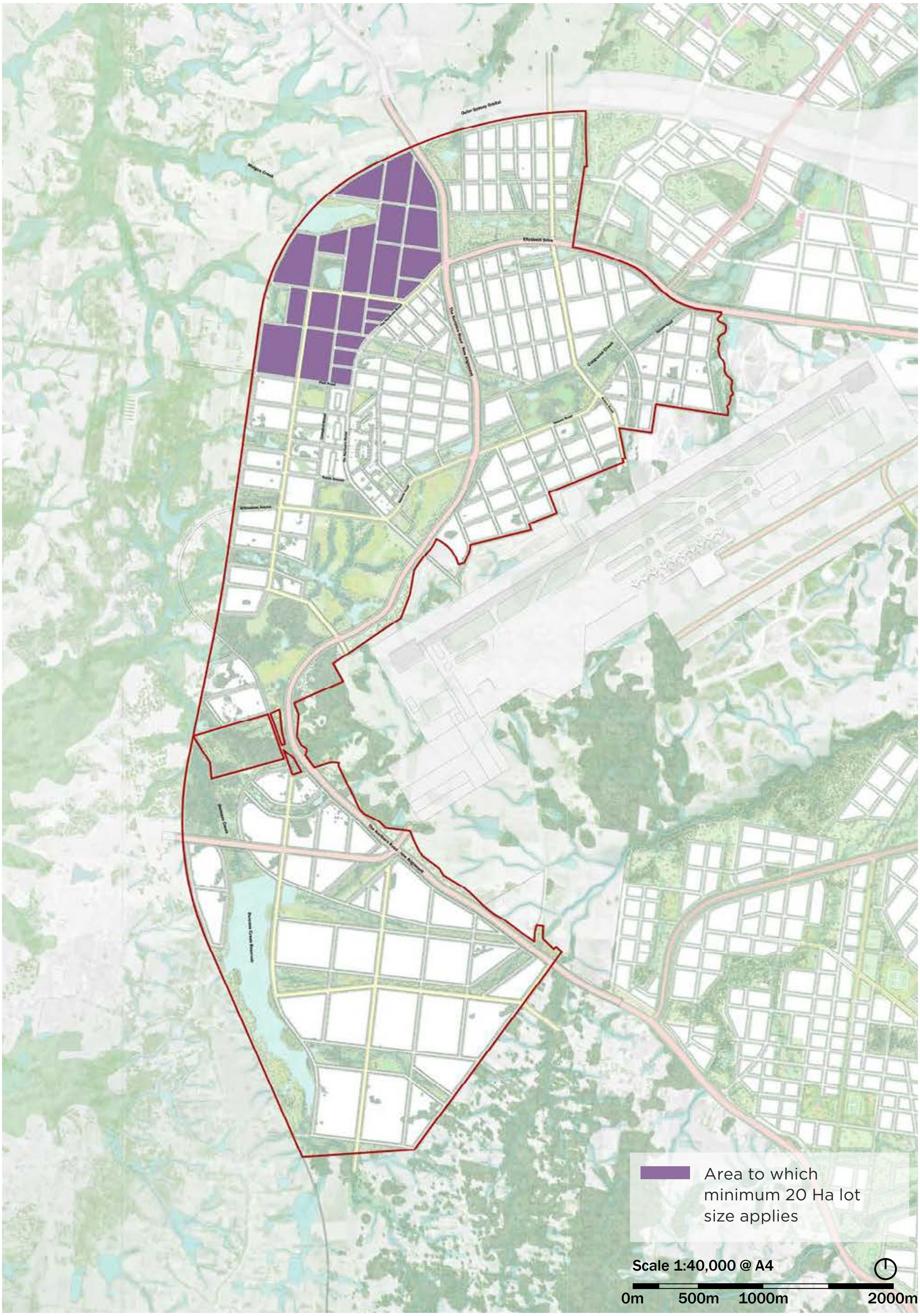
Objectives

AO1	Establish the prominent north-south ridgeline as the primary structuring element.
AO2	Preserve views to landmarks including Cosgroves Creek, Mulgoa Creek, Badgerys Creek and the Blue Mountains beyond.

Requirements

A1	The street network is to be aligned with views to landscape. Streets will run from the ridge line to creek lines to enhance visibility of the landscape.
A2	Vistas should extend to ensure view corridors to the broader landscape views.
A3	The Outer Sydney Oribital should be designed to enhance, not compromise, the scenic values of the Precinct. This includes consideration of its vertical alignment.

Figure 59 (overleaf): Agribusiness minimum lot sizes


Area to which minimum 20 Ha lot size applies
Scale 1:40,000 @ A4
0m
500m
1000m
2000m

4 Specific Precinct Plan – Performance Criteria

4.3.4 Heritage

The Agribusiness Precinct contains the highest concentration of listed non-Aboriginal heritage items in the Aerotropolis. Most of these items are in or around Luddenham Village. There are also significant places of Aboriginal cultural heritage significance with several Aboriginal artefacts and potential archaeological deposits identified, particularly within the north of the Precinct and around riparian areas (not shown in map due to sensitivity reasons). The Precinct Plan identifies several potential conservation corridors that contain Aboriginal heritage values.

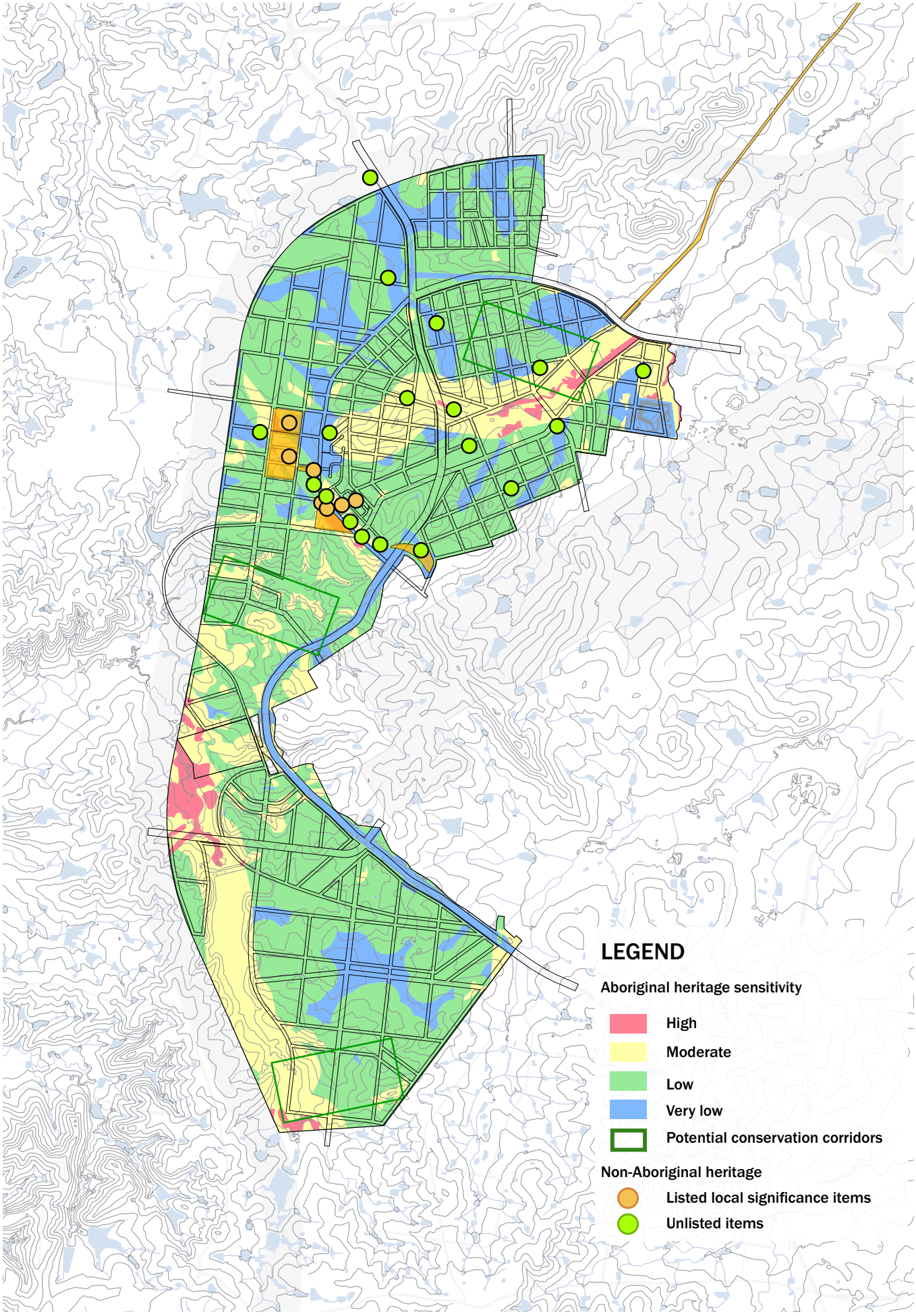
Objectives

AO1	Ensure development in the vicinity of heritage items is designed and sited to protect the heritage significance of the item and its setting.
AO2	Encourage design that maintains and enhances the character and heritage significance of Aboriginal and non-Aboriginal heritage items.
AO3	Protect places of Aboriginal cultural heritage significance and provide opportunities to connect to Country.
AO4	Further investigate the heritage significance of potential heritage items and potential areas of archaeological significance which are to be retained and conserved, where possible.
AO5	Undertake further engagement and cultural mapping with relevant Aboriginal stakeholders to improve understanding of cultural values, stories and places.

Requirements

A1	New development in vicinity of heritage items should be sympathetic to the significance of the item and its setting.
A2	New development should not impact on significant views to and from a heritage item.
A3	Development should be avoided by design in and around specific Aboriginal heritage site types, such as modified trees (carved and scarred) and grinding grooves.
A4	Development should be avoided in areas of High Aboriginal Heritage Sensitivity, minimized in areas of Moderate Sensitivity, and focused in areas of Low and Very Low Sensitivity.
A5	Design of new industrial and commercial buildings should be of a contemporary design in recessive colours and materials that do not overwhelm any adjacent heritage items.
A6	Landscaped linkages should include heritage interpretation in appropriate areas to optimise engagement with active and passive audiences.
A7	Community and visitor amenities should utilise any opportunity for heritage interpretation and landscape design to highlight the significance of the natural landscape.
A8	Any works that may impact a known, or potential archaeological site, should have an archaeological assessment undertaken to determine the significance and correct management requirements.
A9	Respect for landscape curtilages and connect significant items, such as scar trees, to the broader Aboriginal landscape surrounding the item.

Figure 60: Agribusiness heritage


LEGEND
Aboriginal heritage sensitivity
High
Moderate
Low
Very low
Potential conservation corridors
Non-Aboriginal heritage
Listed local significance items
Unlisted items

4 Specific Precinct Plan – Performance Criteria

4.3.5 Transport framework

Some street types across the Aerotropolis have been adapted to suit place-based requirements for the precinct.

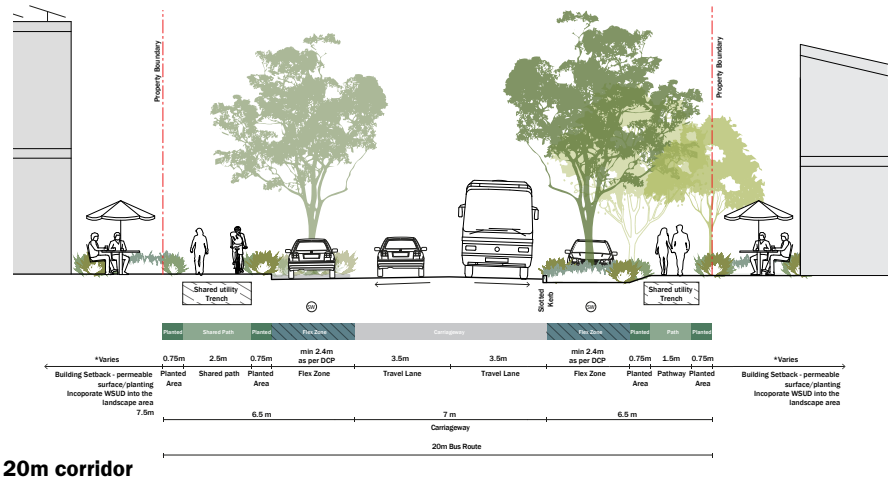
Objectives

AO1	Establish a hierarchy of streets that supports the future development and specific uses of the Agribusiness Precinct.

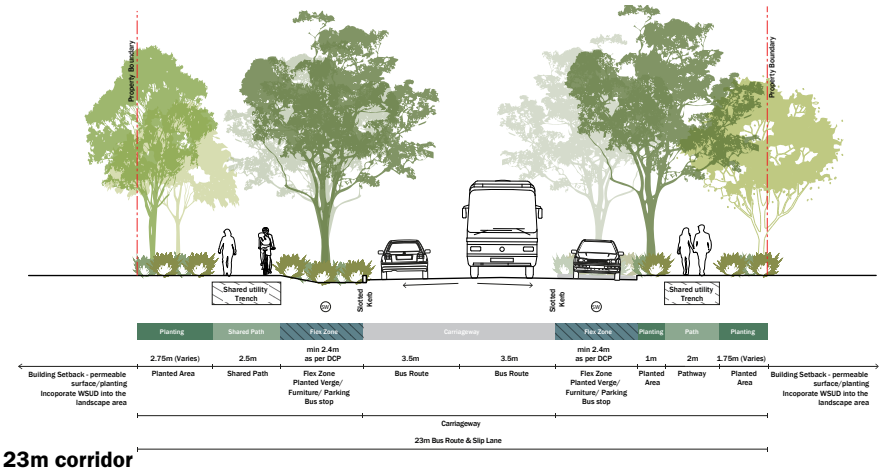
Requirements

A1	Establish within the hierarchy of streets cross sections as outlined in **Figures 61** to **65**, which are particular to this Precinct.

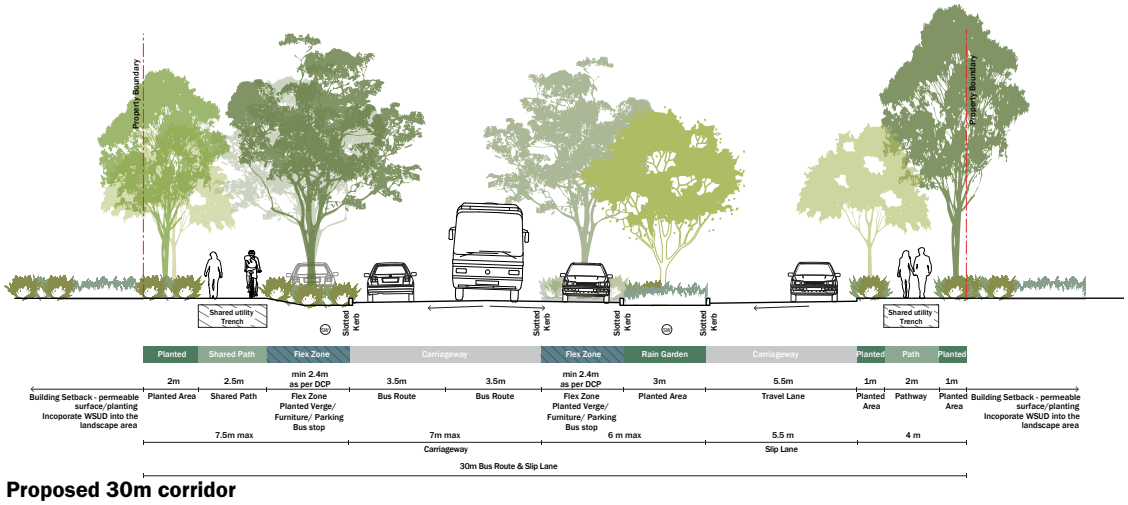
The Northern Road Function	
Principle control	Figure 61: The Northern Road through Luddenham Village



Proposed 20m corridor



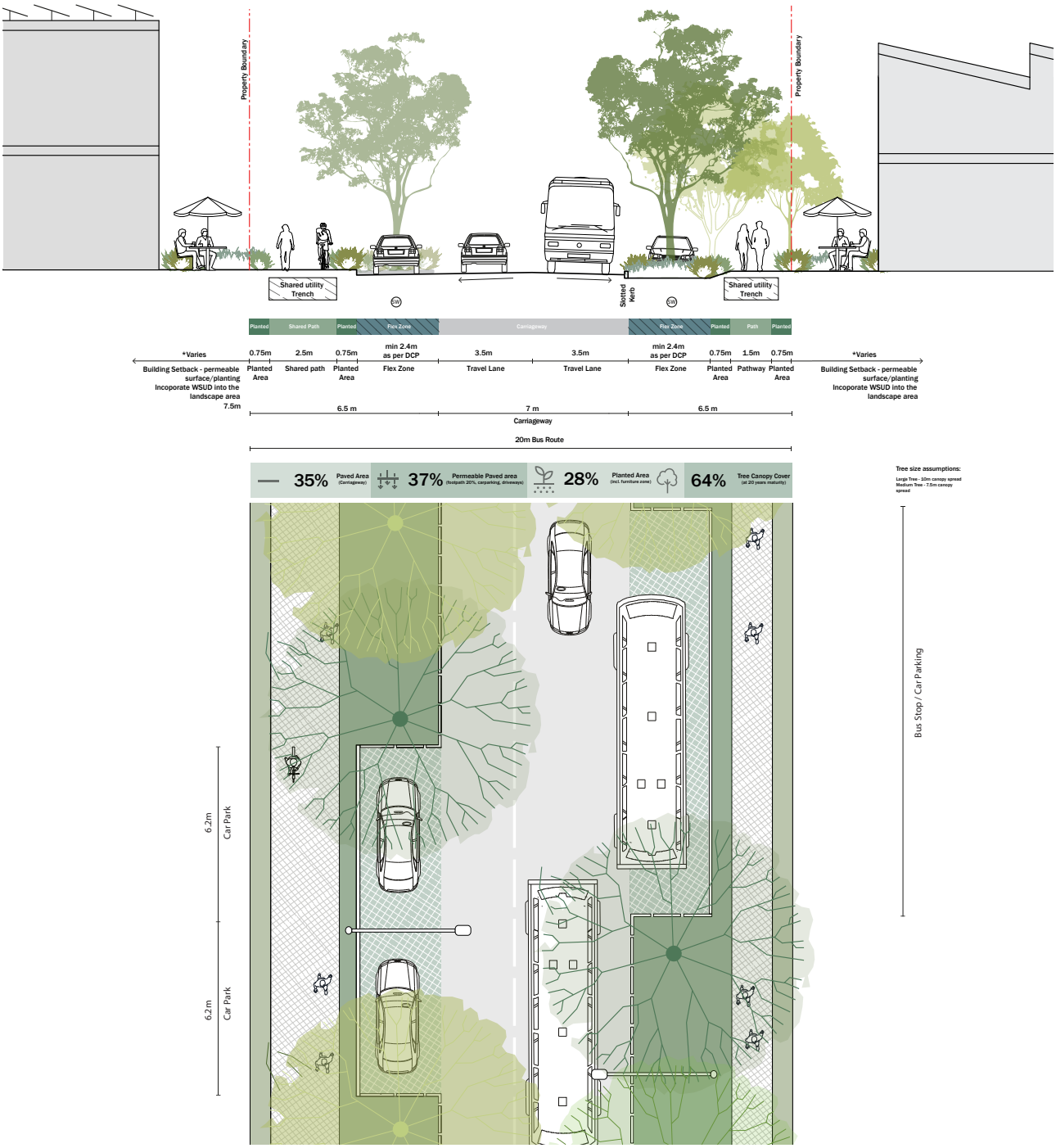
Proposed 23m corridor



Proposed 30m corridor

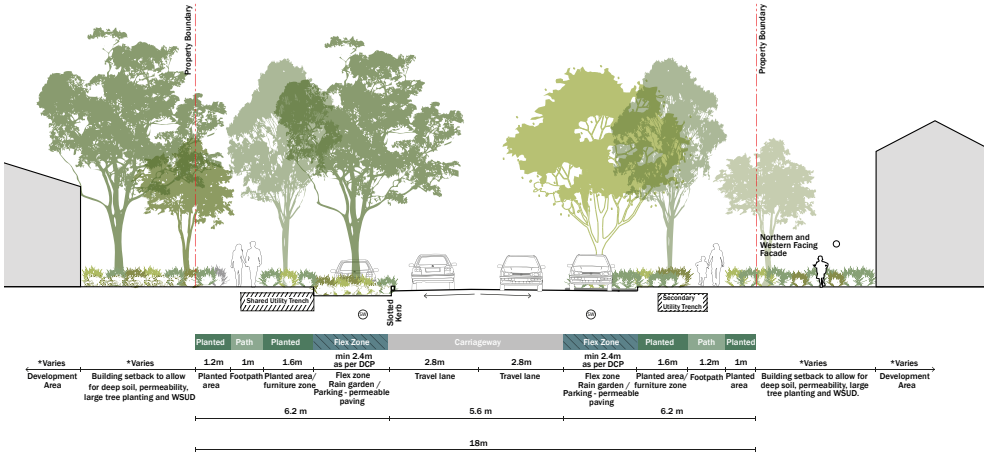
4 Specific Precinct Plan – Performance Criteria

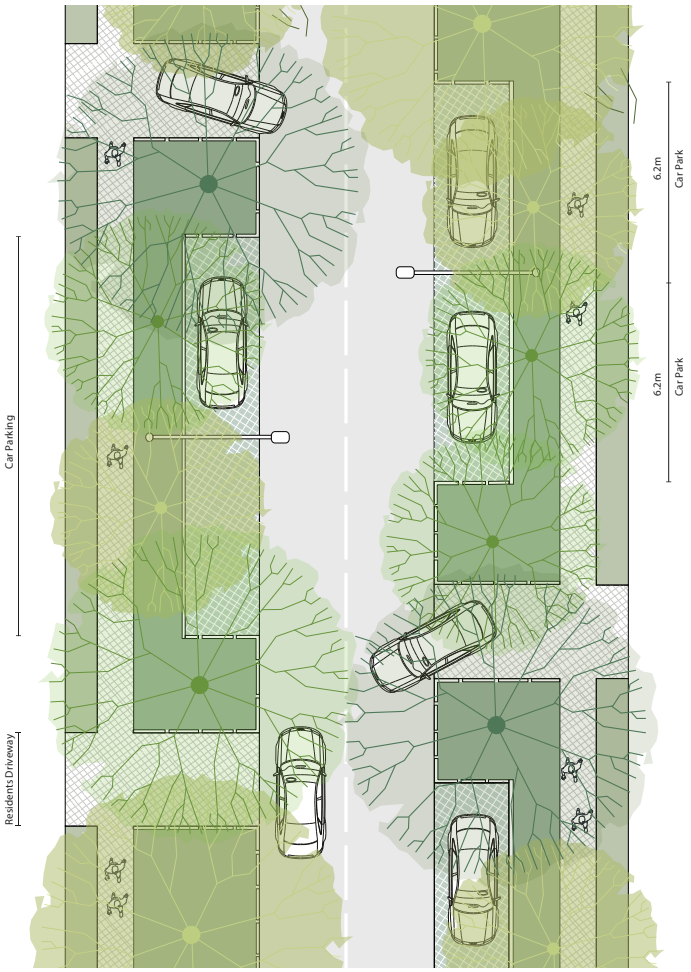
Campbell Street and Willowdene Avenue	
Principle control	Figure 62: Campbell Street and Willowdene Avenue sections



18 metre Residential Street

Principle control Figure 63: 18 metre residential street in Luddenham Village

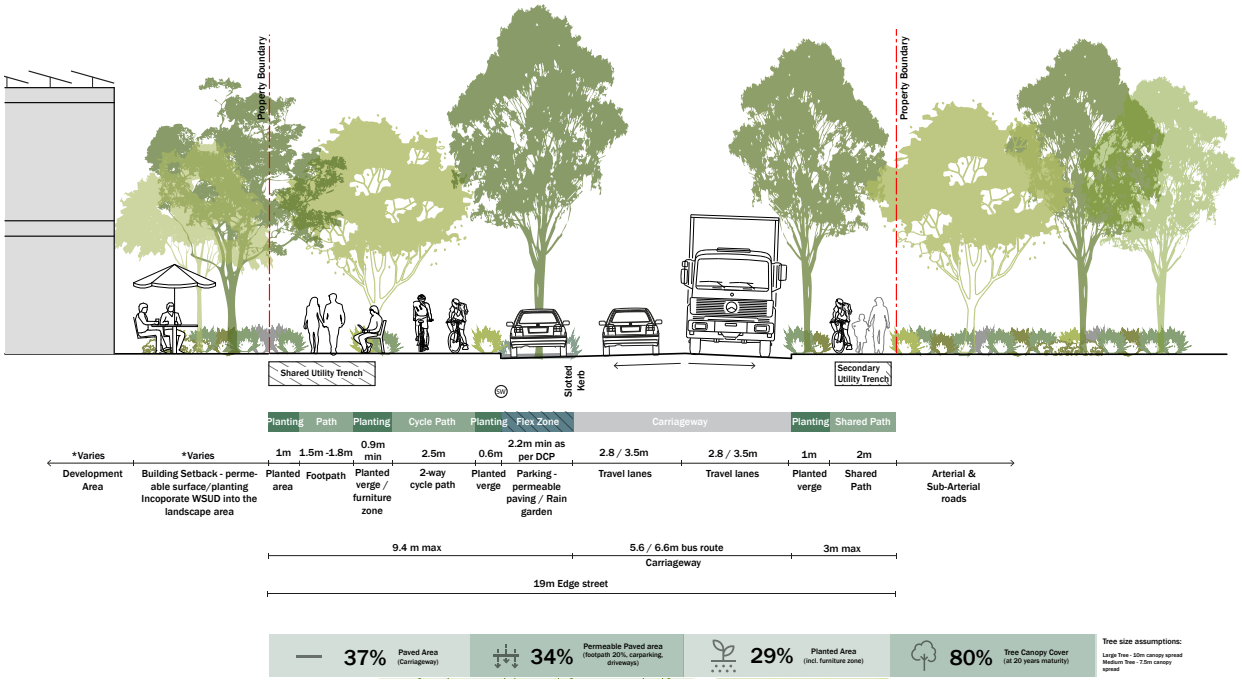


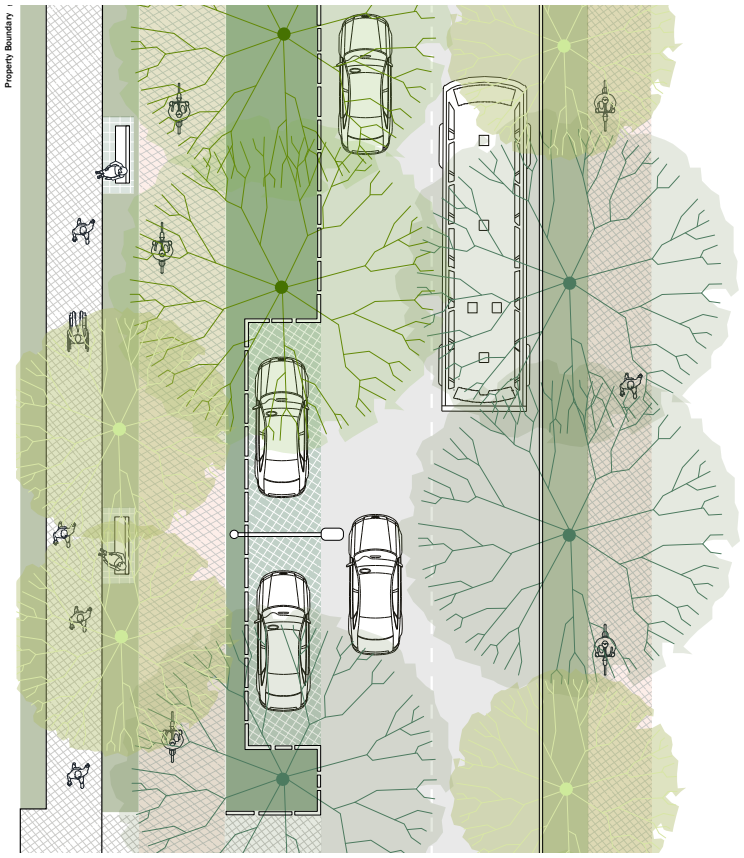


4 Specific Precinct Plan – Performance Criteria

19 metre Edge Street

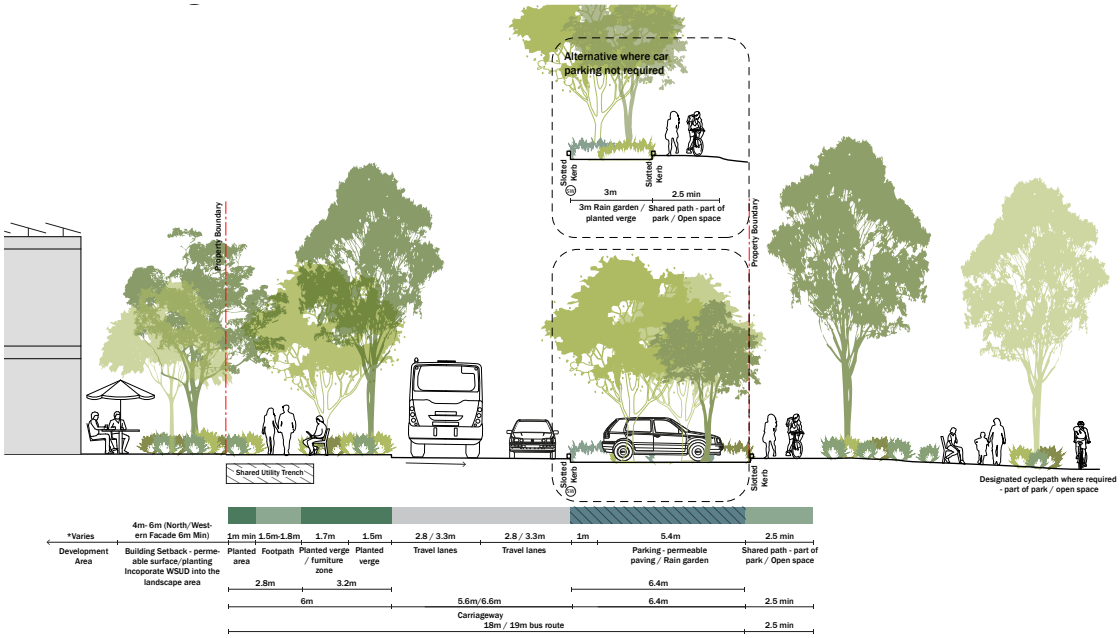
Principle control Figure 64: 19 metre Edge Street

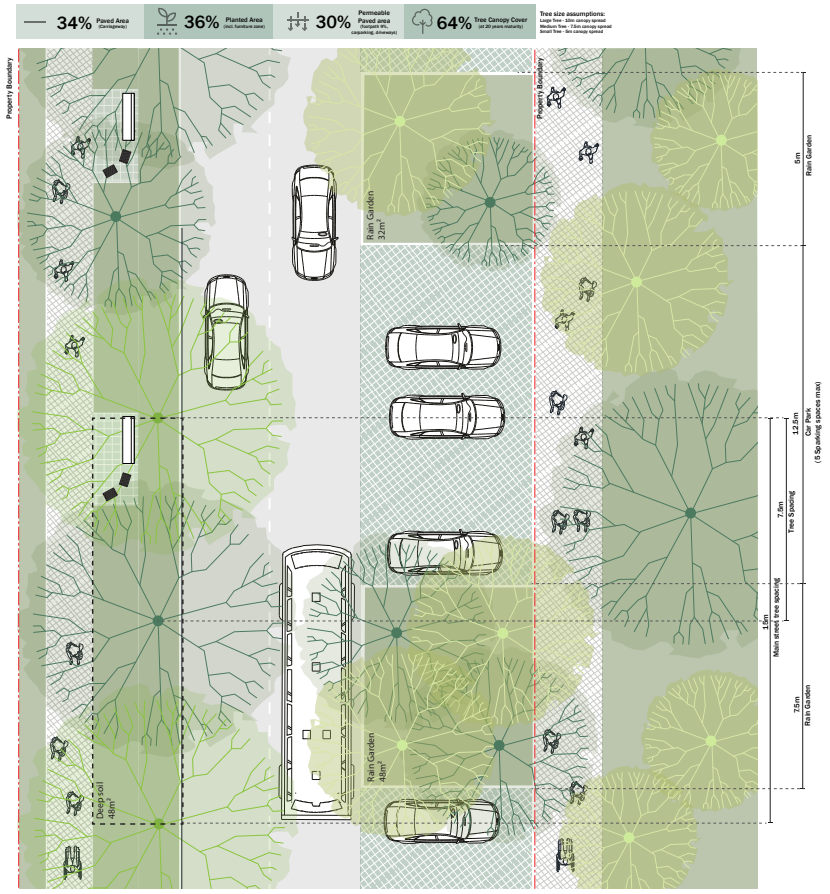




19 metre Park Edge Street

Principle control Figure 65: 19 metre Park Edge Street





5 Infrastructure delivery and staging

Meeting the vision for the Aerotropolis requires the coordination of land use, infrastructure and transport infrastructure. Infrastructure delivery for the Initial Precincts is to be provided as per the sequencing within the Initial Precincts.

The Greater Sydney Commission's Place-based Infrastructure Compact (PIC) will align infrastructure investment across agencies and utility providers. The Aerotropolis PIC will inform the planning of the Aerotropolis, together with future special infrastructure contributions frameworks.

5.1 Infrastructure delivery

A place-based approach to the Blue-Green Infrastructure Framework, along with transport, utilities and social infrastructure creates opportunities to integrate infrastructure corridors more comprehensively, especially given the scale of greenfield areas.

Rather than constrain development, the floodplain creates opportunities to co-locate water management, recreation and utilities. The area is also characterised by a series of gentle ridge high points draining to creeks and tributaries. The combined geographic features of flood and topography impact the location and sequencing of infrastructure such as the South Creek Recycling Plant and Pumping Station (water factory) and Wastewater Pumping Stations. These features along with major east-west infrastructure such as Elizabeth Drive will be significant drivers of logical infrastructure corridors.

The Western Sydney Planning Partnership is working with Transport for NSW to integrate road networks from trunk to local, with the Blue-Green Infrastructure Framework, topography and other geographic features.

The continuous floodplain and Blue-Green Infrastructure Framework will provide opportunities for locating multi-utility corridors, combined with transport infrastructure such as roads, all of which will be planned as part of an integrated process.

High level investigations as part of the PIC for the Initial Precincts have revealed infrastructure requirements as outlined in the table below.

Table 8: High level infrastructure requirements for initial precincts

	Aerotropolis Core, Badgerys Creek, Wianamatta-South Creek	**Northern Gateway**	**Agribusiness**
Electrical	Endeavour Energy has proposed to build a new zone substation within the Aerotropolis Core to cater for the initial demand and is to undergo a Regulatory Investment Test. Longer-term supply can be sourced from the new bulk supply point being constructed in the Agribusiness precinct near the Airport. Within the Badgerys Creek precinct, Endeavour Energy are looking to locate the proposed zone substation north of Elizabeth Drive.	Endeavour Energy is responding to early growth in the Northern Gateway Precinct by developing a new 132kV feeder and potentially two zone substations.	Transgrid and Endeavor Energy in joint planning are proposing to build a bulk supply point (BSP) in the Agriculture / Agribusiness zone (subject to detailed planning). The BSP is to be located close to the Airport and may serve as the feeding point for both the Airport as well as the Agribusiness Precinct.

5 Infrastructure delivery and staging

Water	Future demand for water is to be supplied from the Oran Park 600mm mains extension from Northern Road to the Aerotropolis Core and supported by a series of trunk mains and a new reservoir. Recycled Water is expected to be an option for the precinct as Sydney Water are creating the new water recycling centre at Upper South Creek.	Sydney Water are aware of the current network limitations and plans for a staged delivery of trunk water assets from 2021 including a new 450mm main along Luddenham Road and will also provide some spare capacity to the Northern Gateway.	Sydney Water plans to undertake Oran Park extension – a 600mm main to be extended from The Northern Road to the Aerotropolis Core Precinct. The water mains could also service the Agribusiness Precinct.
	The current ultimate drinking water supply strategy for these precincts is to supply from Prospect South delivery system via the Cecil Park water supply zone and a proposed new water supply zone. A new reservoir (60ML) is proposed in the west at the end of Elizabeth Drive within the Agribusiness precinct. New drinking water reservoirs, pumping stations and trunk mains are required to fully service the precincts. Purified recycled water could also be introduced as a source for the drinking water supply however this would be a city-wide decision and has not been considered locally.		
Sewer	The region is ultimately to be serviced by the new advanced water recycling centre to be constructed in Upper South Creek. The expected delivery of the facility is in 2025 and temporary intimin solutions are being explored by Sydney Water to supply growth in the short term before the AWRC comes online.		
	Additional mains and a pumping station along South Creek are proposed to service the Aerotropolis Core and Badgerys Creek.	-	A new gravity main is also to be installed along Cosgroves Creek and will be sized to suit the ultimate development and connect to the AWRC.
	To fully service the region requires several wastewater pumping stations (WWPS) and deep gravity trunk mains. Several new pressure mains will transfer flows to the proposed Upper South Creek Advanced Water Recycling Centre (USC AWRC). The AWRC first stage completion is targeted for mid 2025. Trunk wastewater infrastructure is planned to be delivered in stages based on DPIE growth forecasts. The first stages are planned to be delivered in line with operation of the new AWRC.		

Gas	Jemena's recommended plan to connect gas supply for the airport includes mains extension (250mm ST) via extension along Elizabeth Drive. A separate main from the south near Bringelly Road and interconnection on Badgerys Creek Drive has been proposed to service the Aerotropolis Core Precinct. From the secondary mains within the Badgerys Creek Precinct a 250mm ST line would be extended from Elizabeth Drive along the northern boundary of the Airport and onwards towards the Northern Gateway Precinct.	Jemena's recommended plan is to construct 5km 150mm secondary pipeline from the proposed Airport line into the Northern Gateway Precinct. While extensions along Elizabeth Drive and Luddenham Road supplemented with Secondary Regulating Sets (SRS) and construction of medium pressure network would supply other parts of the Precinct.	Plans for the Agribusiness Precinct are still at a high level concept phase with uncertainties about the land use and demand.
Tele-communications	Rollout plans for the various service providers are staged to match the location and pace of development in the Aerotropolis. No significant individual infrastructure items are proposed as of yet.		

5 Infrastructure delivery and staging

Implications for infrastructure – beyond business as usual

Strategic planning for the precinct embraces connectivity, liveability, productivity and sustainability; these objectives are supported by the significant investments in transport, utilities and social infrastructure under the City Deal. The Precinct Plan utility infrastructure achieve the Region Plan and District Plan:

- Aligning infrastructure at all scales from Precinct to place
- Optimising infrastructure – a beyond business as usual approach with consideration of all infrastructures together such as - blue-green, transport, utilities, and social/ recreational. Within the zone Environment and Recreation a there can be a multi-use corridor to integrate multi utility corridors.

Smart city – digital infrastructure

Smart City initiatives under the Western Sydney City Deal including 5G should be considered as part of the Multi Utility approach. The potential of the Western parkland City to be a Smart City requires:

- an inclusive and digitally capable region, where everyone has access to opportunities
- a productive region with flexible, future focused communication infrastructure for fast, reliable and affordable digital connectivity
- a resilient and sustainable region that uses technology to manage natural and waste resources efficiently and is focused on environmental, air and water quality
- respect scenic qualities and landscape; infrastructure corridors need to work with, rather than against waterways, topography.

Western City Utilities Collaboration Group

The Western Sydney City Deal Utilities Collaboration Group has been established to more closely align the provision of utilities, focussing on an infrastructure, rather than individual provider, led approach. The Group is also examining regulatory reforms to support this approach. The Group has provided the following update:

- the Collaboration agreement has been finalised and executed
- a workshop was held by the Utilities Collaboration Group in January 2020 to identify opportunities for the co-design of transport corridors with utilities provisions. The Elizabeth Drive corridor has been proposed for a pilot strategic engineering study to investigate options for optimising corridor design outcomes and minimising land acquisition requirements. The preferred corridor outcome for Elizabeth Drive needs to incorporate a 60-metre corridor for the 6-lane road upgrade as well as provisioning for major trunk water, power and gas services.

The purpose of the strategic engineering investigation of the Elizabeth Drive corridor is to:

- confirm with utilities providers the scope of utility provisions (e.g. capacity) proposed to be included in the corridor
- develop a set of cross-section options for co-locating utilities services with transport infrastructure
- identify relevant design guidelines to be applied to the cross-section options including the potential need for revised/deviations from applicable standards
- prepare a typical (conceptual) cross-section drawings and cost estimates for strategic cross-section options
- provide advice to support the comparison of options including key risks and technical issues to be resolved
- share GIS data with utilities to direct the pilot strategy
- follow the ambitious program directed by the utility collaboration group

5 Infrastructure delivery and staging

With the sequencing of infrastructure and the need to integrate infrastructure and land uses the following objectives and requirements need to be met.

Objectives

IO1	Ensure development occurs in a logical and staged manner, in line with surrounding sequence of utility services/infrastructure provision.
IO2	Ensure appropriate utilities and services are planned early and provided to meet demand.
IO3	Protect existing utility infrastructure, including the Warragamba pipeline corridor and TransGrid transmission lines.
IO4	Undertake utilities and services in a manner that is safe, efficient and cost effective without negatively impacting on peoples' lives or the environment.
IO5	Use the development of utilities infrastructure to achieve positive urban design and amenity outcomes.
IO6	Ensure design and location of utilities infrastructure allow space for planting water sensitive urban design and footpaths.
IO7	Ensure utilities designs and locations consider space for alternative future services and allow for multiutility corridors in the future.
IO8	Use technology and data driven solutions to maximise quality of life across the Western Sydney Aerotropolis, in line with the NSW Smart Places Strategy and Smart Western City Program.

Requirements

I1	Development near a utility service should be in accordance to the relevant service authority's guidelines and requirements.
I2	Development will need to investigate future planned utility infrastructure, including the aviation fuel pipeline
I3	Services and utilities are designed and located to achieve positive urban design and amenity outcomes.
I4	Use shared utility trenches to combine multiple utilities within a compact area of the street verge, and future proof service location within road cross-sections.
I5	Provide fast, reliable and high-speed fixed and wireless internet connectivity across the Aerotropolis to the standards listed in the Australia and New Zealand Smart Cities Council Code for Smart Communities.
I6	Once a future fuel pipeline is confirmed, the proponent is to undertake a land use safety assessment to determine appropriate buffers to reduce public risk in consultation with the relevant agencies.

5.2 Sequencing Priorities within the Initial Precincts

The Initial Precincts are the first stage precincts to be developed in the Aerotropolis. Sequencing within the Initial Precincts provide the priorities across infrastructure development and to align Government investment with achieving targets established in the Western Sydney Aerotropolis Plan.

Staging and sequencing across the Aerotropolis has been informed by the PIC and in order to communicate priorities across infrastructure development. The Aerotropolis PIC will provide more detailed timing of infrastructure.

Sequencing of the Initial Precincts is based on the following criteria:

- tri-level government Western Sydney City Deal commitments
- job creation potential
- focus on and around the new Metro Stations to support the new public transport
- leverage the M12, Northern Road and associated access to the airport and Elizabeth Drive upgrades
- government priority areas within the Aerotropolis Core
- support for focused centres in the Agribusiness Precinct – Luddenham Village and Agriport
- infrastructure utility investment extending from existing infrastructure
- acknowledging environmental constraints.

Key requirements for sequencing of development and infrastructure

1. Development does not compromise the orderly provision and staging of the transport network, utilities and servicing.
2. Early development prioritises/ leverages off locations with mass transit capacity and is well supported by high levels of public and active transport accessibility.
3. Development does not result in isolated areas requiring out of sequence servicing by transport networks, utilities and services.
4. New roads provided as part of new development are integrated with any proposed local and regional road network and does not result in isolated and poorly connected road sections.

5 Infrastructure delivery and staging

Three broad sequencing of the precincts are proposed. The NSW Government supports the sequencing within the precincts to generally occur in the manner as outlined below and demonstrated in **Figure 66**.

Development within the priority order is likely to result in additional servicing/ infrastructure requirements even for the second and third priority areas whilst government will be focussed on priority development stage

The first areas of priority are:

- High density employment areas within walking/ active transport distance from the committed Metro Stations at Luddenham and Aerotropolis Core
- Associated large unfragmented landholdings
- Land adjacent and outside of the M12 corridor and interchange area that can support access to the Western Sydney Airport
- Agribusiness land in the northern area enabling access to the Western Sydney Airport from The Northern Road.
- Agribusiness land in the southern area that links to Northern Road and airport entry

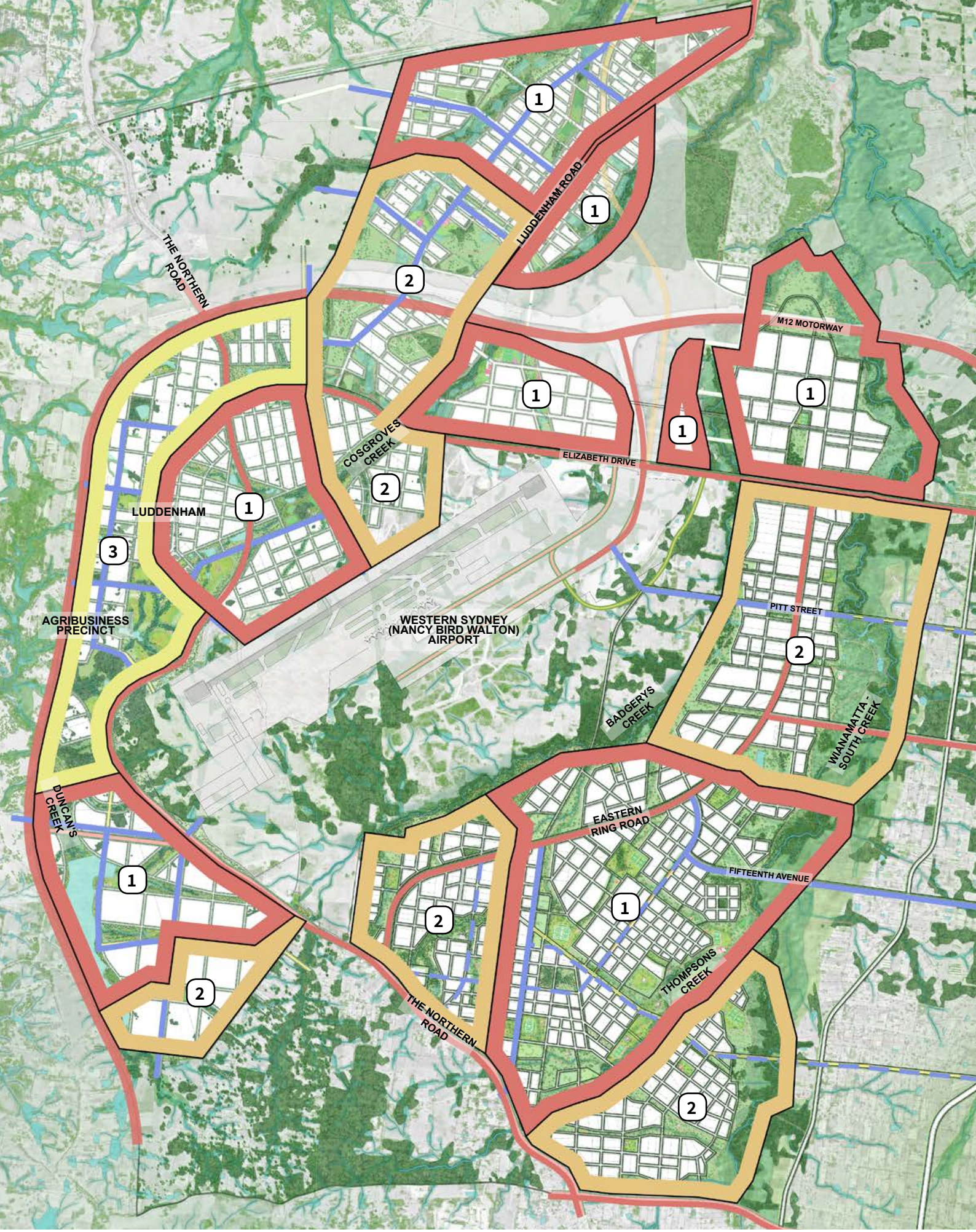
The areas of second priority are:

- Mixed use zoned land east of Thompsons Creek in relatively close proximity to the Metro and Aerotropolis Core Centre that can bolster employment and resident populations
- Connecting developed areas between the Aerotropolis Core, Badgerys Creek and Northern Gateway precincts.
- Land to the immediate west of Badgerys Creek Road

The third areas of priority are:

- Land that is further from either committed infrastructure and / or more difficult to develop owing to environmental and topographical constraints

Figure 66 (overleaf): Sequencing of the initial precincts



Sequencing Plan
Western Sydney Aerotropolis

First priority areas
Second priority areas
Third priority areas

N

5 Infrastructure delivery and staging

5.3 Out of sequence development

The *Urban Design and Landscape Reports* have provided an outline of the sequencing and priorities for the future land use and development of the Initial Precincts. The sequencing has integrated anticipated employment and residential development, market demand and integrated with infrastructure provision.

If there is a need for "out of sequence" development this will only be permitted with 'no cost to government' and consistent with the Precinct Plan guidelines.

Objectives

IO1	Allow only out-of-sequence development on the basis that the development achieves the vision and objectives of the Aerotropolis and there will be no cost to government.
IO2	Allow only out-of-sequence development after the Secretary of Planning has approved a Precinct Plan.

Requirements

I1	Out of sequence or acceleration of a site within an Initial Precinct prior to that included in **Section 5.2** of this Precinct Plan will only be permitted on achievement of the following requirements (see below in I2), and with the approval of the Secretary of the Department of Planning, Industry and Environment.
I2	**Strategic objectives** a. Demonstrate significant delivery and contribution to the Aerotropolis vision, and Precinct Plan objectives and principles b. Demonstrate that the development will provide a net community, economic and environmental benefit c. Be consistent with the required land use, heights, floor space ratio, coverage as outlined in the Precinct Plan d. Demonstrate achievement of the employment targets for the Precinct Plan e. Demonstrate design excellence. **Integrated infrastructure delivery** f. Provide an integrated infrastructure strategy, including stormwater infrastructure, that ensures no cost to government and cost recovery for local and regional infrastructure. **Sustainability** g. Achieve or exceed the sustainability targets and requirements. **Market viability** h. Demonstrate land use and infrastructure that aligns with the market conditions and provides for the delivery of housing and employment i. Provide a significant investment with new innovation that creates major job opportunities for the Aerotropolis
I3	Out of sequence development is likely to provide additional servicing/ infrastructure requirements whilst government will be focussed on priority development stages.
I4	Out of sequence development should not undermine the economic feasibility of development that is consistent with sequencing specified in the Precinct Plan or have an undue impact on areas of economic activity outside of the Aerotropolis.

Glossary

1% AEP	A statistical event occurring on average every 100 years, that is there is a 1% chance of a flood of this size or greater occurring in any given year
30-minute city	Quicker and easier access, connecting people to jobs, businesses, schools and services and supports the economic efficiency of trade gateways.
5G	Fifth-generation cellular network technology.
Active street frontage	A ground floor business, commercial or retail building street frontage, at street level that has direct and level entry and openings allowing physical and visual access that encourages interaction between the inside of the building and the adjoining external areas, including footpaths, road reserves or public spaces. Active street frontages support pedestrian safety and amenity, providing an interface between the public and private domain.
Aerospace	The branch of technology and industry concerned with the research, design, manufacture, operation and maintenance of aircraft, space craft, and their components and supporting services.
Aerotropolis	A metropolitan area where infrastructure, land uses and economy are centred on an airport and includes the outlying corridors, and aviation orientated business and residential development that benefit from each other and their accessibility to the airport.
Aerotropolis Core	This is the central city at the core of the Aerotropolis activity associated with the Airport. The combination of uses, activities, development and places are reliant on and complementary to the operation of a global airport.
Agribusiness	Businesses associated with the production, processing, marketing and distribution of agricultural products, especially at a large and integrated scale.
Agriculture	Generally associated with traditional primary production. It includes the cultivation of land for the growing of crops and breeding of animals.
Agriport	A high-tech food production facility that enables industry collaboration at scale to intensively and sustainably produce fresh value-added high-quality produce and pre-prepared food.
Airside	All parts of an airport around aircraft and buildings only accessible to authorised personnel.
Amenity	The 'liveability' of a place that makes it pleasant and agreeable for individuals and the community. Amenity includes, but is not limited to, the enjoyment of sunlight, views, privacy and quiet.
Ancillary development	Development that is subordinate or subservient to the dominant purpose for which a site is used or proposed to be used.

Australian Noise Exposure Contours (ANEC)	Anticipated forecasts of future noise exposure patterns based on indicative flight paths around an airport that constitute the contours.
Australian Noise Exposure Forecast (ANEF)	Approved forecasts of future noise exposure patterns around an airport that constitute the contours on which land use planning authorities base their controls.
Articulation	The architectural treatment of the exterior of a building using the different building elements that make up that part of the building. It involves how the building's exterior surfaces, edges, corners and materials unite to give the building its form.
Asset protection zone	A fuel-reduced area surrounding a built asset or structure which provides a buffer zone between a bush fire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required asset protection zone varies with slope, vegetation and Fire Danger Index (FDI).
Benchmark solutions	The means by which a development may achieve the intent of a planning objective or performance outcome.
Better Placed	An integrated design policy prepared by the NSW Government Architect.
Biodiversity	The variety of living animal and plant life from all sources, and includes diversity within and between species and diversity of ecosystems.
Biodiversity offsets	Measures that compensate elsewhere for the adverse impacts of an action, such as clearing for development. Biodiversity offsets protect and manage biodiversity values in one area in exchange for impacts on biodiversity values in another.
Blue-Green Grid	A network of high quality green areas and waterways, from regional natural assets to local natural assets, that connect centres, public transport and public spaces to green and blue infrastructure.
Blue–Green Infrastructure Framework	An interconnected network of natural and semi-natural landscape elements (sometimes referred to as blue or green infrastructure), including water bodies, urban canopy and open spaces.
Business incubator	A company that helps new and start-up companies to develop by providing services such as management training or office space.
Circular economy	A whole-of-system approach that accounts for the full cost and lifecycle of materials and retains the value of materials in the economy for as long as possible, reducing the unsustainable depletion of natural resources and impacts on the environment.

Circular economy activities	Any activity associated with the operation of Circular Economy infrastructure. Circular Economy activities includes the way we produce, assemble sell and use products to minimise waste, and to reduce our environmental impact and encompass the use of materials produced from Circular Economy Infrastructure, including recovered materials, repaired goods, leased products etc.
Circular Economy Infrastructure	Circular Economy infrastructure can encompass facilities that store, transfer, sort, reprocess or repurpose materials and goods to retain their productive value and prevent their disposal to landfill. Examples of circular economy infrastructure includes reuse and repair facilities, sharing and leasing facilities, reverse vending machines, community recycling centres, collection points for producer responsibility schemes, water reuse schemes, material bulking, sorting, storing facilities, material reprocessing and remanufacturing, washing or pelletising facilities, reverse logistics facilities, energy from waste (thermal), anaerobic digestion and chemical treatment of waste etc Circular Economy infrastructure also includes the waste and resource recovery facilities as defined in the Standard Instrument such as resource recovery facilities, transfer stations, compost facilities, waste disposal facility.
Clean fill	Means virgin excavated natural material, being natural material (such as clay, gravel, sand, soil or rock fines)— a. that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities, and b. that does not contain any sulfidic ores or soils or any other waste, and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved for the time being pursuant to an EPA Gazettal notice.
Climate change	A change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere in addition to natural climate variability.
Communications, navigation and surveillance facilities	Facilities that allow: • pilots to navigate when enroute between airports • pilots to utilise terminal area navigation aids to conduct instrument approach procedures • dialogue between pilots and Air Traffic Control • Air Traffic Control to monitor and confirm an aircraft location.

Country	For Aboriginal peoples, Country relates not only to the cultural group and land to which they belong, it is also their place of origin in cultural, spiritual and literal terms. Country includes not only the land but also waters and skies, and incorporates the tangible and intangible, knowledges and cultural practices, identity and reciprocal relationships, belonging and wellbeing.
Consent Authority	The same meaning as in Section 4.5 of the *Environmental Planning and Assessment Act 1979*. For the purposes of this Act, the consent authority is as follows— a. in the case of State significant development—the Independent Planning Commission (if the development is of a kind for which the Commission is declared the consent authority by an environmental planning instrument) or the Minister (if the development is not of that kind), b. in the case of development of a kind that is declared by an environmental planning instrument as regionally significant development—the Sydney district or regional planning panel for the area in which the development is to be carried out, c. in the case of development of a kind that is declared by an environmental planning instrument as development for which a public authority (other than a council) is the consent authority—that public authority, d. in the case of any other development—the council of the area in which the development is to be carried out.
Conservation (heritage)	Includes all the processes of looking after a place so as to retain its cultural significance. This includes preservation, protection, maintenance, restoration, reconstruction and adaptation.
Conservation (vegetation management)	All the processes and actions of looking after a place so as to retain its natural significance and includes protection, maintenance and monitoring. Conservation may also include regeneration, restoration, enhancement, reinstatement, preservation or modification, or a combination of more than one of these. Conservation includes conserving natural processes of change (as opposed to artificially accelerated changes).
Contaminated land	Land in, on or under which a substance is present at a concentration above that normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.

Controlled activities	Any activity that infringes an airport's protected operational airspace and requires approval before it can be carried out. Controlled activities include: • permanent structures, such as building • temporary structures, such as cranes • any activities causing intrusions into the protected operational airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam or other gases or particulate matter.
Cultural Design Principles	A set of broad principles that inform the sustainable management of built and cultural heritage including Aboriginal cultural heritage.
Crime prevention through environmental design (CPTED)	A multi-disciplinary approach to deterring criminal behaviour through environmental design. Crime prevention through environmental design strategies rely upon the ability to influence offender decisions that precede criminal acts. The four principles of the approach are: • surveillance • access control; • territorial reinforcement • space management.
Cumberland Plain Conservation Plan (CPCP)	Address impacts on biodiversity from urban growth through a conservation program that includes commitments and actions designed to improve ecological resilience and function over the long-term. The CPCP will enable land to be certified for development and areas avoided from development conserved. The CPCP will enhance a network of green spaces, natural and semi-natural systems in Western Sydney.
Defence	The branch of industry concerned with the research, design, manufacture, operation and maintenance of military equipment, supplies and services.
Design excellence	The highest level of architectural, urban and landscape design. Design excellence processes can include review panels, competitive design competitions. All processes require a form of design excellence assessment.
Development	As per the EP&A Act, development includes any of the following: the use of land; the subdivision of land; the erection of a building; the carrying out of a work; the demolition of a building or work; or any other act, matter or thing that may be controlled by an environmental planning instrument.
Development area	Means the land occupied by the development, including the area of land to be used as public road, or reserved or dedicated as public road. The development area does not include the area of any existing road or land to be reserved dedicated or set aside for the purposes of public benefit as identified in the precinct plan.

Development application	An application for consent under Part 4 of the EP&A Act to carry out development (not including an application for complying development) such as change of use of land, subdivide land, or building, landscaping and other work.
Development Control Plan (DCP)	Provides detailed planning and design guidelines to support established planning controls.
Ecologically sustainable development	Same meaning as in Section 6 (2) of the *Protection of the Environment Administration Act 1991*. • ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs: • the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. • In the application of the precautionary principle, public and private decisions should be guided by: • careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and • an assessment of the risk-weighted consequences of various options, • inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations; • conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration; • improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as: • polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement; • the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste; and • environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

End of trip facilities	Designated places that support cyclists, joggers and walkers in using alternative ways to travel to work rather than driving or taking public transport. These types of facilities also benefit people who exercise during their lunch break. End of trip facilities include: • secure bicycle parking • locker facilities • change rooms.
Environmental planning instrument	An environmental planning instrument (including a state environmental planning policy or local environmental plan but not including a Development Control Plan) made, or taken to have been made, under Part 3 of the *Environmental Planning and Assessment Act 1979* and in force.
Floodplain	An area of land which is subject to inundation by floods up to and including the probable maximum flood event, that is, flood prone land.
Greater Sydney	The local government areas within the boundary shown on the map in the Greater Sydney Region Plan and Schedule 1 of the Greater Sydney Commission Act 2015.
Green Grid	The network of high-quality green spaces and tree lined streets that supports walking, cycling and community access to open spaces. It will provide cool, green links throughout the Aerotropolis and connect more broadly to the Western City District and Greater Sydney.
Green infrastructure	The network of green spaces, natural systems, and semi-natural systems that support sustainable communities and includes waterways, bushland, tree canopy and green ground cover; parks; and open spaces that are strategically planned, designed, and managed to support a good quality of life in an urban environment.
Growth Area	Identified by the NSW Government as major greenfield development or urban renewal areas.
Habitat	Includes an area periodically or occasionally occupied by a species or ecological community, and the biotic and abiotic components of an area.
Hazardous material	Materials that have the potential to pose a significant risk to human health, life or property, or to the biophysical environment. These may include materials that are radioactive, flammable, explosive, corrosive, oxidising, asphyxiating, bio-hazardous, toxic, pathogenic, or allergenic. Compressed gases and liquids or hot materials that may be hazardous in specific circumstances may also be included.
Integrated water cycle management	An approach to the management of water that considers aspects of water including rainwater, stormwater, groundwater, water supply and use, reuse and treatment.
Irrigation	The supply of water to land or crops to help growth, typically by means of channels.

Local Centre	Smaller-scale places that vary from a few shops on a corner to a vibrant main street and generally serve a local population.
Local Environmental Plan (LEP)	Defined in the EP&A Act. Guides planning decisions in local government areas through zoning and development controls.
Master Plan	An optional plan created under the Aerotropolis SEPP for large sites or landholdings of 100 hectares or more.
Mixed use development	A building or place comprising two or more different land uses
National Airports Safeguarding Framework (NASF)	National land use planning framework to improve community amenity by minimising aircraft noise- sensitive developments near airports and improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions on various safety related issues.
NSW Circular Economy Policy Statement	A Statement by the NSW Government that will help guide decision making to support the transition to a circular economy
Obstacle Limitation Surface (OLS)	Designed to protect aircraft flying in visual conditions close to an airport by defining a volume of airspace to be protected from development, primarily modelled on the layout and configuration of proposed runways.
Outer Sydney Orbital	The Outer Sydney Orbital is a proposed corridor for a motorway and freight rail line in Western Sydney, connecting Box Hill in the north to the Hume Motorway near Menangle in the south.
Peri-urban lands	Land for agriculture undertaken in places on the fringes of urban areas.
Permeable surface	A surface that permits or facilitates the infiltration or penetration of water such as grass, landscaping or porous paving.
Precinct planning	Identifies the development intent and development capacity across a precinct by allocating land uses, densities, housing types, built form, infrastructure and environmental and open space.
Private open space	An area external to a building (including an area of land, terrace, balcony or deck) that is used for private outdoor purposes ancillary to the use of the building.
Procedures for Air Navigation Services – Aircraft Operations Surfaces (PANS-OPS)	The primary surface for protecting aircraft operating under non-visual (instrument guided) conditions generally located above the OLS. Separate procedures for each runway and for the type of navigation system being used and the multiple surfaces are combined to form the PANS OPS.
Public domain	Any publicly or privately-owned space that can be accessed and used by the public and/or is publicly visible.

Public utility infrastructure	Infrastructure for any of the following: • the supply of water • the supply of electricity • the supply of hydraulic power • the supply of gas • the disposal and management of sewage or drainage services.
Public safety area	A designated area at the end of an airport runway within which development may be restricted in order to control the number of people on the ground at risk of injury or death in the event of an aircraft accident on take-off or landing.
Public space	Includes parks, green spaces, plazas, libraries, streets, landscapes, museums, and public transport.
Remediation	Removing, dispersing, destroying, reducing, mitigating or containing the contamination of any land; or Eliminating or reducing any hazard arising from the contamination of any land (including by preventing the entry of persons or animals on the land).
Resilience	The ability of a system, community or society that is exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.
Resilient design	The Australian Institute of Architects defines as: • Design through mitigation could be considered as 'place friendly' development designed to minimise long-term stresses such as greenhouse gas emissions, affordable housing and transport congestion. • Design through adaptation could be considered as 'place safe' development where design leads to low vulnerability to potential natural hazard impacts such as heatwaves, bushfire, flooding and coastal hazards.
Ride and car sharing	An arrangement in which a passenger travels in a private vehicle driven by its owner, for free for a fee.
Riparian corridor	The channel which comprises the bed and banks of a watercourse (to the highest bank) and the vegetated riparian zone adjoining the channel.
	Includes: • footway • kerb and gutter • road carriageway ancillary items to any of the above - any stormwater drainage asset, road/street furniture, edging, lighting, poles, services, signage etc.
Salinity	The salt content in water or soil.

Signage	Any sign, notice, device, representation or advertisement that advertises or promotes any goods, services or events and any structure or vessel that is principally designed for, or that is used for, the display of signage, and includes any of the following: • an advertising structure • a building identification sign • a business identification sign but does not include a traffic sign or traffic control facilities.
Site Coverage	The proportion of a site area covered by buildings. However, the following are not included for the purpose of calculating site coverage— a. any basement, b. any part of an awning that is outside the outer walls of a building and that adjoins the street frontage or other site boundary, c. any eaves, d. unenclosed balconies, decks, pergolas and the like.
Solar access	The ability of a building, part of a building or open space to continue to receive direct sunlight without obstruction from other surrounding buildings or impediments, not including trees.
State Environmental Planning Policy (SEPP)	Environmental planning instruments that address planning issues of State significance.
State Environmental Planning Policy (Sydney Region Growth Centres) 2006	The environmental planning instrument that sets controls for both the North West and South West growth areas of Sydney.
STEM (science, technology, engineering and mathematics)	An approach to learning and development that integrates the areas of science, technology, engineering and mathematics.
Stormwater	Untreated water that originates from rainfall or snow/ice melt and soaks into the ground (infiltrate), is held on the surface and evaporates, or runs off to streams, rivers or other water bodies (surface water).
Strategic centre	Characterised by a high proportion of knowledge-intensive jobs, existing or proposed major transport gateways and increased economic activity.
Streetscape	The character of a street and its close surrounds defined by the spatial arrangement and visual appearance of built and landscape features when viewed from the street.

Sydney Metro – Western Sydney Airport	A new 23km railway line that will link St Marys through to the new Western Sydney International (Nancy-Bird Walton) Airport and Western Sydney Aerotropolis and will have six new Metro stations: • St Marys • Orchard Hills • Luddenham • Airport site (two stations) • Western Sydney Aerotropolis
Threatened species	A critically endangered species, an endangered species or a vulnerable species listed in Schedule 1 of the *Biodiversity Conservation Act 2016*; or A listed threatened species within the meaning if the *Environment Protection and Biodiversity Conservation Act 1999*.
Transport for NSW (TfNSW)	A NSW Government agency responsible for the safe, integrated and efficient transport systems for people of NSW
Tributary	A river or stream flowing into a larger river or lake.
Undisturbed soil network	A network of interconnected undisturbed site soils, occurring in riparian corridors, parks and specially designed natural soil corridors that are the foundation for the health of the Blue and Green Grid.
Upper South Creek Advanced Water Recycling Centre	A new Sydney Water facility that will collect and treat wastewater from the Aerotropolis and South West Growth Area. It will produce advanced quality treated water and provide for a wide range of re-use and substitution opportunities including supplying water for agriculture and environmental flows. It will also support the Circular Economy via the production of renewable energy and bioresources.
Urban heat island effect	An agglomeration of hard and dark-coloured surfaces such as roads and roofs which cause excessive localised warming.
Urban typologies	Precinct-scale snapshots of various forms of urban development incorporating built form, roads and subdivision pattern and open space.
Variation statement	A written statement accompanying a DA demonstrating how the objectives and relevant control and/or performance outcome will be achieved if an alternative to the 'benchmark solutions' is proposed.
Waterway	The whole or any part of a watercourse, wetland, waterbody (artificial) or waterbody (natural).
Western Economic Corridor	New economic agglomerations around the Western Sydney Airport, including the Aerotropolis.

Western Parkland City	Broadly, Penrith, Liverpool, Campbelltown, Hawkesbury, Wollondilly, Camden, Fairfield and Blue Mountains LGAs, anchored around Liverpool, Greater Penrith and Campbelltown–Macarthur, with the new Airport and Aerotropolis geographically at its centre.
Western Parkland City Authority (WPCA)	A NSW Government body (formerly the Western City & Aerotropolis Authority) established to facilitate the delivery of the Western Parkland City. The WPCA works across all three levels of Government to jointly plan, design and deliver the best possible outcomes in infrastructure, liveability, investment attraction, job growth and sustainability.
Western Parkland City Metropolitan Cluster	Comprises the Aerotropolis, Liverpool, Greater Penrith and Campbelltown- Macarthur.
Western Sydney Aerotropolis	Encompasses 11,200 hectares of land roughly bounded by the Warragamba pipeline to the north, Kemps Creek to the east, Bringelly Road to the south and the future Outer Sydney Orbital Road to the west.
Western Sydney Aerotropolis Plan	A strategic plan that provides the vision, principles and planning framework for the Western Sydney Aerotropolis.
Western Sydney Airport	A Commonwealth business enterprise established in August 2017 to build the new Airport.
Western Sydney Council's Street Guidelines	Guidelines to deliver liveable and effective pedestrian spaces and thoroughfares in the Western Parkland City through appropriately designed street-types and street components
Western Sydney International (Nancy-Bird Walton) Airport	The declared airport site located on approximately 1,780 hectares of land at Badgerys Creek. The airport will be developed in stages and will ultimately comprise two parallel runways serving approximately 82 million passengers annually. The Airport will operate 24/7 without a curfew.
Western Sydney Planning Partnership	A local government-led initiative comprising of representatives of all eight Western Parkland City councils as well as Blacktown Council, and representatives from the NSW Department of Planning, Industry and Environment, Transport for NSW, Sydney Water and the Greater Sydney Commission.
Wianamatta-South Creek Catchment	Includes most of the Cumberland Plain of Western Sydney and is a defining central element of the Western Parkland City and the Aerotropolis.
Wianamatta-South Creek corridor	Wianamatta-South Creek and its tributaries that form the central element of the Western Parkland City, recognising the role of water in supporting healthy, liveable and sustainable communities.

NSW GOVERNMENT

WESTERN SYDNEY PLANNING PARTNERSHIP