



WESTERN SYDNEY
PLANNING
PARTNERSHIP 

Western Sydney Aerotropolis Plan

September 2020



Visit:

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

© Crown Copyright 2020

NSW State Government
Released September 2020

Disclaimer

While every reasonable effort has been made to ensure that this document is correct at the time of printing, the State of New South Wales, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance or upon the whole or any part of this document.

Copyright Notice

In keeping with the Western Sydney Planning Partnership's commitment to encourage the availability of information, you are welcome to reproduce the material that appears in this Planning Report for personal, in-house or non-commercial use without formal permission or charge. All other rights are reserved. If you wish to reproduce, alter, store or transmit material appearing in this Planning Report for any other purpose, a request for formal permission should be emailed to:

engagement@ppo.nsw.gov.au

You are required to acknowledge that the material is provided by the Planning Partnership or the owner of the copyright as indicated in this Planning Report and to include this copyright notice and disclaimer in any copy. You are also required to acknowledge the author (the Western Sydney Planning Partnership) of the material as indicated in this Planning Report.

Acknowledgement

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

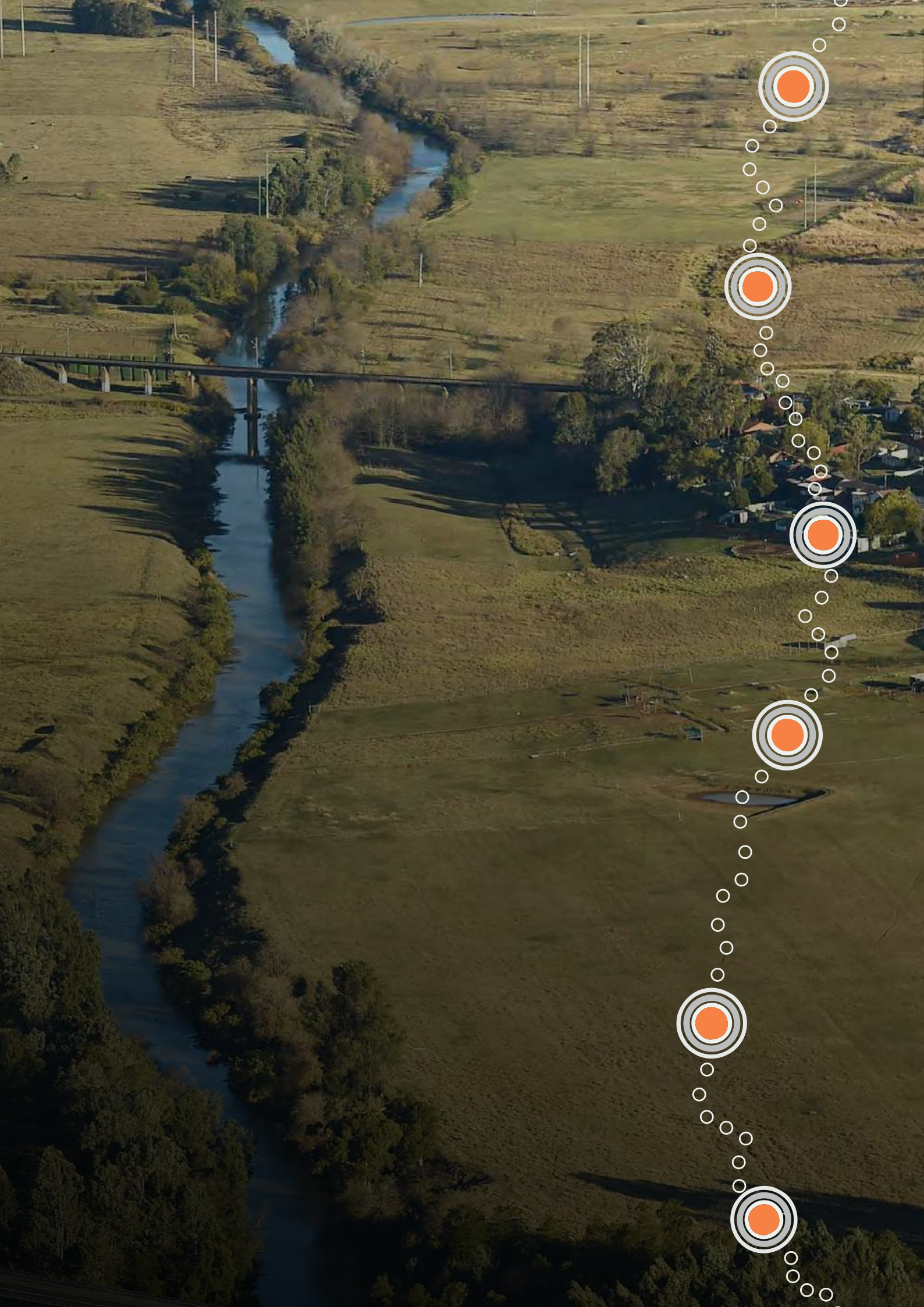
This Plan recognises that, as part of the world's oldest living culture, traditional Aboriginal and Torres Strait Islander owners and custodians of the Australian continent and adjacent islands share a unique bond to Country — a bond forged through thousands of years of travelling across lands and waterways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

Aboriginal peoples 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 peoples living in the area.

This significant connection to Country plays an important part in shaping this Plan.

Country takes in everything within the physical, cultural and spiritual landscape - landforms, waters, 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.

Artwork by Nikita Ridgeway



Contents

Executive summary	4
--------------------------	----------

1	Introduction	6
1.1	The Aerotropolis	6
1.2	Purpose of the Plan	8
1.3	Strategic context	10

2	A vision for the Aerotropolis	18
2.1	Achieving the vision – a landscape-led approach	20
2.2	Creating a global gateway	23
2.3	Designing a cool, green new city with great places	23
2.4	Transitioning to an Aerotropolis	24
2.5	Retaining a green, biodiverse landscape	24

3	Implementing the vision	26
3.1	Structure Plan	26
3.2	Planning framework	26

4	Infrastructure	32
4.1	Blue-Green Infrastructure Framework	32
4.2	Future transport network	35
4.3	Digital infrastructure – smart cities	39
4.4	Energy infrastructure	40
4.5	Integrated water, wastewater and recycled water services	40
4.6	Social and cultural infrastructure	41

5	Safeguarding the 24-hour airport	44
5.1	National Airports Safeguarding Framework	44
5.2	Implementing the NASF	50

6	Resilience and adaptability	52
6.1	Circular economy	52
6.2	Urban cooling	52
6.3	Waterway health and management	53
6.4	Hazard management and recovery	53

7	Precinct planning	56
7.1	Common strategic outcomes and implementation strategies	56
7.2	Vision and land uses – initial precincts	58
7.3	Expected planning outcomes – initial precincts	61
7.4	Vision and land uses – remaining precincts	74
7.5	Expected planning outcomes – remaining precincts	75
8	Infrastructure funding and provision	84
8.1	Place-based Infrastructure Compact	84
8.2	Infrastructure funding	84
8.3	Sydney Metro Western Sydney Airport alignment	85
8.4	Utilities and services	85
9	The way forward	86
9.1	Monitoring	86
9.2	Next steps	86
9.3	Review of Plan	88
9.4	More information	88
Glossary		89
Appendix – Planning Principles		92

Map list

Initial Precincts	7
Wianamatta–South Creek Catchment	13
Adjoining Areas	15
Structure Plan	27
Land Zone	29
Blue Green Infrastructure	34
Transport Corridors	37
ANEC Contours	45
OLS Chart	47
Wildlife Buffer Zones	49
Public Safety Areas	49
Flood Extent	55

Initial Precinct Structure Plans:

Aerotropolis Core	63
Northern Gateway Precinct	65
Wianamatta–South Creek Precinct	67
Badgerys Creek Precinct	69
Agribusiness Precinct	73

Remaining Precinct Structure Plans:

Dwyer Road	77
Kemps Creek	79
North Luddenham	81
Rossmore	83

Executive summary

The Western Sydney Aerotropolis Plan sets a vision for the Western Sydney Aerotropolis as Australia's next global gateway, built around the world-class Western Sydney International (Nancy-Bird Walton) Airport.

The Aerotropolis will be a centre of employment for:



Defence and aerospace



Advanced manufacturing



Technology



Agribusiness



Education and research



Health



Tourism

An aerotropolis is a metropolitan area with infrastructure, land uses and the economy centred on an airport. The Western Sydney Aerotropolis is a once-in-a-lifetime opportunity to drive transformational change in the emerging Western Parkland City, a vision for Western Sydney that will improve opportunity, amenity and sustainability for workers and residents.

In setting its vision through the *Greater Sydney Region Plan*, the NSW Government has committed to a 30-minute city, where people live within 30 minutes by public transport of their nearest strategic or metropolitan centre. The Aerotropolis is essential to this vision.

It will be an accessible, innovative and connected city with great places. Its evolution will catalyse a jobs-dense environment nurturing industry of the future. It will help to boost productivity and contribute to significant jobs growth in Western Sydney. As an employment centre for the Western Parkland City it will include jobs in defence and aerospace, advanced manufacturing, technology, agribusiness, health, education, research and tourism.

The Aerotropolis will be framed around a landscape-led approach, where the Wianamatta–South Creek corridor and an expansive network of green and blue corridors shape the city's structure and building. Noise sensitive uses in appropriate locations will protect the community from the 24/7 airport operations. People will live and work in vibrant urban centres with a mix of uses, walking and cycling paths, and social and cultural infrastructure.

Planning on this scale will build resilience and adaptability to the effects of a changing climate and draw on circular economy principles to better use resources and reduce waste on an Aerotropolis-wide scale. Integrated

transport and digital networks will prioritise more sustainable connections and make it easier for people to navigate their way around the Aerotropolis. Essential freight connections to and from the Airport and other areas like the Agribusiness Precinct will be focused on main roads away from local areas.

Given the many elements, stakeholders and ambitions for creating this 21st century city, the Plan sets out 11 objectives to shape decision-making across the four themes of the *Greater Sydney Region Plan*: productivity, sustainability, infrastructure and collaboration, and liveability. These objectives are supported by landscape, urban design and planning principles.

Importantly, all work will be guided by a single, overarching objective to 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 Plan builds on the unprecedented collaboration across all levels of government that commenced with the Western Sydney City Deal. It was developed by the Western Sydney Planning Partnership, a key commitment of the Western Sydney City Deal and strategic, innovative approach that includes Western Sydney councils and State agencies.

The Plan sets out a sequenced approach to precinct planning that will optimise planned investment in major infrastructure and create the impetus for the early activation of the Aerotropolis. It establishes 10 precincts, of which six will be planned for early. These are described in more detail on pages 6-7.

This Plan responds to feedback from public exhibition, creates early employment opportunities and helps to coordinate infrastructure planning.

Detailed precinct planning will aim to stage and sequence development within and between precincts to optimise infrastructure provision. This will be informed by the Place-based Infrastructure Compact for the Aerotropolis.

Infrastructure funding will be refined through work on an Aerotropolis Special Infrastructure Contribution and local infrastructure planning by Liverpool City and Penrith City councils.

The Plan will be implemented through a statutory planning framework that includes a new Aerotropolis *State Environmental Planning Policy* (SEPP) and *Development Control Plan* (DCP). This framework will guide more detailed

precinct planning and master planning, promoting exemplary design outcomes and implementing detailed development controls to achieve the vision for the Aerotropolis.

Detailed precinct plans for the initial precincts will be on exhibition towards the end of 2020. Infrastructure planning, and work on major transport corridors, airport operations and environmental considerations are continuing. Traditional Custodians are helping to shape the Aerotropolis and its rich cultural values, as the community, businesses, landowners and developers also participate in the development of Australia's newest global gateway.

Next steps:



Precinct planning
– initial precincts



Community
consultation

Figure 1: Artist's impression of the Aerotropolis Core centre
Source: Cox



Introduction

The Planning Partnership brings together:



The *Western Sydney Aerotropolis Plan* sets the planning framework for the Western Sydney Aerotropolis, Australia's next global gateway focused on the Western Sydney International (Nancy-Bird Walton) Airport (the Airport).

The Aerotropolis will be a game-changer for Western Sydney, NSW and Australia. As it evolves it will become home to global industries that will provide jobs of the future in great places within a cool, green and connected Western Parkland City.

The success of the Aerotropolis requires strategic, integrated planning across different levels of government and collaboration with business and the community. This Plan will help to drive this process.

The Plan was developed by the Western Sydney Planning Partnership, a local government-led initiative that brings Blacktown, Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly councils together with key State agencies. It builds on the draft Plan that was exhibited from December 2019 - March 2020.

The Planning Partnership was established as part of the Western Sydney City Deal, a shared commitment of the Australian, NSW and local councils in the Western Parkland City to create a fully-realised 21st century city.

1.1 The Aerotropolis

The 11,200 hectare Western Sydney Aerotropolis surrounds the site of the Airport in Badgerys Creek (without including the Airport site itself). It sits within the Penrith and Liverpool local government areas (LGAs).

The Aerotropolis contains 10 precincts (see page 7), six of which will be the focus of initial precinct planning.

Initial precincts

- Aerotropolis Core
- Agribusiness
- Badgerys Creek
- Mamre Road
- Northern Gateway
- Wianamatta-South Creek

Remaining precincts

- Dwyer Road
- Kemps Creek
- North Luddenham
- Rossmore

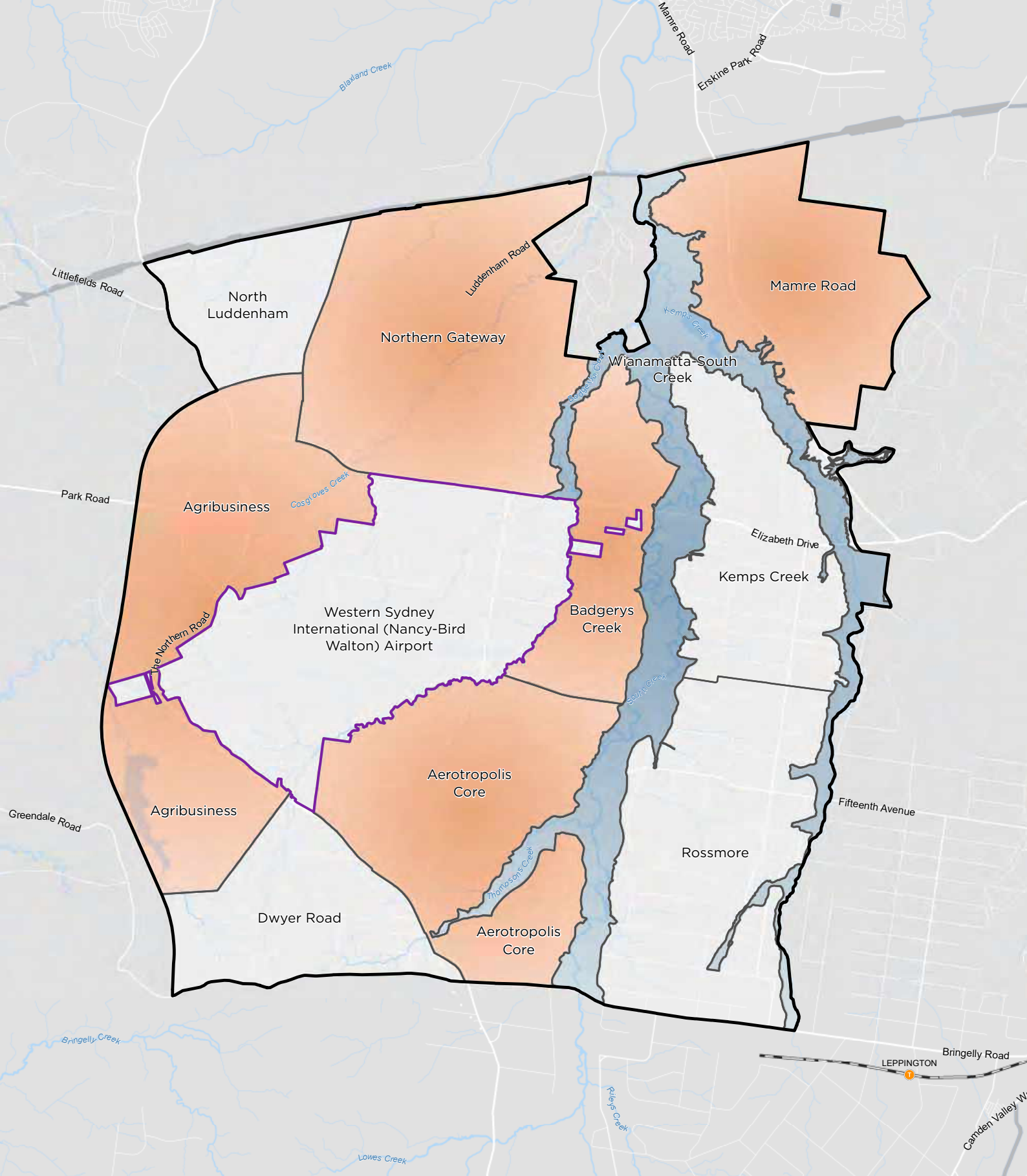
Next steps

- Exhibit precinct plans in Quarter 4 2020 followed by finalisation.*
- Sequence precinct planning and rezoning to match infrastructure provision and the rate and nature of development in initial precincts and adjoining areas.
- Amend Aerotropolis SEPP following precinct planning.
- Remaining precincts to retain existing zoning under *Liverpool LEP 2008* or *Penrith LEP 2010* until they are rezoned at a later stage under Aerotropolis State Environmental Planning Policy (see 3.2.1).

* Except for Mamre Road Precinct (zoned under WSEA SEPP)

What is an Aerotropolis?

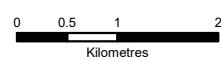
An Aerotropolis is a metropolitan area whose infrastructure, land use and economy are centred on the airport and includes the outlying corridors, and aviation orientated business and residential development that benefit from each other and their accessibility to the airport.



Initial Precincts

Western Sydney Aerotropolis

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



1.2 Purpose of the Plan

As the planning framework for the Aerotropolis, this Plan acknowledges the area's Traditional Custodians. It recognises the rich cultural history of the land on which the Aerotropolis is located and the continuous and deep connection to Country for Aboriginal people.

This Plan embraces the transformational potential of the Aerotropolis and airport. It aspires to share the benefits of population and economic growth and create employment, develop skills and boost productivity, providing jobs closer to home and towards achieving a 30-minute city.

It balances this with an ambitious 'landscape-led' planning approach, where the structure and places of the Aerotropolis are defined by the Blue-Green Infrastructure Framework – a network of blue and green spaces and assets such as waterways, open spaces and tree canopy.

The Plan begins by establishing a vision, objectives and principles to give effect to these objectives. It identifies the intended land use planning outcomes for each of the 10 precincts and a sequenced approach to precinct planning that optimises investment in major infrastructure and creates the impetus to activate the Aerotropolis early.

This Plan defines how the broader region's environment, waterways, strategic transport network, infrastructure and economy will combine to transform the Aerotropolis into a contemporary metropolitan city. Complementing Liverpool, Penrith and Campbelltown, the Aerotropolis will be part of the metropolitan city cluster at the heart of the Western Parkland City.

This Plan introduces statutory mechanisms to implement the vision and objectives. Alongside future precinct plans and master plans, it gives effect to the *Greater Sydney Region Plan: A Metropolis of Three Cities* and the *Western City District Plan*.

The Plan represents a collaborative approach led by the Planning Partnership and continued cooperation with the Australian Government, Western Sydney Airport, the Western Parkland City Authority (WPCA), Infrastructure NSW, Sydney Metro, Sydney Water and other State agencies.

The Planning Partnership considered almost 700 submissions on the draft Plan and will continue to engage broadly during precinct planning, commencing with the initial precincts.

Planning for Aerotropolis also opens opportunities for new design approaches to landscape management and urban design. This Plan includes landscape, urban design and planning principles that give effect to the objectives. These are detailed in the Appendix.

This plan gives effect to:

4

Themes

11

Objectives

50

Principles

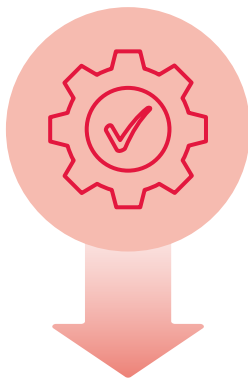
1.2.1 Aerotropolis-shaping objectives and principles

A single, overarching objective underpins this Plan and will be integrated into all planning:

Recognise Country

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

Productivity



Objective 1

An accessible and well-connected Aerotropolis

Objective 2

High-value jobs growth is enabled, and existing employment enhanced

Objective 3

Safeguard airport operations

Sustainability



Objective 4

A landscape-led approach to urban design and planning

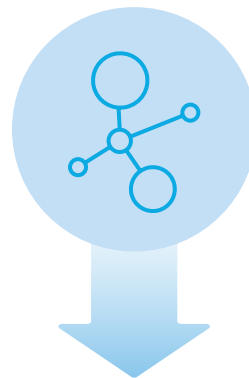
Objective 5

A sustainable, low carbon Aerotropolis that embeds the circular economy

Objective 6

A resilient and adaptable Aerotropolis

Infrastructure and collaboration



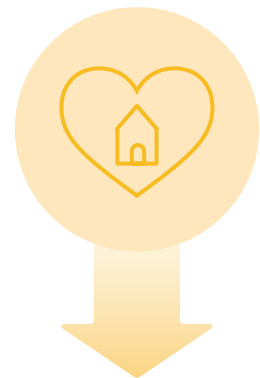
Objective 7

Infrastructure that connects and services the Western Parkland City as it grows

Objective 8

A collaborative approach to planning and delivery

Liveability



Objective 9

Diverse, affordable, healthy, resilient and well-located housing

Objective 10

Social and cultural infrastructure that strengthens communities

Objective 11

Great places that celebrate local character and bring people together

1.3 Strategic context

The 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 Aerotropolis is at the heart of the Western Parkland City.

1.3.1 The Aerotropolis within the Western Parkland City

Together with the strong established centres of Greater Penrith, Liverpool and Campbelltown-Macarthur, the Aerotropolis forms the Western Parkland City Metropolitan Cluster - a polycentric city that will drive economic growth, jobs and opportunities for generations to come.

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

The 11,200-hectare Aerotropolis sits within the centre of the Western Parkland City, within a predominantly greenfield area. Wianamatta-South Creek runs north-south through the eastern third of the Aerotropolis, with a diagonal tributary within the Aerotropolis Core. Kemps Creek defines the eastern edge, and Badgerys Creek from the north runs diagonally to the south west. The ridges rise from the largely flat creek floodplain, creating a gentle undulating topography. This form is accentuated by strong lines of tree canopy running along the creek edges in the order of 20 metres in height. The Western Parkland City will be home to 1.1 million people by 2036 and will experience a significant increase in jobs.

Planning for the Aerotropolis is integral to ambitions for the Western Parkland City in areas such as:

- early planning for the Wianamatta-South Creek Precinct as part of a broader Blue Green Infrastructure framework
- jobs and housing supported by the Sydney Metro Western Sydney Airport rail spine
- significant investment that will help to bring a greater diversity of jobs closer to where people live across the entire Western Parkland City including Penrith, Liverpool and Campbelltown-Macarthur.

The Aerotropolis and Metropolitan Cluster will connect to Greater Parramatta and the Harbour CBD to realise the vision for Greater Sydney as a metropolis of three cities (see Figure 2). Beyond the metropolitan area, the Aerotropolis will connect to NSW regional and rural areas, Australia and the world. This will create opportunities in advanced manufacturing, agribusiness, aerospace and defence, as well as freight, tourism and more.

Figure 2:
Sydney as
Three Cities
Source:
Greater
Sydney
Commission



Figure 3: Western Sydney Aerotropolis strategic framework



1.3.2 The Aerotropolis and Wianamatta-South Creek catchment

Wianamatta-South Creek is the longest freshwater stream in Greater Sydney and a defining element of the Western Parkland City and the Aerotropolis. Its catchment includes most of Western Sydney's Cumberland Plain.

As the Aerotropolis transforms, the impacts of development on the catchment will be mitigated using a risk-based approach, as defined in Action 69 of the *Western City District Plan*.

This approach will identify waterway targets, based on community values, for stormwater and wastewater discharges to the creeks in the catchment.



Water resources have important cultural, spiritual and practical values for First Peoples.

Figure 4: Wianamatta-South Creek
Source: Greater Sydney Commission



Waterway Health in the Wianamatta-South Creek Catchment

There are many waterway-dependant species that are highly valued by the community living in the catchment. Not the least of these are important native fish which are valued by recreational anglers. Iconic species like the Australian Bass can only remain in the creeks and streams if the health of the ecosystem continues to support them. Both the flow and the cleanliness of the water in the creek must be considered.

What does Wianamatta mean?

Wianamatta-South Creek holds special significance to the Traditional Custodians, who know the waterway as Wianamatta, or 'the Mother Place'. The name, Wianamatta, implies a matricentric landscape as in Dharug language wiana or wiyanga relates to mother and matta refers to a place of water. Wianamatta is understood as being part of an extraordinary wider cultural landscape extending from beyond the Blue Mountains through Emu Plains and east to the coast.

Wianamatta begins its journey near Narellan flowing north until its confluence with the Hawkesbury-Nepean River system near Windsor, creating a unique hydro-networked cultural landscape.

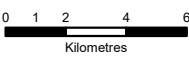
This cultural landscape has been shaped by a filigree of water systems that form and define the Cumberland Plain. Water resources have important cultural, spiritual and practical values for Aboriginal peoples. Waterways are used for cultural practices, including knowledge transfers as part of a healthy, flowing connected system.



Wianamatta-South Creek Catchment

Western Sydney Aerotropolis

- | | |
|------------------------------------|--|
| Western Sydney Aerotropolis | Railway |
| Wianamatta-South Creek Catchment | Waterways |
| National Parks and Nature Reserves | Wianamatta-South Creek System (Strahler) |
| Environmental Conservation | |



1.3.3 The Aerotropolis and adjoining areas

Planning for the Aerotropolis will complement that of other focus areas in Western Sydney (see page 15).

Western Sydney Employment Area (WSEA)

- Thousands of new jobs and synergies with the Aerotropolis in supporting economic and employment growth.
- Mamre Road Precinct in the north of the Aerotropolis has been planned under WSEA planning controls with the precinct rezoned in June 2020.

Greater Penrith to Eastern Creek Investigation Area

- Potential new growth area being planned for across government. Future public consultation will inform this work.

South West Growth Area

- New housing and jobs, with Leppington and Oran Park key destinations and access via the proposed South West Rail Link extension between Leppington and the Aerotropolis.

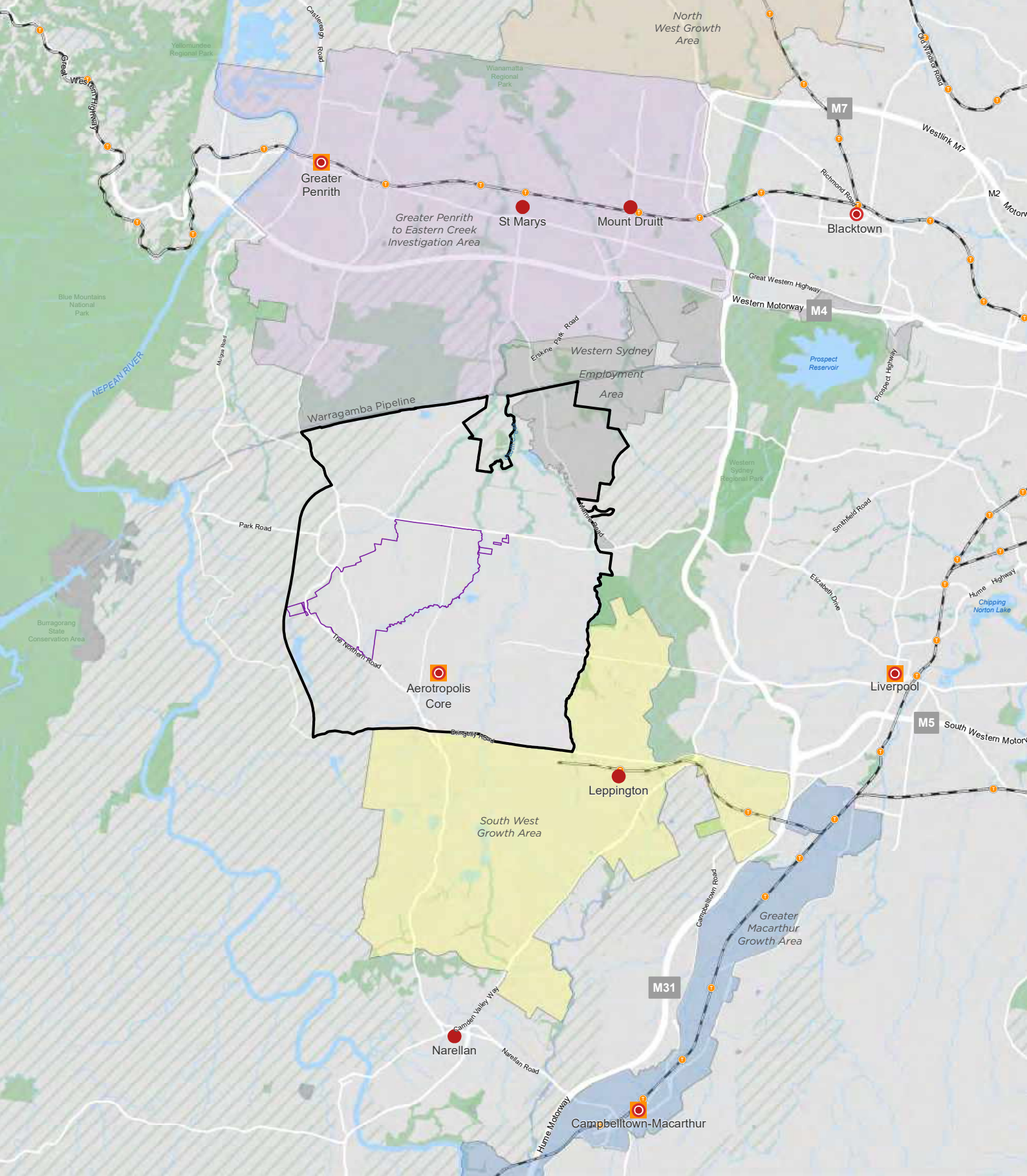
- Wianamatta–South Creek will allow recreational connections to the Aerotropolis.
- The proposed Fifteenth Avenue Smart Transit (FAST) Corridor will run east-west through Austral, and connect to the Airport, Aerotropolis and Liverpool.

Metropolitan Rural Area

- Outside the established and planned urban area to the west of the Aerotropolis.
- Includes public land protected for conservation, peri-urban land for rural uses and rural towns and villages.
- Maintained or enhanced through place-based planning.
- Economic viability of agricultural industries supported and enhanced as the Aerotropolis evolves, including through the Agribusiness Precinct.

Figure 5: Oran Park is in the South West Growth Area
Source: Department of Planning, Industry and Environment



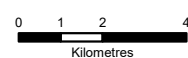


Adjoining Areas

Western Sydney Aerotropolis

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

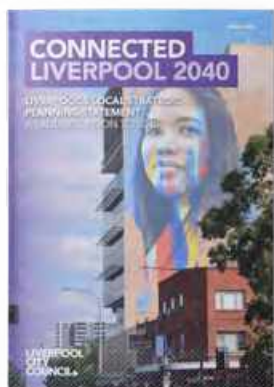
- | |
|---|
|  Metropolitan Cluster |
|  Health and Education Precinct |
|  Strategic Centre |



1.3.4 The Aerotropolis and local planning

The Aerotropolis is within the local government areas (LGAs) of Liverpool and Penrith. As with all Greater Sydney councils, Penrith and Liverpool councils have developed Local Strategic Planning Statements (LSPS) for their LGAs. It is important that consideration be given to the councils' strategic planning vision of land outside the Aerotropolis area to ensure that the planning of the Aerotropolis supports the broader vision for the Western Parkland City.

The documents require the councils to work with the NSW and Australian governments to implement this Plan and prepare precinct plans through the Western Sydney Planning Partnership. Planning for the Aerotropolis will align with these LSPSs.



Liverpool

Relevant priorities

- **Planning Priority 2**
A rapid smart transit link between Liverpool and Western Sydney International Airport – the FAST Corridor will connect Liverpool to the Aerotropolis and Airport.
- **Planning Priority 13**
A 24-hour Western Sydney International Airport growing to reach its potential – through the Planning Partnership, Council will ensure the Airport's curfew-free status is protected.
- **Planning Priority 16**
Rural lands are protected and enhanced – the development and ongoing review of a Rural Lands Strategy will support agricultural opportunities provided by Western Sydney International Airport, and will protect natural landforms and rural lifestyles.



Penrith

Relevant priorities

- **Planning Priority 9**
Support the North South Rail Link and emerging structure plan – Council will work across government to maximise the benefits of the Sydney Metro Western Sydney Airport.
- **Planning Priority 11**
Support the planning of the Western Sydney Aerotropolis – Council will work to minimise impacts and maximise benefits.
- **Planning Priority 12**
Enhance and grow Penrith's economic triangle – the economic triangle builds on the Western Economic Corridor between the Aerotropolis, Penrith and St Marys.



Figure 6: Artist's impression of the interface between Aerotropolis Core, Wianamatta-South Creek and Fifteenth Avenue
Source: Cox



A vision for the Aerotropolis



The Aerotropolis is Australia's newest global gateway, built around the world-class Western Sydney International (Nancy-Bird Walton) Airport. Its evolution has driven transformational change in the Western Parkland City. Development is framed around the Wianamatta–South Creek corridor and an expansive network of parklands and waterways to realise the cool and connected Western Parkland City. Above all, it respects and connects Country. It creates opportunity, amenity and sustainability for workers and residents in Western Sydney.

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.

It nurtures the industry of the future. It contributes to greater productivity and a significant increase in jobs for Western Sydney in areas such as defence and aerospace, advanced manufacturing, technology, agribusiness, health, education, research and tourism.

A diversity of housing in parts of the Aerotropolis Core, Northern Gateway and Rossmore precincts provide a vibrant and living city, protected from the 24/7 operations of the Airport. Centres are easy to walk around, with quality public areas and a mix of social and cultural infrastructure.

The Aerotropolis is low carbon, featuring next-generation energy, waste and water infrastructure. Circular economy principles minimise waste and pollution, retain water in the environment, reuse energy and regenerate natural systems to increase the tree canopy and urban cooling. Sustainable food production in the Agribusiness Precinct minimises food miles and reduces food wastage.

Sustainable urban connections include efficient and accessible public transport links, walking and cycling facilities, smart technologies and an efficient road network. Efficient freight movements are mainly by rail. People and business can access key centres in the Western Parkland City and Greater Sydney.





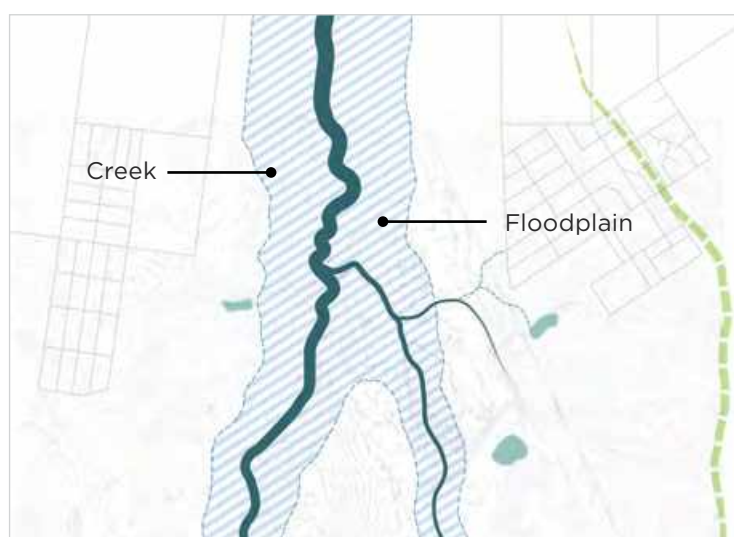
Figure 7: Artist's impression of an employment centre within the Aerotropolis
Source: Urbis

Figure 8: Artist's impression of a town centre
Source: Urbis

2.1 Achieving the vision – a landscape-led approach

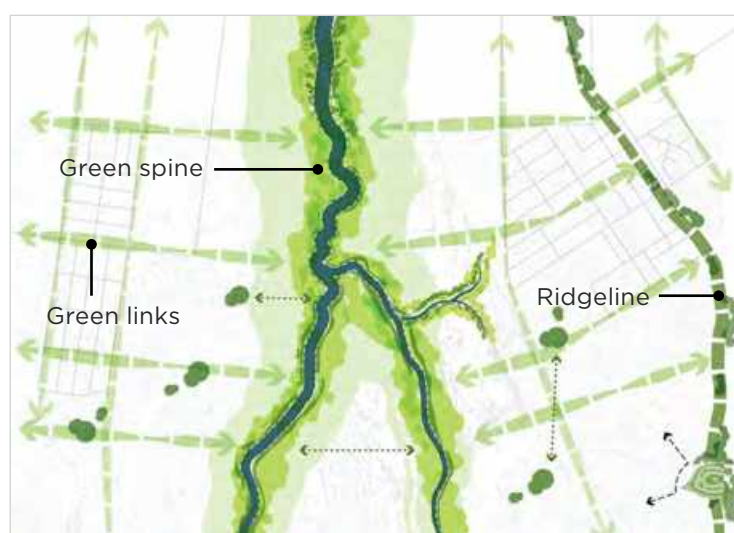
To achieve the vision for the Aerotropolis, an innovative landscape-led approach is proposed that interweaves urban planning, landscape and urban design. This approach brings new thinking to land use and transport patterns and focuses on the structural elements required to create a cool and green Western Parkland City. It recognises blue and green infrastructure – major waterways, parks or green spaces – as the kind of elements that should shape the future of a city, just as major roads, rail lines, universities or hospitals have done traditionally. The approach will be informed by aviation/airport safeguarding strategies including wildlife attraction mitigation.

The landscape-led approach to planning and urban design is illustrated in the series of maps below. The process starts with recognising Country to identify and build the city's structure and places from the landform and water system.



Retain water in the landscape

- retain water in the landscape
- manage health of the Wianamatta-South Creek Catchment
- create a functional Blue-Green city structure that respects existing flood paths and contributes to human safety.



Preserve, extend and restore the green

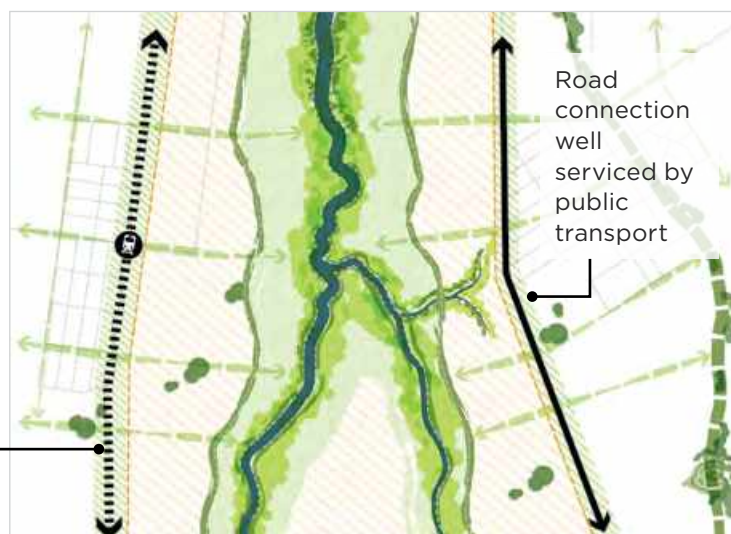
- preserve, extend and restore the green around the Wianamatta-South Creek corridor including tributaries
- conserve biodiversity land, remnant vegetation, water features, habitat links, cultural values and view lines.



Locate transit corridors within walking distance to landscape amenity

- locate transport within a walk of attractive landscapes and open space
- use Green Grid as basis of pedestrian connectivity and cycling network
- enhance edge of creek corridor and provide accessible local streets to encourage active transport.

Mass transit corridor supported by green infrastructure

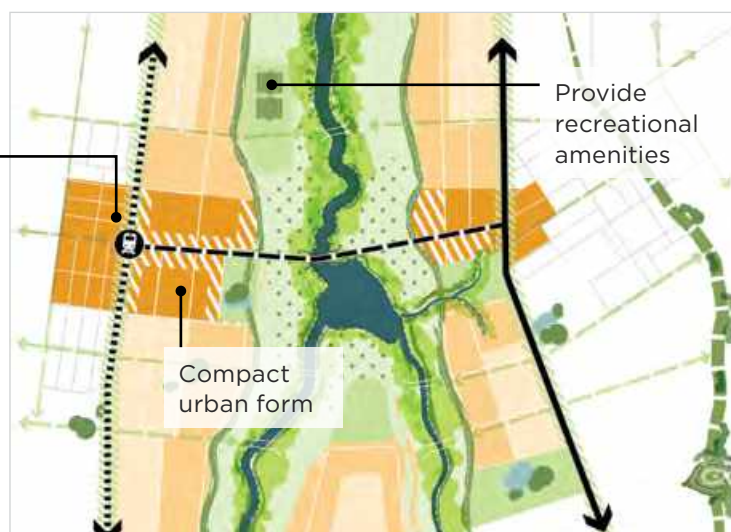


Orientate urban development towards landscape amenity, connected to transit corridors

- create places around amenity of creek corridor and open space close to public and active transport connections

Adopt urban typologies

- adopt urban typologies that ensure urban development retains water in the landscape with public space and private landscape spaces including sufficient tree canopy to provide a high level of liveability, amenity and urban cooling.



2.1.1 Starting with Country

Traditional understandings of Country will shape the Aerotropolis, influencing planning, urban design and landscape management. Aboriginal peoples understand that they originated from Country; it is at the centre of their ways of knowing and being. An appreciation of Country ensures Country is cared for throughout the process of design and development.

Connecting with Country is an approach being championed by the NSW Government to give effect to the objectives of the *Environmental Planning & Assessment Act 1979 (EP&A Act)* which states that Aboriginal culture and heritage are to be sustainably managed in the built environment. Using comprehensive and respectful approaches, planning for the Aerotropolis can build capacity and pathways for knowledge sharing between Aboriginal and non-Aboriginal communities.



Wianamatta–South Creek runs like a spine through the area, providing fresh water and fertile soils, with abundant ironbark and Sydney black wattle. This landscape has changed, with human modification and ecological processes, yet it remains significant as part of a system of relationships that depend on and interconnect with each other.

Country cannot be reduced to individual places disconnected from this system. Even when Country changes, the narratives of Country remain, told through storytelling, singing and language. The stories adapt to new events, technologies, information and the many people who today share Country.

Guided by Cultural Design Principals and local leaders in the Aboriginal community, planning for the Aerotropolis will be informed and shaped by these narratives. Future natural, economic or cultural landscapes will preserve and embody Aboriginal values and identities.

The Country that the Aerotropolis sits within is a landscape of undulating shale plains and low hills, with open woodland and areas of denser vegetation.

Figure 9: Existing natural landscape
Source: Greater Sydney Commission





The area is to be driven by placemaking to attract the best and brightest to invest and work in the Aerotropolis.

2.2 Creating a global gateway

The Aerotropolis will be a regionally and nationally significant employment area for the entire Western Parkland City. It will contribute to national productivity. The landscape-led approach, coupled with collaborative place-making, will create a global gateway that attracts the best and brightest to invest and work in the Aerotropolis.

The Aerotropolis Core will be a new urban centre connected to fast and reliable transport as well as digital infrastructure. It will be a place for collaborating within and beyond the Aerotropolis. A mix of uses will support and enliven the city; employment, civic, retail, hotel, recreation, residential, education and cultural.

2.3 Designing a cool, green new city with great places

The Aerotropolis will have compact urban form – a place where centres and local communities are connected by walking, cycling, interaction and collaboration. A compact urban form minimises the urban footprint and leaves more land for open spaces, waterways and recreation areas. It allows people to access a diversity of uses within walking distance of centres, open space or transport.

Urban typologies will be developed, contributing to the delivery of a cool, green, safe and sustainable Aerotropolis. They will ensure water is retained in the landscape, increase the tree canopy and reduce building reflectivity. These typologies are broader in scale than individual buildings and could include several different buildings, streets and open spaces.

Retaining water in the catchment will improve creek flow and irrigate open spaces and vegetation. It helps to provide a cooler, more attractive green environment for residents, workers and visitors.

Development in the Aerotropolis will consider urban form and stormwater in an integrated way with other infrastructure. Performance criteria will be developed to ensure that urban development:

- provides sufficient pervious areas to retain water to optimise stormwater management and waterway health, whilst managing salinity constraints in areas;
- improves/optimises water cycle management;
- maximises links and access to open space;
- increases tree canopy cover and shade; and
- mitigates urban heat through landscape, water and building reflectivity.

The typologies will be subject to refinement through the precinct planning process in the context of liveability and feasibility considerations and environmental and water management outcomes. Ultimately, a series of final urban typologies will be reflected in precinct plans, master planning and development controls.

The Aerotropolis will contain vibrant urban centres supported by a mix of uses in appropriate locations



Employment



Civic



Retail



Hotel



Recreation



Residential



Education



Cultural

2.3.1 Public domain

The public domain is the shared and publicly accessible places in a city, suburb, or neighbourhood: open spaces, parks, bushland, plazas, public buildings, roads, streets and pathways.

The landscape-led approach integrates the many elements of the public domain as a landscape, connectivity and social infrastructure framework with quality public spaces. This creates:

- environmental parkland areas of diverse landscapes and vegetation where ecological and human benefits overlap
- a significant tree canopy that cools the air and, provides shade and urban cooling
- many high-quality open spaces that offer different uses for residents, workers, students or visitors, and community and cultural facilities that integrate with the urban environment
- a local street and block structure that complements the topography, prioritises walking, cycling and attractive places and can be adapted over time.

2.4 Transitioning to an Aerotropolis

Land uses and urban forms will evolve as the Aerotropolis changes. Sequencing will ensure development takes place as infrastructure is provided to avoid dispersed development. This will require flexibility given the uncertain nature of future land uses, especially in non-residential areas. While this transition from rural to non-rural land uses will occur over several decades, the important agricultural lands of today can be retained over that period.

Land uses, buildings and structures may be temporal in nature in the short to medium term and transition to more intensive and higher order technology, advanced manufacturing and creative industry uses in the longer term. New enabling industries such as building materials production to facilitate construction of the Aerotropolis may be permitted subject to interface mitigation treatments and an ability for the site to transition to higher order uses compatible with airport operations over time.

Regardless, compact, walkable precincts will be planned for and developed upfront to meet the sustainability, liveability and connectivity objectives of the Region Plan. Careful planning of precincts that may initially accommodate larger building footprints within a walkable block structure will be required to allow for future land use intensification.

2.5 Retaining a green, biodiverse landscape

The Aerotropolis requires land for its many native plants and animals. This requires biodiversity to be assessed upfront in the planning for such large-scale development to identify urban capable land and areas with biodiversity values within the Aerotropolis. Regenerating natural landscapes will reduce impacts as the Aerotropolis develops and embed a circular economy approach.



A strategic conservation planning process is occurring which will identify and protect biodiversity values and seek strategic biodiversity certification to confirm areas suitable for urban development.



Figure 10: Lake Burragorang in the Warragamba Catchment is rich in biodiversity and located to the west of the Aerotropolis. Source: Department of Planning, Industry and Environment



3

Implementing the vision

3.1 Structure Plan

The Structure Plan is a spatial representation of high-level land uses, environmental assets and transport infrastructure within the Aerotropolis. It will be reviewed and updated alongside precinct planning and infrastructure provision.

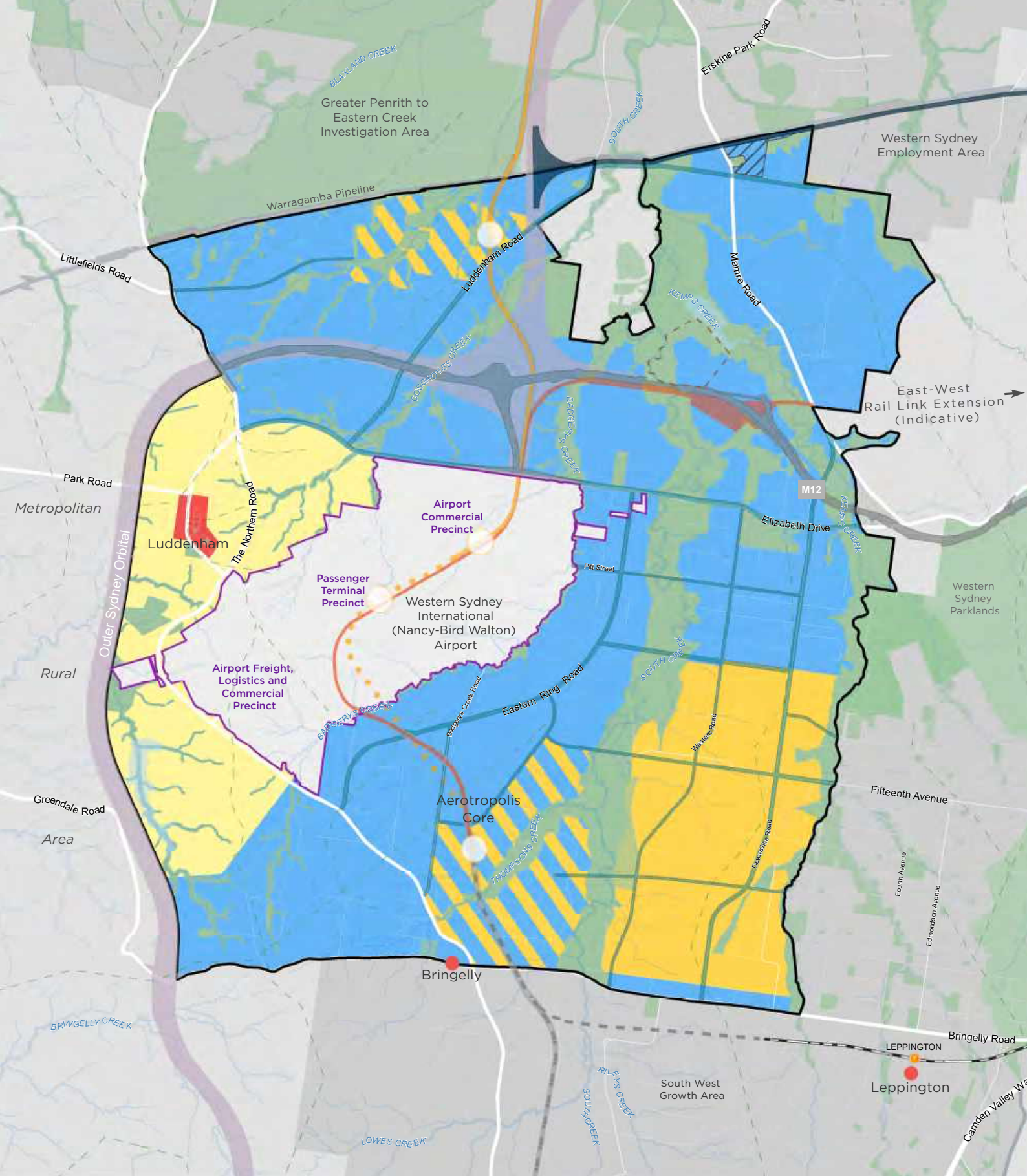
In addition to the Aerotropolis Core, a network of new and existing centres will emerge from the precinct planning process. The identification and classification of these centres will be consistent with the principles and hierarchy in the Region Plan.

3.2 Planning framework

A comprehensive planning framework provides clarity for more detailed planning, implementation and delivery and ensures development meets with the objectives and principles of this Plan, the Region Plan and the District Plan.

Figure 11: Planning framework



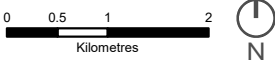


Structure Plan Western Sydney Aerotropolis

- 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



3.2.1 Aerotropolis State Environmental Planning Policy

A new Aerotropolis SEPP will apply to the 11,200-hectare area surrounding the Airport except for the Mamre Road Precinct, which has been zoned under *State Environmental Planning Policy 2009* (WSEA SEPP). The SEPP also protects airport operations beyond the Aerotropolis through the incorporation of relevant airport safeguarding controls.



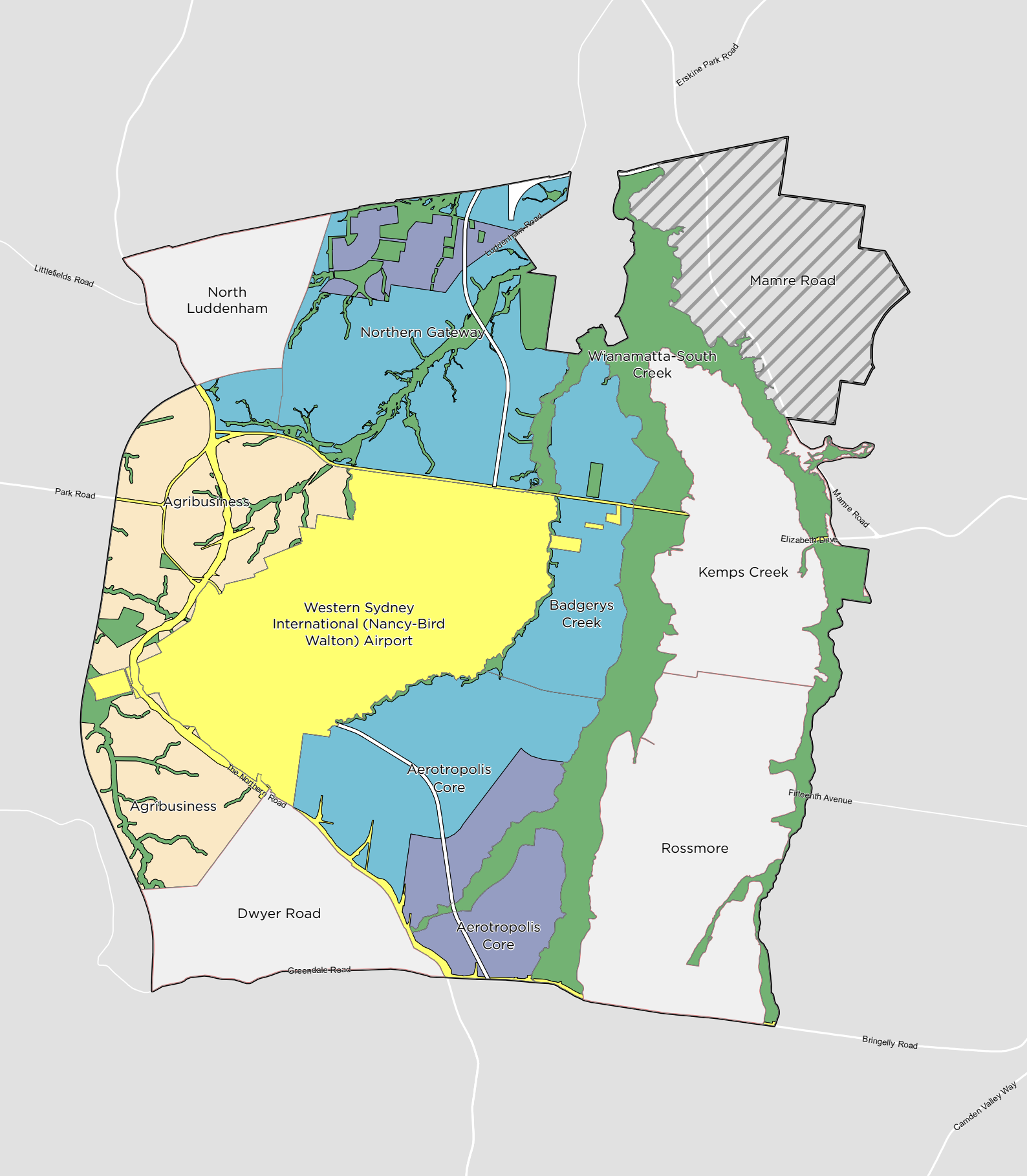
The Aerotropolis SEPP will encourage and support the orderly and economic use and development of land in the Aerotropolis.

It will provide statutory weight to the planning and development of land around the Airport and will implement this Plan by:

- establishing boundaries for applicable land
- defining all precincts and their boundaries
- establishing strategic objectives for the Aerotropolis
- applying land use zones to the initial precincts
- implementing various clauses and maps
- protecting transport corridors and utility sites
- identifying the types of development applications that are to be referred to Western Sydney Airport
- ensuring there is no intensification in noise sensitive uses within the Australian Noise Exposure Concept (ANEC)/Australian Noise Exposure Forecast (ANEF) 20 and above contours
- outlining a framework for planning pathways.

A combination of new and existing zones will be applied in the SEPP to enable the unique development opportunities that the Aerotropolis provides. These have been defined for the initial precincts, with zoning for the remaining precincts to occur at a later stage:

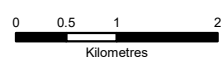
- **Enterprise Zone:**
land where enterprise uses are supported while mitigating impacts of airport operations. Residential development and other noise sensitive uses are not permitted.
- **Mixed Use Zone:**
mixed flexible employment, residential and noise sensitive uses on land not affected by the ANEC/ANEF 20 and above contours in high amenity areas and areas well connected to public transport.
- **Environment and Recreation Zone:**
most of the Wianamatta–South Creek Precinct and other areas identified for conservation, biodiversity and recreational uses.
- **SP2 Infrastructure Zone:**
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. The SEPP will need to be amended to accommodate infrastructure as it is planned and as corridor and site boundaries are further refined.
- **Agribusiness Zone:**
to support high-tech agribusiness uses, including freight, logistics and horticulture in the Agribusiness Precinct.



Land Zone

Western Sydney Aerotropolis

- | | |
|--------------------------------------|-------------------------------|
| Western Sydney Aerotropolis | MU Mixed Use |
| Precinct Boundary | SP2 Infrastructure |
| Land Zone (Aerotropolis SEPP) | |
| AGB Agribusiness | Major Infrastructure Corridor |
| ENT Enterprise | Deferred Matter (LEP Zone) |
| ENZ Environment and Recreation | Mamre Road (WSEA SEPP) |



Referral of development applications to Western Sydney Airport

The Aerotropolis SEPP identifies the triggers for development applications (DAs) that are to be referred to Western Sydney Airport, depending on their potential impact on the safe operation of the Airport. This will include development or activities that could impact on protected operational airspace, development that has the potential to attract wildlife within thirteen kilometres of the Airport, development that could result in windshear or turbulence and development or construction activities that include the use of cranes that extend into prescribed airspace.

Out-of-sequence development

The SEPP allows for out-of-sequence development as long as a number of criteria have been met. These include: not impacting the servicing of initial precincts; not impacting airport operations; and ensuring that utility infrastructure is available.

3.2.2 Master Planning

Landowners with holdings of 100 hectares or more will be able to prepare a master plan for their site. A master plan will need to align with and provide more detail than a precinct plan. A landowner will be able to propose that specific elements of their master plan be considered to be complying development. If complying development status is agreed, development applications for these elements will be able to access an accelerated assessment pathway.

Guidelines will describe how the master planning process operates. This will cover: the process for becoming an approved master planner; considerations when preparing a master plan; the review and exhibition of master plans; and the approval of master plans.

3.2.3 Aerotropolis Development Control Plan

The Aerotropolis DCP will guide precinct planning and master planning and promote exemplary design:

- Phase 1 identifies precinct planning principles to achieve the vision for the Aerotropolis and sets objectives and some performance outcomes for development.
- Phase 2 will identify additional performance outcomes and specific development controls to satisfy required objectives, performance outcomes and benchmark solutions for all development permitted within the Aerotropolis.

3.2.4 Section 9.1 Direction

This Plan is accompanied by an amendment to *Ministerial Direction 7.8 Implementation of Western Sydney Aerotropolis Plan* under section 9.1 of the *EP&A Act*.

This reflects the new title and status of the Plan and requires that all planning proposals seeking to amend land zoned under the Aerotropolis SEPP or the respective LEP be consistent with this Plan.



Figure 12: Artist's impression of a transport hub in the Aerotropolis
Source: Sydney Metro



This Plan identifies high-level infrastructure that will shape and support the Aerotropolis including their interdependencies, while precinct planning will identify the infrastructure required for each precinct. Because of the size of the Aerotropolis and the time over which it will develop, infrastructure provision will be staged. Precinct plans will indicate the likely sequencing for infrastructure in each precinct, informed by the Place-based Infrastructure Compact and local infrastructure needs.

4.1 Blue-Green Infrastructure Framework

The Blue-Green Infrastructure Framework is the network of blue and green spaces including waterways, riparian areas, bushland, parks and open spaces, tree canopy (including street trees) and private gardens.



These elements of the Blue-Green Infrastructure Framework are strategically planned, designed and managed to support quality of life in an urban environment.

4.1.1 Wianamatta-South Creek as Blue-Green infrastructure

This Plan and the District Plan embrace the Wianamatta-South Creek Catchment's natural blue and green systems as valuable assets. The landscape-led approach will incorporate these into urban activity and form, while improving and preserving environmental, cultural and spiritual values.

4.1.2 Parkland elements

Four parkland elements are included as investigation areas: Wianamatta-South Creek corridor, regional parks, ridgeline parks and multi-functional linear parks. Their potential and/or location will be determined during precinct planning.

Wianamatta-South Creek corridor

The Wianamatta-South Creek corridor is the central element of the urban design and water management of the Western Parkland City. Within the Aerotropolis it provides amenity and recreational opportunities, connects to the Green Grid and provides the foundation of a city physically balanced with nature. A Delivery Strategy for the corridor will be developed by the NSW Government together with councils.

Regional parks

Regional parks within the Aerotropolis will provide the immediate and recognisable identity of the Western Parkland City and will also connect with the Western Sydney Parklands. The location and size of regional parks will be further investigated at the precinct planning stage.

Ridgeline parks

The ridges help to frame the Western Parkland City setting and can reduce the visual dominance of urban areas across a vast expanse of land with subtle elevational shifts. Existing trees will be retained, and tree planting will also focus on riparian areas and ridgelines. Local parks and sporting grounds will be distributed along ridgelines and incorporate existing vegetation. Ridgetop parks will catch the breeze on hot days while also offering views to the Blue Mountains and facilities for stormwater management. Careful consideration will integrate landscape and built form to retain views and the green setting.



Figure 13: An example of a ridgeline park looking towards the Blue Mountains from Western Sydney Parklands
Source: Tyrrellstudio Pty Ltd

Multi-functional linear parks

Multi-functional linear parks created alongside infrastructure corridors and minor creeks, where suitable, will offer quality local open spaces along creeks and between ridges and the floodplain. They will be places for walking and cycling connections as well as recreation. The geographic nature of the area's many creek systems means their spacing creates opportunities for green and connected walking, cycling and ecological systems. These will be the logical location of local shops and density that matches these attractive areas.

Streets

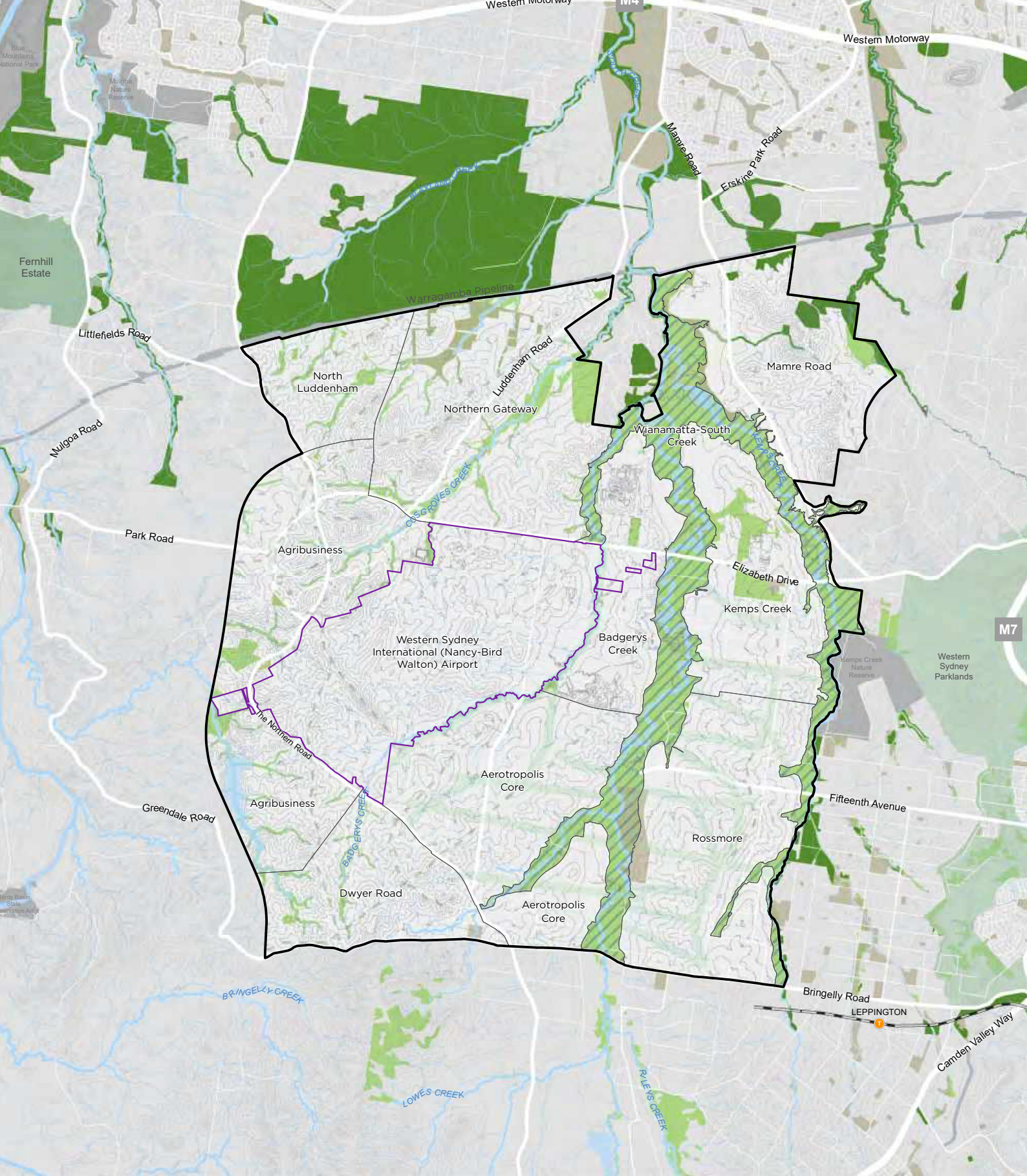
A walkable, fine grain street layout is to be provided that meets the needs of all uses and relates to the urban landform, the creation of quality public spaces and connects with other parkland elements. Retaining and planting trees along streets provides green connecting corridors that provide shade and support amenity and urban cooling.



4.1.3 Soils

A network of interconnected undisturbed soils, known as the Brown Grid, is the foundation for the health of the Blue and Green Infrastructure Framework. This network of soils is located in riparian corridors, parks and other designated areas and is key to achieving healthy ecosystems and good water retention in the clay landscape of the Cumberland plain. Soils within these areas are to remain undisturbed and be continuous, allowing for connectivity of soil ecology. Engineered cut and fill and topographic alteration in these areas will not be supported.

Figure 14: The Goods Line in Sydney is an example of a multi-functional linear park
Source: Destination NSW



Blue Green Infrastructure Western Sydney Aerotropolis

0 0.5 1 2
Kilometres



- | | |
|--|------------------------------------|
| Western Sydney Aerotropolis | Linear Parks (Investigation) |
| Western Sydney International (Nancy-Bird Walton) Airport | Wianamatta-South Creek |
| Waterways | Public Recreation (Existing) |
| Topographic Contour 5m | Potential for Conservation |
| Topographic Ridgeline | Environmental Conservation |
| | National Parks and Nature Reserves |

4.1.3 Biodiversity conservation

Strategic conservation planning for the Aerotropolis will support biodiversity and growth by protecting the area's important conservation values.

This will provide biodiversity certification under the *NSW Biodiversity Conservation Act 2016* and the strategic assessment under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* for part of the Aerotropolis.

The Department of Planning, Industry and Environment will prepare the *Cumberland Plain Conservation Plan*. It will support the delivery of infrastructure, jobs and housing for Western Sydney in a strategic way that protects and maintains important biodiversity, and includes 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 by avoiding and protecting important biodiversity in areas for new development and infrastructure corridors.

In general, areas to the east of the Airport site and south of Elizabeth Drive sit within the South West Growth Centre under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP). In December 2007 that land was conferred a biodiversity certification in accordance with Section 126G of the *Threatened Species Conservation Act 1995* (now the *Biodiversity Conservation Act 2016*).

In addition, the strategic assessment under the *Commonwealth EPBC Act* also applies to the part of the Aerotropolis that is subject to the Growth Centres SEPP. These commitments will continue to apply.

4.2 Future transport network

The future transport network will not only link the Aerotropolis to the world, it will help realise the aspirations of community and industry. Transport networks and services will be coordinated with investment plans and land use planning. The streets and places of the Western Parkland City will be smarter, healthier and more focused on people.

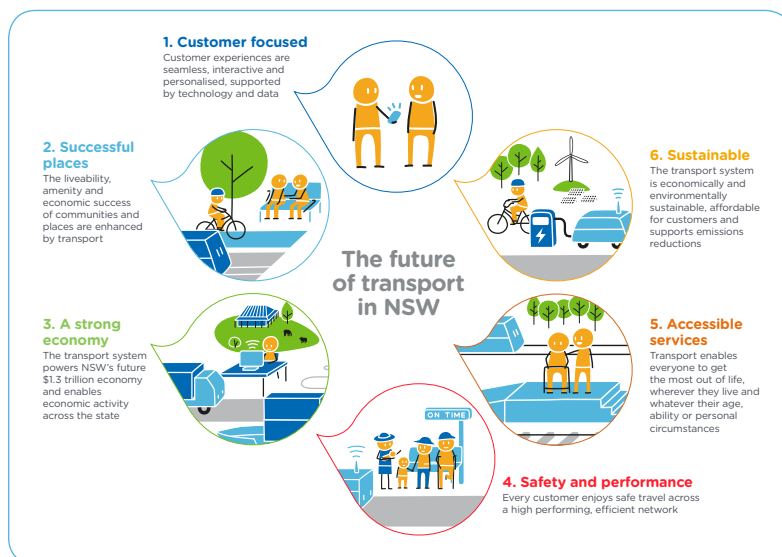


Figure 15: Future Transport's six state-wide outcomes
Source: Transport for NSW

"In broadening our thinking about our roads, rail and streets beyond movement; places can better deliver social, environmental and economic improvements for the entire community.

Likewise, in broadening our thinking about movement to both mobility and access, we can promote the right mode for each trip purpose, and plan places that serve local areas and minimise the need to travel long distances."

Better Placed
(Government Architect NSW, 2018)



Figure 16 (top): Sydney Metro Western Sydney Airport will provide city-shaping services
Source: Transport for NSW



Figure 17 (bottom): Example of a Metro station
Source: Transport for NSW

The *Western Sydney Infrastructure Plan* works include major upgrades of The Northern Road, while construction of the M12 motorway is imminent. Along with the crucial Sydney Metro Western Sydney Airport, these links will tie the Aerotropolis to the opportunities and markets of Greater Sydney.

People in the Aerotropolis will be able to walk to the Metro on safe and shaded streets, enjoy frequent and direct bus services, have convenient access to schools and shops, and benefit from a comprehensive network of cycleways. To realise this vision and support the functions of the Airport and high-tech sector, a network of smart motorways and arterial roads will efficiently accommodate time sensitive freight and private vehicle trips.

New technology will make the Aerotropolis smarter and safer. For the logistics and aerospace sector, connected and autonomous vehicle (CAV) technology can reduce freight and handling costs. On large logistics and technology campuses, autonomous buses will provide connections to bus stops and transit hubs. New technologies allow more responsive transport services that will evolve as the Aerotropolis matures.

Planning for different movements will consider local networks that pass through centres and link places where people want to go, as well as freight and bypass networks to bypass centres and directly link people and goods to the wider network.

4.2.1 Transport services

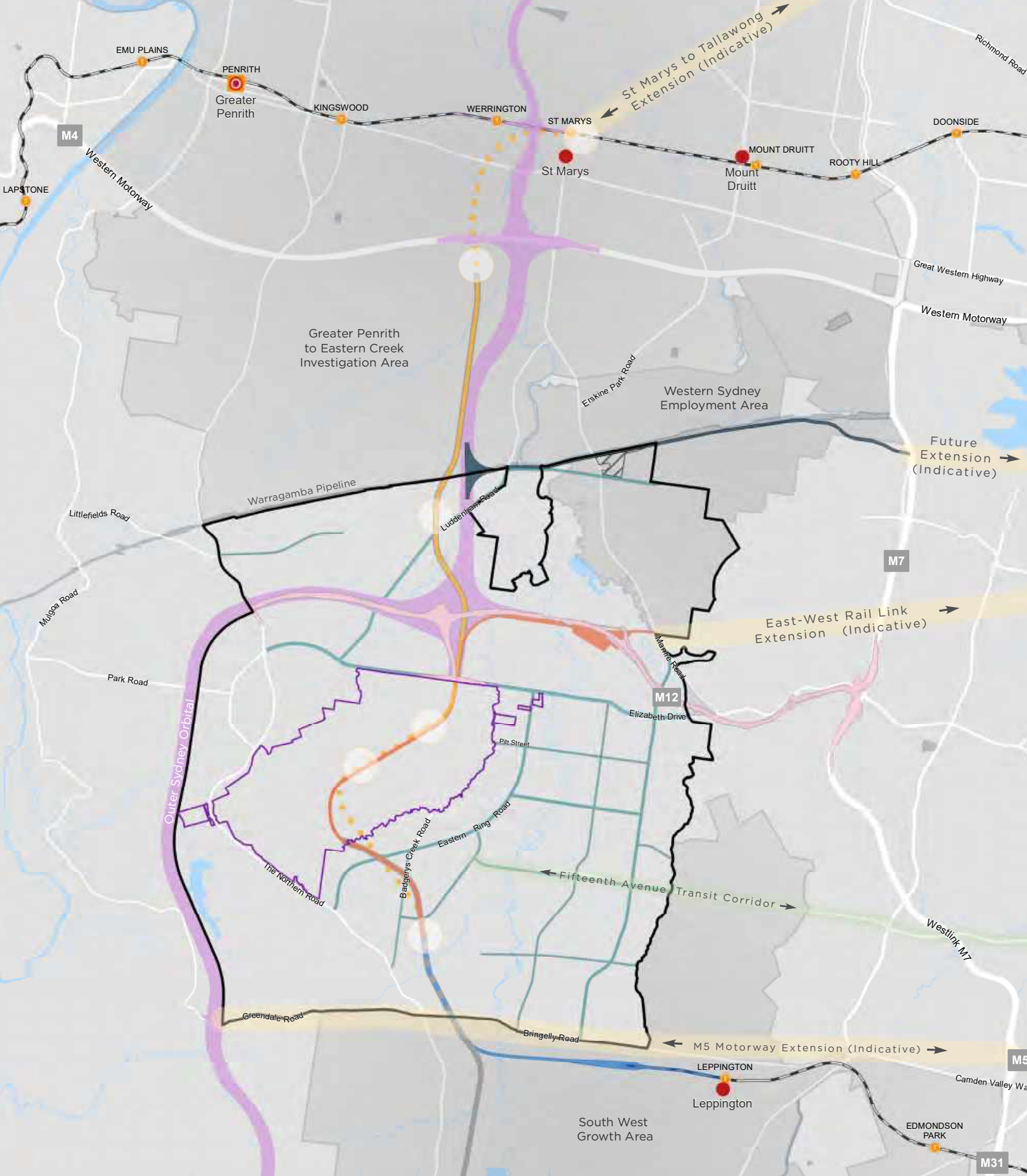
The Aerotropolis's transport network will reflect the service hierarchy adopted in *Future Transport 2056*:

- **city-shaping services** – mass transit public transport services of higher frequency, speed and volume linkages between cities and centres that shape locational decisions of residents and businesses
- **city-serving services** – high to medium capacity, high frequency services, with more frequent stopping patterns
- **centre-serving services** – medium to low capacity, high frequency or on-demand services that provide customers with access to their nearest centres and transport node.

Public transport services will be staged with development. Initial services on the Sydney Metro Western Sydney Airport and rapid bus services linking Liverpool, Penrith, Campbelltown, Blacktown and Parramatta with the Airport and Aerotropolis Core will be supported by local services delivered in line with demand.

Interconnected mass transit city-shaping services that support the evolving needs of the Aerotropolis include the Sydney Metro Western Sydney Airport as part of a broader North South Rail Link corridor, and other connections such as the proposed Outer Sydney Orbital.

The proposed network includes a number of major city and centre serving connections. City-serving networks such as Elizabeth Drive and The Northern Road will provide high capacity and frequency, while centre-serving networks such as Western Road and Ramsey Road offer lower capacity but more closely spaced stops connecting to centres. Local centre-serving bus services will be complemented by smaller on-demand vehicles and 'mobility as a service' offerings, such as ride sharing. Connected urban sensor networks and artificial intelligence will allow on-demand services to anticipate and respond to changes in demand. In conjunction with mass transit and a comprehensive cycle network, these 'last mile' services will enable limits to be placed on private parking supply, further reducing congestion.

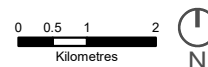


Transport Corridors Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- Metropolitan Cluster
- Strategic Centre
- Key Network Upgrade
- M12 Motorway Corridor

- Proposed Outer Sydney Orbital Corridor
- South West Rail Link Extension Corridor
- Western Sydney Freight Line Corridor
- Potential Intermodal Terminal

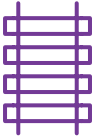
- Metro Station
- Sydney Metro - Western Sydney Airport
- Sydney Metro - Western Sydney Airport - Tunnel Alignment
- North South Rail Line Corridor
- Potential East-West Rail Link and Stabling



4.2.2 Network development

Transport network planning for the Aerotropolis and broader Western Parkland City will maximise the use of the existing roads. New connections will respond to proposed urban development through precinct planning.

The proposed network includes local and transit-focused streets that will connect to key centres including the Aerotropolis Core and the Airport. The Fifteenth Avenue corridor will provide a direct connection to these centres from Liverpool. Similarly, the Pitt Street Extension Corridor will provide an east-west connection for public transport, walking, cycling local traffic between Devonshire Road and the Airport Commercial Precinct via Pitt Street.



Planning for the Aerotropolis will accommodate a new freight infrastructure corridor between key freight centres and the Aerotropolis, as well as freight and logistics development in precincts identified for flexible employment and agribusiness.



The proposed transport network servicing the Aerotropolis will accommodate freight on connections that maximise effective and reliable movements while protecting local amenity.

Key freight links will serve the Airport and the Airport Commercial Precinct to support economic activities along Eastern (Airport) Ring Road. The upgrade of The Northern Road is designed to serve the Agribusiness Precinct and the Airport Freight and Logistics Precinct. The proposed M12 Motorway will be the major access route to the Airport and connect to Sydney's motorway network.

The proposed Outer Sydney Orbital Corridor will be the major north-south transport corridor between Richmond Road in the north and the Hume Motorway near Menangle in the south with a motorway interchange with the M4 Western Motorway. It will include dedicated freight rail infrastructure, providing a regional connection between Port Botany, Western Sydney and regional NSW.

The proposed Western Sydney Freight Line would link the Southern Sydney Freight Line with potential intermodal terminals in the Western Parkland City. It would serve freight, logistics and related industries, and consolidate WSEA as a key freight and logistics hub. This line would also divert freight from the Main West Rail Line, unlocking passenger capacity.

Following landowner and community input, a final transport network will be determined through precinct planning, based on detailed investigations and analysis that focus on integrating land use and transport. This work will be underpinned by investigations to identify infrastructure priorities for the Aerotropolis within the broader Western Parkland City.

This Plan identifies a high-level transport framework for the Aerotropolis with a finer transport network to be determined through precinct planning.

Figure 18: Artist's impression of the M12 linking the Aerotropolis to Greater Sydney. Source: Transport for NSW



4.3 Digital infrastructure – smart cities

Smart cities use technology to improve quality of life. Whilst the scale of initiatives can vary, most solutions use embedded, connected and interoperable technology tools and platforms that take advantage of smart devices working across infrastructure assets, services and sectors. A smart city:

- embeds sensors and communications technology in infrastructure as it is built or when it is being upgraded
- captures, exchanges and uses data securely from sensors
- communicates information, insights and actions, including through the infrastructure itself.

Investing in appropriately scalable and adaptable communications and digital infrastructure is fundamental to enabling a city that can respond to the sustainability objectives of the Aerotropolis, deliver a liveable city, and enable development of industry and jobs.

To create a smart city, the Aerotropolis will incorporate the following built infrastructure:

4.3.1 Connectivity infrastructure

- 4G and 5G (or other future technology) radio cells integrated into buildings, public transport, smart poles or other infrastructure
- Gateway devices for low power wide area networks that collect data from sensors
- Wi-Fi nodes and mesh networks for public access and sensor connection

- Fibre optic network to buildings and homes and data transfer from gateway devices
- Fibre network for high capacity links to commercial buildings, centres and management hubs
- Vehicle to Infrastructure (V2I) to communicate between road signs, traffic lights and connected autonomous vehicles (CAVs).

4.3.2 Sensor infrastructure

- Water, environmental, weather, soil or energy meters
- Traffic, transport and people movement sensors in road surfaces and buildings integrated with parking and traffic management infrastructure
- CCTV for smart transport, safety and law enforcement
- Smart lighting, remote controllable and event configurable
- Road marking for connected and autonomous vehicles.

4.3.3 Communications infrastructure

- Digital signage and interactive smart screens in public spaces and transport
- Smart poles that combine lighting, sensors, connectivity and signage
- Smart benches with many functions such as cooling or heating, device charging, lighting, sensors, connectivity and smart screens
- Coordinated and adaptive traffic signals
- Smart road marking to facilitate traffic management.

Figures 19-20:
Examples of
digital
infrastructure

4.4 Energy infrastructure

The Aerotropolis will be powered through sustainable, next-generation energy infrastructure consistent with the NSW Government's 2050 Net Zero Emissions commitment. Locally produced clean energy, energy storage solutions, smart grid and real time usage optimisation technology and innovative power purchasing options will be a focus for energy providers.

The NSW Government will work with energy infrastructure providers to deliver energy infrastructure that meets the objectives for a world's best practice energy system. This will seek to combine local generation, such as small and medium scale solar, and storage, with advanced electricity network management systems.



Figure 21: The Aerotropolis will be powered by sustainable, next-generation energy infrastructure

The development of energy supplies will draw on Australian and international experience to combine locally generated electricity with the existing large-scale electricity network. Using circular economy principles, this includes:

- installing solar rooftops and solar gardens models for new residences
- using smart grid technologies, with onsite battery storage
- considering electric vehicle charging stations during precinct planning
- if green infrastructure such as rooftop solar cannot be built upfront, incorporating the ability for future provision.

4.5 Integrated water, wastewater and recycled water services

Sydney Water's *Western Sydney Regional Master Plan 2020* sets out an integrated water management servicing direction to 2056. The Master Plan sets direction for doing water differently. It considers the total water cycle in Western Sydney and promotes a sustainable water future delivered via integrated water services. The Master Plan's principles will be incorporated into the Aerotropolis.

Sydney Water's adaptive, flexible planning approach for Western Sydney allows for a combination of actions to be assessed and taken immediately, if required, to support growth demands while preserving flexibility to meet future commitments and initiatives.

Sydney Water has identified a site and is finalising financing and delivery options of the Upper South Creek Advanced Water Recycling Centre with associated Resource Recovery Plant and corresponding network location requirements. Once development has reached an appropriate scale the plant will produce recycled water appropriate for agricultural, industrial, open space irrigation and residential dual reticulation. Whilst Sydney Water is planning to service the entire Aerotropolis, this does not prohibit private sector solutions.

4.5.1 Warragamba Pipeline

The Warragamba Pipeline along the northern boundary of the Aerotropolis transfers water from Warragamba Dam to the Prospect water filtration plant. The Pipeline's safety, integrity and operation is essential. Precinct planning will consider WaterNSW's *Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines* to ensure this important infrastructure is safeguarded.

4.6 Social and cultural infrastructure

4.6.1 Community

Planning for the Aerotropolis will ensure that employment and residential development is within 10 minutes' walk of public open space as per the Premier's Priority. People working or living in mixed use residential areas or higher intensity employment areas will have access to a range of open spaces. District-scale open space such as playing fields and regional parks will be provided towards the edge of centres to maximise catchment areas. Sporting fields will be shared with educational institutions wherever possible.

High quality facilities and services that are attractive, flexible and address the needs of the general community will be provided, including community centres, multi-purpose hubs, libraries and aquatic centres.

4.6.2 Health and education

The Aerotropolis will support internationally competitive health education, research and innovation jobs and services at a diverse range of scales, such as:

- an Integrated Health Hub within the Aerotropolis Core
- an internationally significant research/innovation, science, training and education area (including tertiary, Vocational Education and Training (VET) institutions and secondary school level) within the Aerotropolis Core
- a cluster of leading science-based businesses, tertiary institutions and research facilities at the Sydney Science Park within the Northern Gateway
- strategic centres that integrate primary and tertiary education, with health facilities and the landscape to create places of learning and wellbeing

- local centres where schools and community facilities are integrated into the parklands shared with the broader community
- nearby access to upgrades at Nepean Hospital, Liverpool Hospital and Campbelltown Hospital
- private sector healthcare, where feasible.

4.6.3 Arts and creativity

Cultural and creative spaces can build character and a unique sense of place, identity and belonging. Public art, public spaces such as art galleries, museums and libraries and the new cultural infrastructure will support the ambition for the Aerotropolis to be a home for science and education. Co-locating artistic and creative organisations in science and education precincts will encourage collaboration, drive enterprise and innovation, and support the development of creative industries.



Culture and creativity will drive social, environmental and educational cohesion and innovation. Jobs will be created and the Aerotropolis will be a place that offers a high amenity, high experience urban life.



Figure 22: Camden Fine Art Gallery in Sydney's south-west
Source: Destination NSW

Precinct planning for the Aerotropolis will investigate cultural infrastructure to support a tourism and leisure economy and a night-time economy around the Airport that attracts locals and visitors.

4.6.4 Aboriginal cultural strategy

Western Sydney is rich in Aboriginal history and heritage significance and is also home to the largest Aboriginal population in Australia. The Aerotropolis will embrace opportunities to connect with Country and include cultural infrastructure for Aboriginal people to practice and share culture and for the wider community to visit to interact with and understand the Aboriginal culture, history and heritage of Western Sydney.

Connecting with Country

Connecting with Country is more than a policy or an idea. First Peoples' connection with Country is related to the origins of the landscapes within which they/we inhabit and therefore their/our own origins. Connecting with Country occurs through every sense, movement and stories. It is related to knowledge, actions and experiences, so happens best through corporeal activities and being in spaces on Country. Several practices or methodologies can be engaged to build these connections. While guidance from knowledge holders is recommended, some of these methods are part of everyday life, such as walking Country, storytelling on Country, making on Country, listening to Country, dialogue with Country, singing up Country, and sensing Country.

Aboriginal people have always walked Country as both a means of knowing and caring for Country. Culture is a map across the landscape in which not only are the individual places important, but the routes between them, and the whole of the landscape is a cohesive narrative. Indigenous cultural knowledge is spatialised and placed, so in walking Country, a sort of mapping occurs that involves all the senses and does not simply rely upon sight.

4.6.5 Heritage

Key heritage sites, significant cultural landscapes and items will be preserved, and where appropriate, activated and integrated with new development. The history of the area will be embraced to contribute to a distinct identity.

Heritage forms part of the wider cultural infrastructure framework and specific heritage conservation strategies and controls will be considered in precinct planning and DCPs as part of a requirement to address the *Heritage Act 1977*. During precinct planning, detailed site investigations will occur to identify and protect Aboriginal and non-Aboriginal heritage. The outcomes of these investigations will then inform master planning and will be considered in development applications.

Planning, urban design and development will activate and integrate 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 adaption of Historic Buildings and Sites* by NSW Heritage Office & Royal Australian Institute of Architects NSW Chapter.

Aboriginal heritage

All landscapes have Aboriginal cultural heritage values, which includes both tangible and intangible elements containing places and values relating to traditional, historical and contemporary periods. There are points of significance for Aboriginal peoples within the Aerotropolis including scarred trees, carved trees, white clay, shell middens, camp sites, stone resources and scatterings of artefacts.



Figure 23: White clay being used in Aboriginal ceremonies
Source: Destination NSW

The floodplains of Ropes Creek and Wianamatta-South Creek were an important meeting place and source of nutrition for Aboriginal communities. South, Badgerys and Thompsons creeks provided food and recreation over thousands of generations. Local plant species including tea tree, paperbark trees, geebung, wattles and ferns, as well as fish and shellfish provided food for Aboriginal peoples.

Non-Aboriginal heritage

European settlement began in the area in the early 1800s with the first land grant given to James Badgery in 1809. The next settlers established large rural estates and set up local agricultural and pastoral economies. Some large estates were subdivided from the 1850s and this attracted small-scale farmers and led to the formation of village centres, including Luddenham and Bringelly. While land continued to be subdivided and developed, the rural character and agricultural uses remained, as do some early buildings and structures.

The Aerotropolis contains 16 non-Aboriginal heritage items of local significance. Two items of State significance include Kelvin Park Homestead (Group) in the Aerotropolis Core Precinct and Church of the Holy Innocents (Group) in the Rossmore Precinct. These items will be mapped in the Aerotropolis SEPP and considered at the precinct planning stage.



Figure 24: Kelvin Park Homestead in the Aerotropolis Core Precinct
Source: Heritage NSW, Department of Premier & Cabinet

Women, white clay and Wianamatta

Aboriginal women in Greater Sydney are guardians of reserves of white clay. Prior to non-Indigenous appropriation, it was traded far and wide as an important resource and dietary supplement, particularly for pregnant women. These movements of trade and custodial care occurred throughout the cultural calendar, often involving travel for many days along songlines or trade routes. White clay, as found at Wianamatta, was so valued that women carried it with them in a djuguma, or net bag, slung around her neck or head along with other essential items such as kangaroo bone chisels, shells used as spear sharpeners, balls of red ochre, lumps of resin from the Xanthorrhoea, or grass tree and fishing implements. Clay is also valued for body adornments, which when used in ceremonies distinguishes groups through the differing designs in their body painting.

Safeguarding the 24-hour airport

The Airport represents a \$5.3 billion Commonwealth investment for Stage 1 alone. It will be a catalyst for economic growth and will operate without a curfew.

The Airport's 24/7 operations will be safeguarded in future precinct planning, and within the context of development (including ancillary commercial areas and business park) being subject to the planning and approval framework of the *Commonwealth Airports Act 1996*.

Planning to safeguard the 24/7 operations includes:

- preventing the intensification of noise-sensitive land uses into areas affected by aircraft noise
- locating buildings to avoid wind shear and turbulence
- managing wildlife attraction
- locating wind turbines appropriately
- ensuring lighting does not distract/confuse pilots
- maintaining an obstacle free protected operational airspace
- ensuring off-airport development does not impact the communication, navigation and surveillance (CNS) equipment
- managing land uses in public safety areas.

There are a number of airport safeguarding requirements which extend beyond the Aerotropolis boundary, including aircraft noise management, intrusion into protected operational airspace, wildlife strike management, managing lighting and reflectivity

distractions to pilots, public safety areas and CNS facilities. Noting that the Airport is a national aviation asset, the Aerotropolis SEPP will contain controls and matters for consideration to ensure that all development surrounding the Airport is compatible with and supports the Airport's 24/7 operation.

All levels of government will work together to integrate the planning for the Aerotropolis with the planning undertaken by Western Sydney Airport for the Airport site.

5.1 National Airports Safeguarding Framework

The National Airports Safeguarding Advisory Group (NASAG) developed the National Airports Safeguarding Framework (NASF) as a national land use planning framework at Australian airports. The Framework requires consideration of aircraft noise, protected operational airspace, wildlife strike, wind shear, public safety areas, lighting, wind turbines, communication, navigation and surveillance systems and helicopter landing sites.

5.1.1 Aircraft noise and development

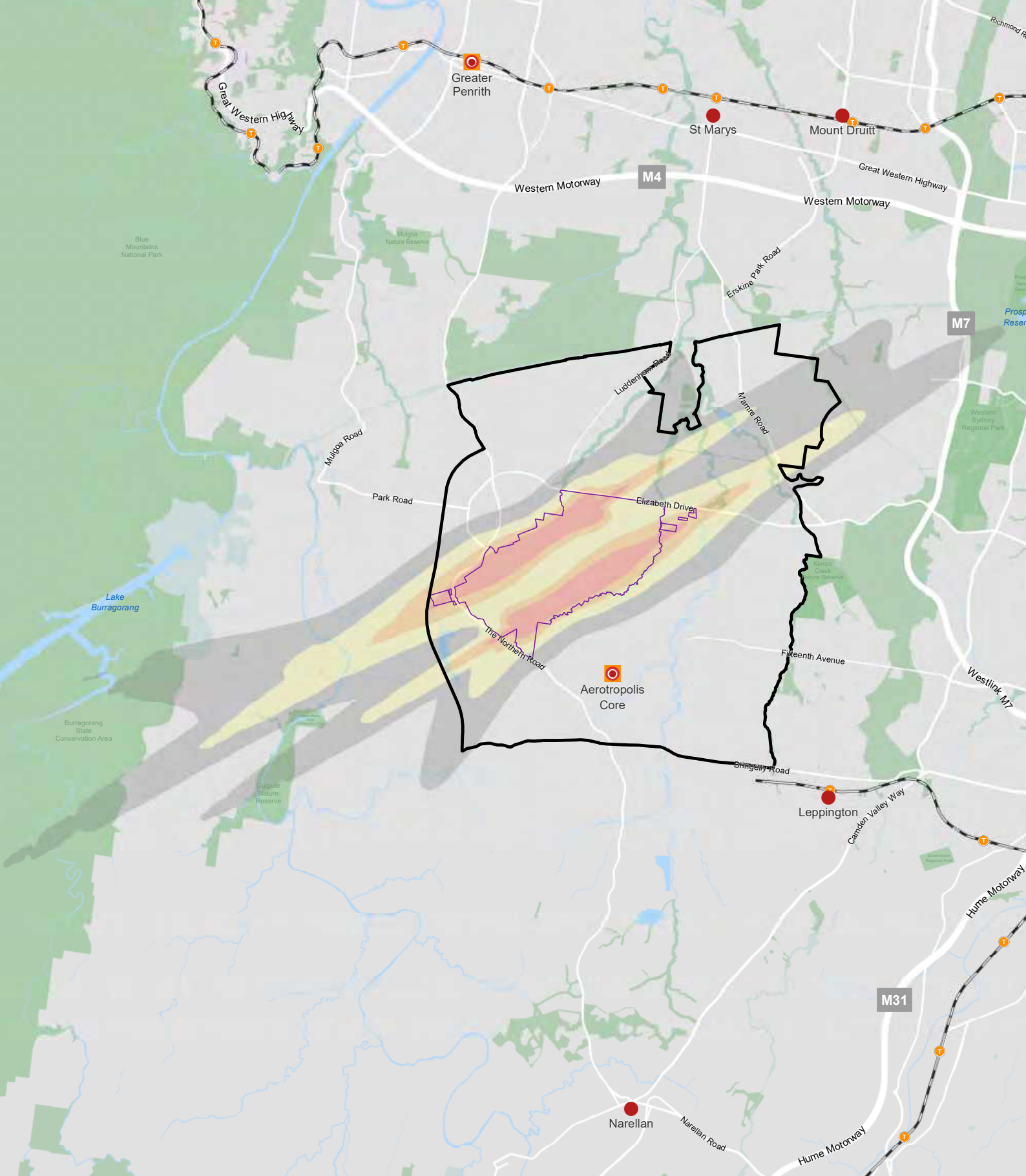
Development that will impact upon the aviation operations of the Airport will not be supported. New residential and other noise sensitive development will not be located within the ANEC/ANEF 20 and above contours (see page 45). Locating residential development in high amenity areas in proximity to the Wianamatta-South Creek corridor will create a buffer between residential development and the Airport. More noise tolerant land uses (such as industry) will be located closer to the Airport. New residential development will also only be permitted in areas with high amenity and should not front major roads or public transport routes. Additionally, for the Aerotropolis Core, new residential development will be focused within walking distance of public transport (800m or 10 minutes) and the creek system to create a compact,

Definition of Australian Noise Exposure Concept (ANEC)

Anticipated forecasts of future noise exposure patterns based on indicative flight paths around an airport that constitute the contours.

Definition of 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.



ANEC Contours

Western Sydney Aerotropolis

Western Sydney Aerotropolis

Western Sydney International (Nancy-Bird Walton) Airport

Environmental Conservation

National Parks and Nature Reserves

ANEC = 20-25

ANEC = 25-30

ANEC = 30-35

ANEC = 35+

Metropolitan Cluster

Strategic Centre

Railway

Waterways

0 0.5 1 2 3
Kilometres



walkable and vibrant centre whilst achieving the vision for the Western Parkland City.

Development within the ANEC/ANEF 20 and above contour and within the Obstacle Limitation Surface boundary will adopt appropriate design and construction standards to reduce aircraft noise impacts.

In existing residential areas or land approved for development, the ability to construct dwellings will not be removed and renovations to existing houses or extensions will still be allowed, subject to appropriate noise mitigation management measures.



Over time, the noise exposure contours will be reviewed and recalibrated in accordance with the requirements of the Airports Act 1996.

As the contours may change in the future, or the ANEF chart developed during the airspace design process may differ from the current ANEC contours, a precautionary approach to residential development and other noise sensitive development within the 20 ANEC/ANEF and above contour will be taken.

The Australian Government is responsible for designing the flights paths and airspace management for Western Sydney International (Nancy-Bird Walton) Airport. The flight paths design process will cover four main phases: planning; preliminary design and environmental assessment; detailed design; implementation.

5.1.2 Protected operational airspace

An airport's protected operational airspace is the volume of airspace above a set of imaginary surfaces, established to protect aircraft from obstacles or activities. One of these, the Obstacle Limitation Surface (OLS), recognises that tall structures or obstructions such as cranes, plumes, lighting and glare could create air safety hazards. The Western Sydney Airport Plan identified an OLS for

the Airport (see page 47). As the Airport gets closer to operations additional airspace surfaces such as Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) will be mapped.

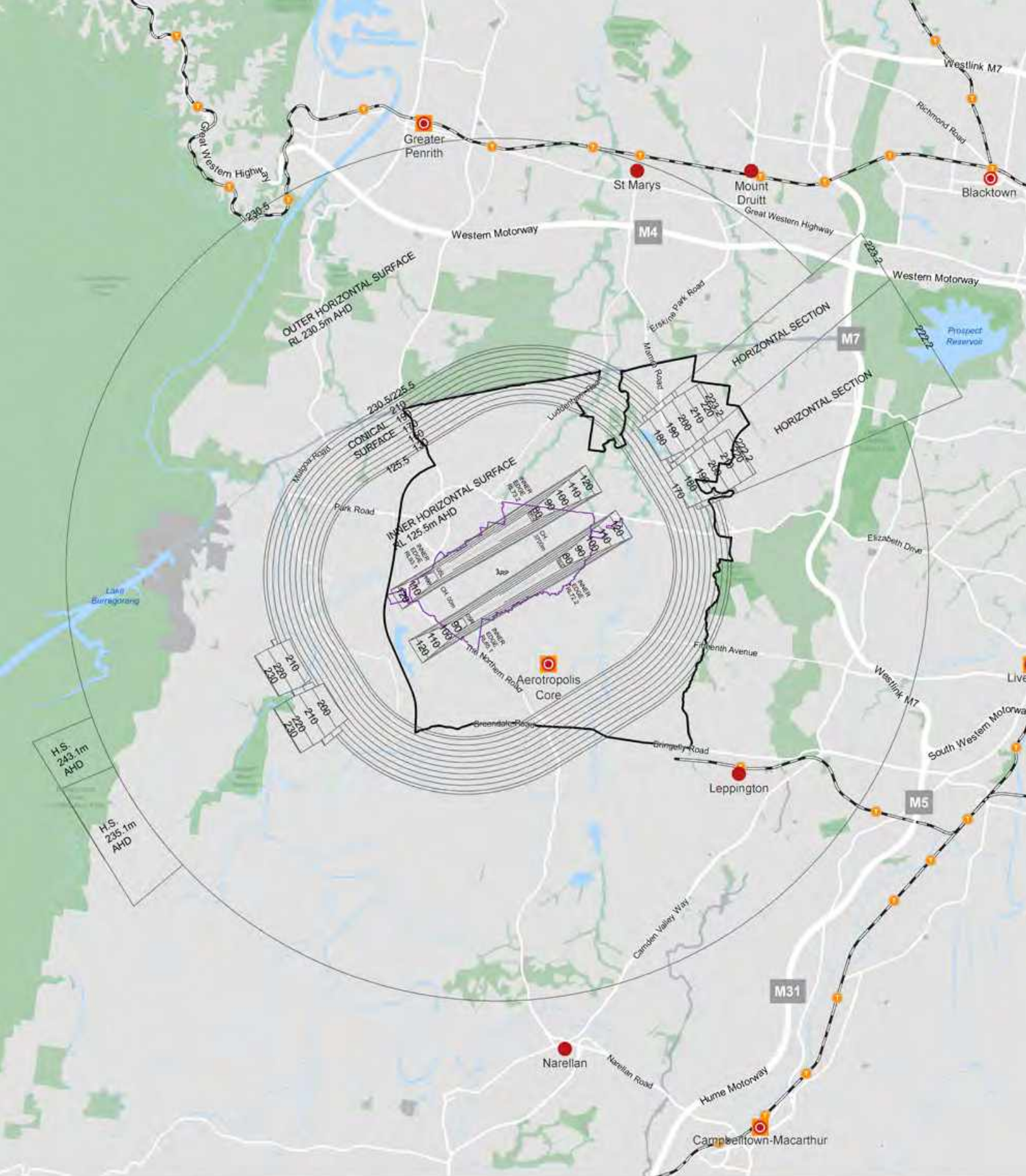
The Aerotropolis SEPP and Aerotropolis DCP will include controls relating to protected operational airspace. In addition, encroachments into protected operational airspace for the Airport may require approval under Part 12 of the *Airports Act 1996* and *Airports (Protection of Airspace) Regulations 1996*.

Definition of Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS)

A PANS-OPS is the primary surface for protecting aircraft operating under non-visual (instrument guided) conditions generally located above the OLS.

Figure 25: Controls will ensure that airspace is protected from obstructions





OLS Chart

Western Sydney Aerotropolis

- OLS Chart
- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- National Parks and Nature Reserves
- Environmental Conservation

- Metropolitan Cluster
- Health and Education Precinct
- Strategic Centre

- Railway
- Waterways



5.1.3 Wildlife strike

Birds and other wildlife can impact aircraft, particularly during take-off and landing. Land uses and landscaping species that could attract wildlife must be considered in the context of aircraft safety. Appropriate land use planning and landscape species selection and design will manage the risk of wildlife strike with aircrafts.

Planning for the Aerotropolis will ensure an appropriate balance is achieved between the need to safeguard the Airport from wildlife strike, and delivering the Western Parkland City vision.

5.1.4 Wind shear and turbulence

Building-generated windshear/turbulence becomes a critical safety issue when a building is in the path of a crosswind to an operational runway. The wind flow around and over buildings can vary crosswind speed along the runway.

Any building within the assessment trigger area that will penetrate the 1:35 surface must consider windshear and turbulence. This means that if a building exceeds 10 metres in height and is 350 metres from the runway, it will penetrate the 1:35 surface. Buildings fitting these criteria will be referred to Western Sydney Airport and the Commonwealth for development approval. Typically, only buildings within airport sites need to be designed to address windshear and turbulence. However, any other buildings within proximity to the airport that are located within the assessment trigger area and penetrate the 1:35 surface, will need to consider windshear and turbulence.

Precinct planning will address windshear and turbulence.

5.1.5 Public safety areas

The risk of aircraft incidents is highest at the ends of runways. Planning within these areas - public safety areas - will exclude land uses that attract large numbers of people or include the storage, use or manufacture of certain dangerous goods.

The *Western Sydney Airport Environmental Impact Statement*, released in 2016 applied a nominal trapezoid area to identify public safety areas at the Airport. *NASF Guideline I - Managing the Risk in Public Safety Areas* was subsequently released in November 2018. Guideline I provides an opportunity to apply a public safety area based on the UK Public Safety Area model, which models anticipated aviation activity at the airport. This approach will be applied to land use planning decisions around the Airport. A map showing the public safety areas can be seen on page 49.

Precinct plans will address public safety areas in greater detail.

5.1.6 Lighting and reflectivity

Lighting within six kilometres of the Airport will need to be installed and configured to avoid distraction or confusion for pilots who could mistake it for aeronautical ground lights that are used during inclement weather and outside of daylight hours.

Additionally, the design of buildings and structures should consider how their design could reduce distraction to pilots resulting from reflected sunlight.

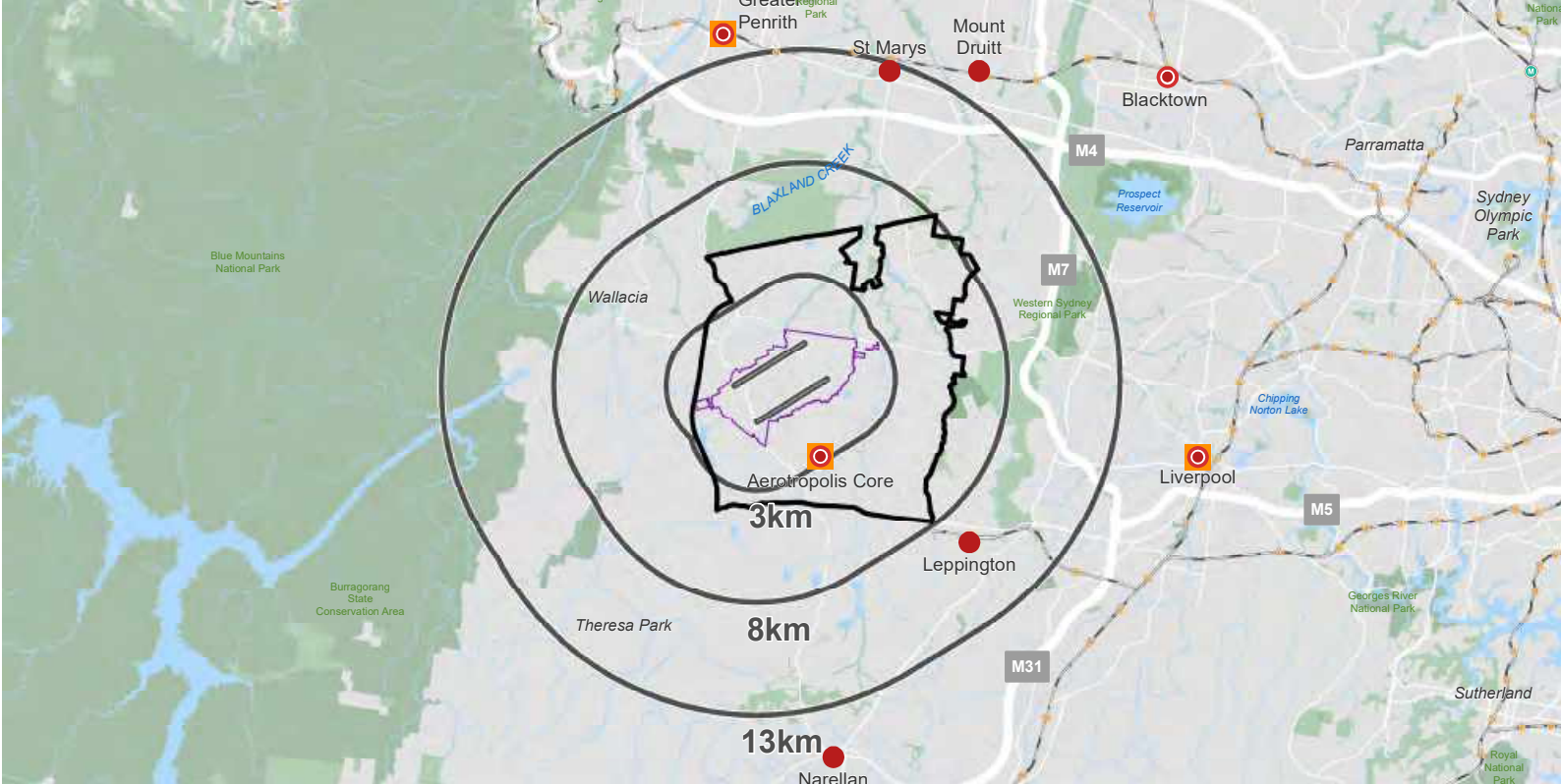
5.1.7 Wind turbines

Wind turbines can be hazardous to aviation as their height creates potential conflict with low flying aircraft. They can also create turbulence and affect the performance of CNS equipment. Wind turbines will be avoided in the vicinity of the Airport and between 3km and 30km will need to be carefully considered.

5.1.8 Communications, navigation and surveillance facilities

CNS facilities are crucial to the safety of aviation. CNS infrastructure and facilities enable:

- pilots to navigate while enroute between airports;
- pilots to utilise navigation aids to conduct instrument approach procedures;



Wildlife Buffer Zones

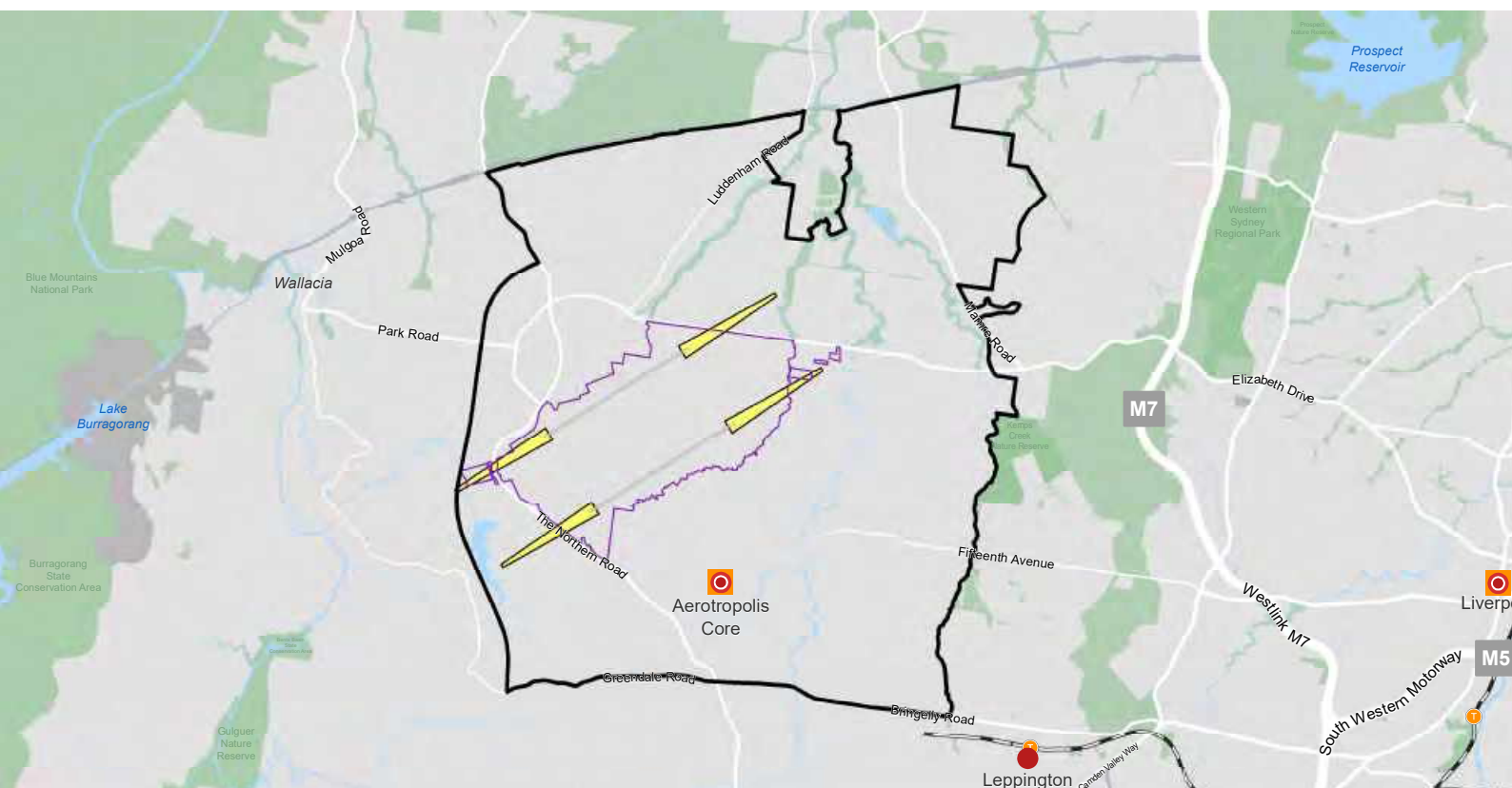
Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- Wildlife Buffer Zones

- Metropolitan Cluster
- Health and Education Precinct
- Strategic Centre
- Railway

- Watercourse
- National Parks and Nature Reserves
- Environmental Conservation

0 1 2 4
Kilometres



Public Safety Areas

Western Sydney Aerotropolis

- Western Sydney Aerotropolis
- Western Sydney International (Nancy-Bird Walton) Airport
- Public Safety Areas

- Metropolitan Cluster
- Strategic Centre
- Environmental Conservation
- National Parks and Nature Reserves

- Railway
- Waterways

0 1 2 4
Kilometres



- dialogue between pilots and air traffic control; and
- air traffic control to monitor and confirm an aircraft location.

If not properly assessed and managed, inappropriate development located in the vicinity of CNS facilities can compromise their effectiveness. The NSW Government will work with relevant agencies to ensure these facilities are adequately protected.

5.1.9 Helicopter landing sites associated with hospitals

To ensure continued operations of helicopter landing sites at hospitals, associated flight paths must be free from encroachments. Any proposed hospitals in or adjacent to the Aerotropolis must consider flight path protection.

5.2 Implementing the NASF

Principles to safeguard the aviation operations of Western Sydney Airport will be implemented through:

- the Aerotropolis SEPP
- the Aerotropolis DCP
- Section 9.1 directions 3.5 *Development Near Regulated Airports and Defence Airfields* and 7.8 *Western Sydney Aerotropolis Plan*
- precinct planning
- master planning.

Master plans will not be approved unless they satisfy all principles, including aviation safeguarding principles, identified in the Aerotropolis SEPP.

DAs must demonstrate how they satisfy performance outcomes of the DCP, either through identified benchmark solutions or proposed alternative solutions. Some development will trigger referral to Western Sydney Airport.

Figure 26: Example of airport operations

