5.0

GPEC Vision

5.1 GPEC Vision Statement

Greater Penrith to Eastern Creek's future will build on the area's existing character, community and culture to embrace Country and create future communities that are inclusive and diverse.

GPEC will be the urban heart of a resilient, liveable and green parkland city where new homes integrate with iconic natural assets - the Blue Mountains, the Hawkesbury-Nepean River, the central green spine of Wianamatta-South Creek, and Ropes Creek and Eastern Creek in the east.

Diverse housing that meets the different cultural needs of the community will be embedded in the natural environment and supported by public open spaces and vibrant community facilities.

Residents will be able to work close to home or choose to connect to employment opportunities on GPEC's doorstep as the Western Sydney Aerotropolis evolves.

Design Methodology

It was identified early in the project, GPEC Structure Plan would need a clear and concise design framework and set of design principles that will inform the objectives and actions of future detailed urban design studies undertaken for this area.

The Design methodology was an iterative design process where the urban design and landscape team developed a solid, five-pronged approach for the GPEC Structure Plan, underpinned by the following; Vision Principle, Methods, Outcomes and Place results.

VISION PRINCIPLE

Five overarching Principles underpin the Structure Plan and are based on salient aspects of the Vision. The Principles are informed by detailed site analysis of the study area as well as key drivers for the GPEC project.

Application of the recommended Methods will contribute to the identified Outcomes and culminate in the Place Results.

It is recommended that the design of urban forms, public spaces and green links be based around these principles.

METHODS

Suggested ways to apply the vision principles.

These can be applied and realised across various scales and locations, including at detailed precinct planning.

The Methods relevant to each Vision Principle are illustrated on the following pages.

OUTCOMES

The result of application of the corresponding specific Methods, Outcomes are generally measurable or quantifiable.

PLACE RESULT

The Place Results describe how the collective application of the recommended Methods might transform GPEC as a place.

5.2 Design with Country and the Blue-Green Grid framework

VISION PRINCIPLE	METHODS	OUTCOMES	PLACE RESULT
Design with Country and the Blue-Green Grid 	Prioritise district and local open space on hilltops or high points within the landscape	Hilltops and ridgelines are preserved and celebrated and ensure legibility and views of GPEC's landscape	**The Blue-Green Grid highlights and celebrates Country**
	Utilise riparian corridors, flood prone land and Asset Protection Zones for ecological and recreation functions	Key blue corridors maintain their ecological function while allowing water, animals and people to move freely across or around them	
	Implement waterway health measures to protect and improve GPEC's waterways	Improved waterway health and increased awareness of the importance of caring for Country	
	Partner and engage with the Aboriginal Community to explore implementation of Designing with Country principles	The ancient landscape systems and cultural connections within GPEC are understood and celebrated	

Image source: Wianamatta-South Creek catchment, Western Sydney Aerotropolis 'What we heard' Report. https://shared-drupal-s3fs.s3-ap-southeast-2.amazonaws.com/master-test/fapub_pdf/A+Aero/WesternSydneyAerotropolis_SubmissionsReport_WEB.pdf

5.3 A Landscape-Led Land use approach

VISION PRINCIPLE	METHODS	OUTCOMES	PLACE RESULT
A Landscape Led Land use approach 	Prioritise density over urban sprawl	Compact urban centres limit impact on the landscape and ecosystems	**Growth and change nurtures and complements natural landscape features**
	Retain dams and integrate WSUD rain gardens and detention basins into new and existing infrastructure and built form	Water is stored and treated in the landscape, mitigating the effects of flooding and salinity in this part of the Cumberland Plain	
	Design buildings and public places to respond to their geographical, landscape, climatic specificities	Healthy, liveable and sustainable built form and public spaces	
	Limit built form heights and footprints	Hilltops, ridges and tree canopy is visible from afar	

Image source: Seoul Cheonggyecheon River transformation, http://urbanplanet.info/urbanism/rethinking-urban-expressways-world/

5.4 Balancing Urban Growth and Ecosystems

VISION PRINCIPLE

Balance urban growth and ecosystems

METHODS

Adequate ground space and deep soil zones are allowed for within multi-level development (min10% of site and 6m width)

Maintain an undisturbed network of soil and remnant vegetation through minimal cut and fill

Asset Protection Zones around existing protected vegetation are considered for use as open space

Locate green and movement corridors along existing property boundaries

OUTCOMES

Large scale tree planting can be accommodated

Soil biota and seed banks are are protected and salinity is limited, supporting and nurturing the Green Grid

Green connections are strong and resilient while serving a community function

Land acquisition and disturbance to existing landholdings is minimised

PLACE RESULT

Compact urban centres limit impact on ecosystems

Image source: Sydney Olympic Park 2030: the City in the Park: https://landscapeaustralia.com/articles/sydney-olympic-park-2030-the-city-in-a-park-1

5.5 Resilient Community and Character

VISION PRINCIPLE	METHODS	OUTCOMES	PLACE RESULT
Resilient Community and Character 	Apply best-practice sustainability and resilient city measures to public and private land	GPEC's climate change impacts are minimised	**GPEC's network of parks and public spaces reflects community character and identity and contributes to a vibrant, green and sustainable Western Parkland City**
	Provide generous public spaces that are culturally safe and tailored to their historical and urban contexts and communities needs	Public spaces reflect the community's character and are welcoming and accessible to all groups within the community	
	Open space is diverse in size and use, and is easily accessible from surrounding residential development	Open space provides social and community functions and contributes to a distinct local identity	
	Identify new open space that connects to waterways and reinforces the open space network	A more complete network of open space that respects biodiversity and riparian corridors	

Blacktown Native Institute Project 2018, https://www.mca.com.au/artists-works/c3west/blacktown-native-institution-project-2018/

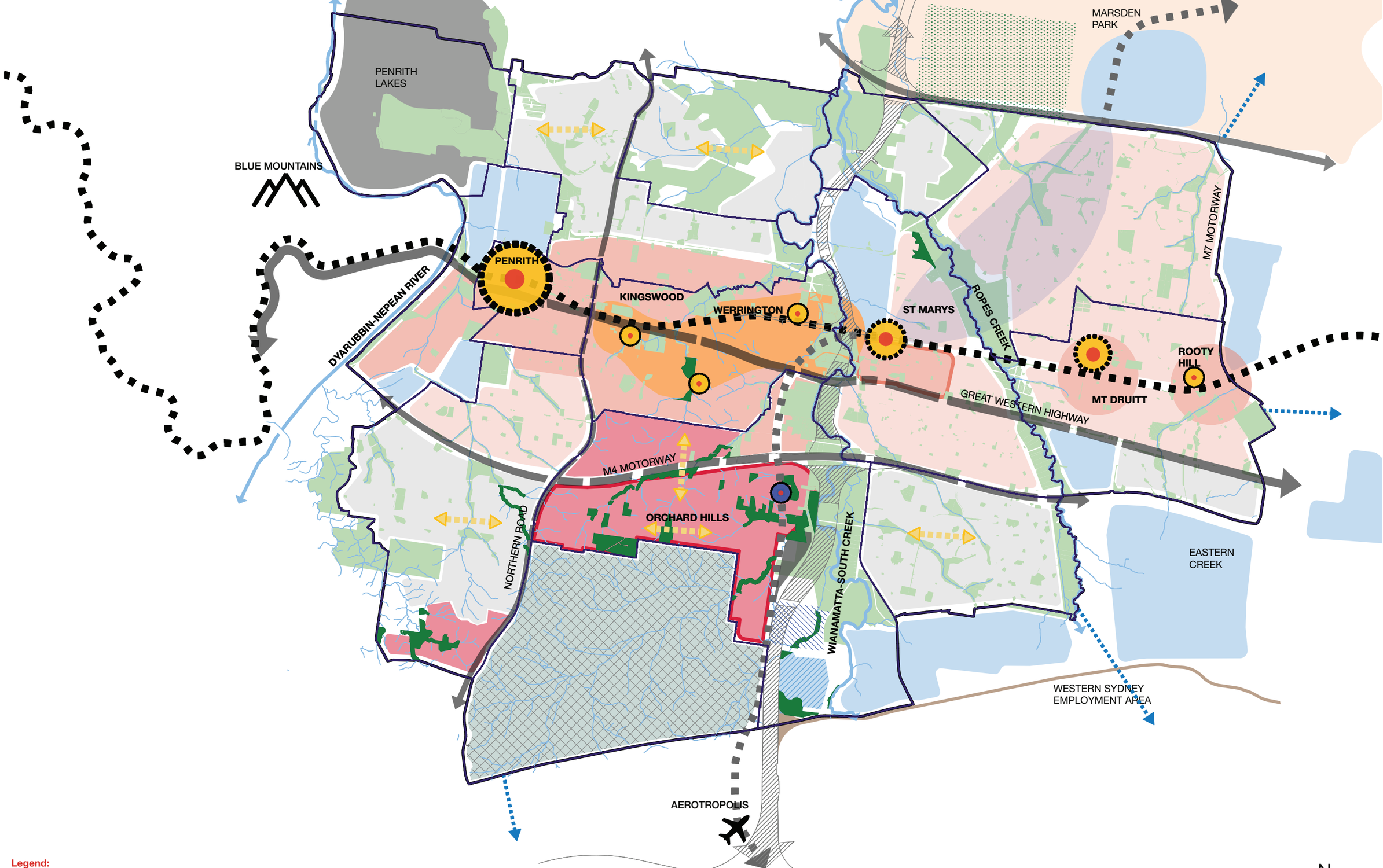
5.6 Enriched and Healthy Connections

VISION PRINCIPLE	METHODS	OUTCOMES	PLACE RESULT
Enriched and healthy connections 	Focus development around transport connections	Residents can access their nearest strategic centre within 30 minutes	**A well-connected, active place catalysed by transport-oriented development and well-designed green links**
	Improve public transport accessibility, availability and frequency of service between local centres	Better connections between local communities	
	Create a network of active transport connections and integrate all modes of transport throughout the GPEC transport network	Increase in public and active transport mode share	
	Balance vehicle, pedestrian and other transport movements in the revitalisation of centres	Streets are reclaimed for public life	

Image sources: Bourke Street Cycleway, https://drivenxdesign.com/sda2012/project.asp?ID=11250

6.0

GPEC Structure Plan



Legend:

- FUTURE EMPLOYMENT AREAS
- EMPLOYMENT AREAS
- PRIORITY URBAN RELEASE AREA - SHORT TERM
- URBAN RELEASE AREAS
- URBAN RELEASE AREAS BEYOND GPEC
- PRIORITY URBAN RENEWAL AREA - SHORT TERM
- RENEWAL AREAS - SHORT TERM
- RENEWAL AREAS - LONG TERM
- LIMITED CHANGE AREAS
- PENRITH HEALTH AND EDUCATION PRECINCT
- TOURISM/ RECREATIONAL GROWTH AREA
- AUSTRALIAN DEFENCE FORCE SITE
- TRANSPORT CORRIDORS
- FUTURE OUTER SYDNEY ORBITAL
- RAIL CORRIDOR SUPPORTING CONNECTIVITY
- FUTURE METRO LINE AND STABLING FACILITY
- METRO INVESTIGATION AREA
- PRECINCT BOUNDARIES
- CENTRES
- NEW LOCAL CENTRE
- FUTURE WESTERN SYDNEY FREIGHT LINE
- CREEKS AND WATERWAYS
- OPEN SPACE NETWORK
- TRANSGRID SITE
- FUTURE NATIONAL PARK AT SHANES PARK
- EXPLORE LINKS TO EMPLOYMENT AREAS OUTSIDE GPEC

SCALE 1:70000 @A3

2500m 500 1000 2000

N

- CPCP AVOIDED LAND
- EXPLORE STRENGTHENED CONNECTIVITY IN FUTURE DETAILED PLANNING

6.1 Landscape

This Plan outlines the Landscape elements of the Structure Plan and realises the Green Grid as a connected living network that brings together existing open space, riparian corridors, environmental lands and new open space. This network will allow the movement of people via safe active transport connections and flora and fauna throughout the GPEC area, across urban and water sub-catchments and infrastructure corridors. This Green Grid encompasses key locations across the GPEC area, including the Blacktown Native Institute in its northeastern corner, through the trails of the Great West Walk, to the riparian areas of the Nepean River in the west.

The riparian corridors allow for a generally north-south movement, so new opportunities for east-west connections need to be established through upgrade of existing undeveloped lands and where possible and appropriate, the acquisition of strategic parcels, working with bands of existing remnant vegetation. Natural soil networks, water catchments and Cumberland Plain woodland will benefit from the connectivity, sensitivity to naturally occurring systems and the space required for them to thrive.

Opportunities exist to establish hilltop parks as prominent markers in the wider landscape. Central Orchard Hills, Orchard Hills North and Kingswood/ Werrington can feature these landmarks which will act as the backbone of the GPEC open space network. Direct connections can be made to nearby Green Grid elements and creeklines.

Each existing and proposed town centre could feature a traditional “town park” (in the manner of Bathurst, Orange or North Sydney’s central three-hectare parks) that could become central to GPEC’s placemaking strategy over time as the densities rise in these areas, serving community, civic, recreational and environmental functions in key GPEC centres.

Completing this open space hierarchy is the network of local parks, each adjusted to suit the respective surrounding urban density and strategically located to bolster the Green Grid. They will ensure equitable distribution to fill the local open space gaps identified across GPEC.

Finally, the ecological character of these various elements will be driven and unified by the key Biodiversity Areas of the GPEC area, known for containing large patches of undisturbed bushland, riparian zones and/or spaces important to Country and the community.

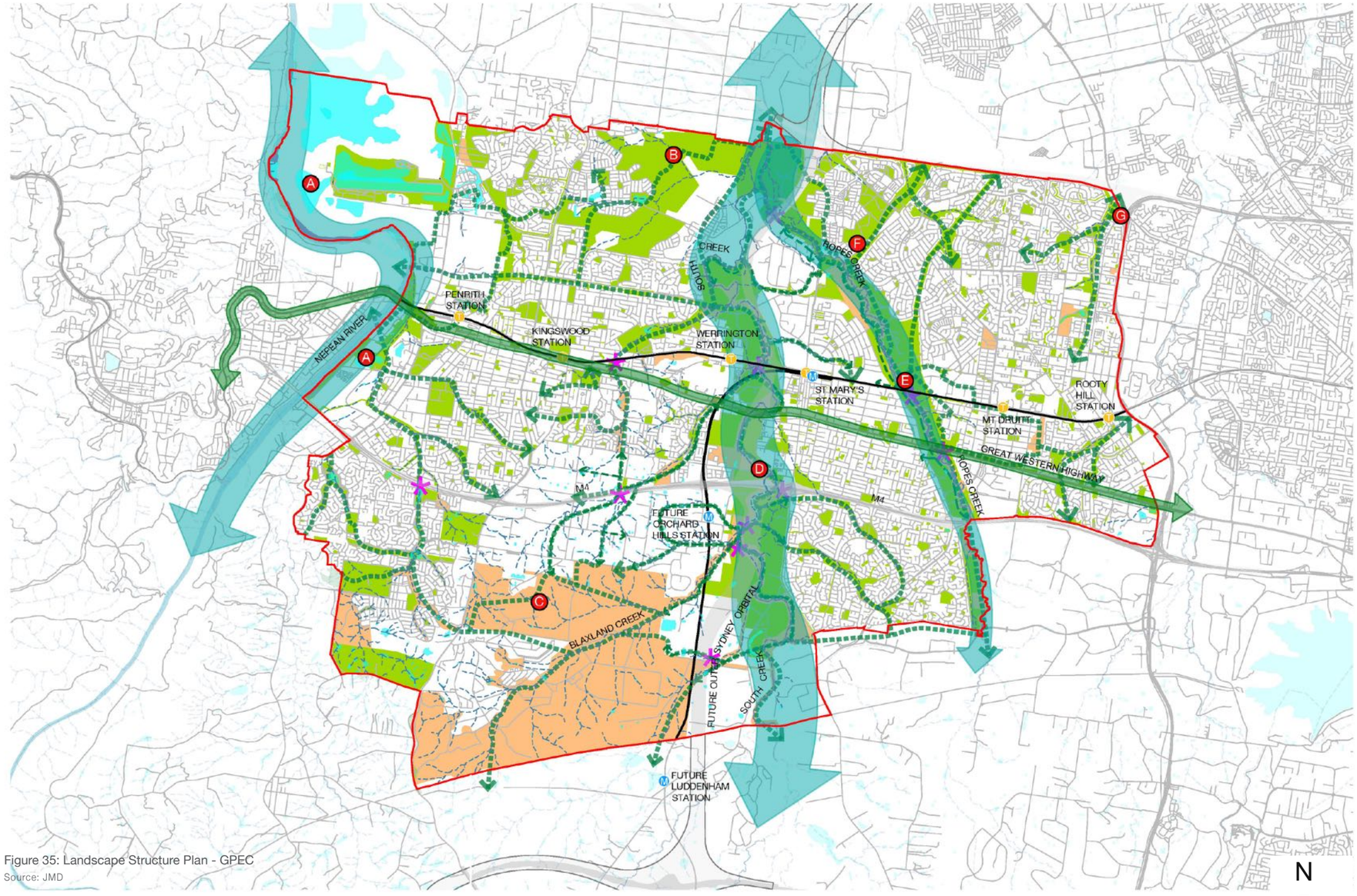


Figure 35: Landscape Structure Plan - GPEC
Source: JMD

6.2 Centres and Growth

This Plan outlines the Centres and Growth considerations underpinning the Structure Plan. Built form and development will be targeted to strengthen the role of the Penrith to Mt Druitt economic corridor as well as support the operation of the Sydney Metro Western Sydney Airport line.

Penrith as the historic focus of the Western Parkland City will continue to grow as a fine grain, main street focussed centre with retail, cultural and service offerings, supported by major employment and residential uses.

Kingswood / Werrington is a key connector east-west between Penrith and St Marys - two growing centres of unique character. Kingswood / Werrington will grow to be a new precinct in its own right, by implementing mixed use and residential growth on Western Sydney University lands and the surrounding health precinct. Simultaneously, growth of the Werrington / Kingswood precinct's character will allow it to become a significant link within the economic corridor. This area will provide character transition and growth opportunities supporting St Marys and Penrith.

Existing centres of activity, such as St Marys, Penrith and Mt Druitt will capitalise on their location close to transport and deliver new floorspace for commercial and retail activity, accompanied by residential uplift.

The quality of public spaces, pedestrian connections and community facilities will be prioritised in any future development.

The integration of catalysing and flexible land uses within growing centres will provide opportunities for these areas to transform and develop unique identities.

Continued growth and diversification of existing employment and industrial areas will be supported and essential to the economic prosperity of GPEC within the Greater Sydney context.

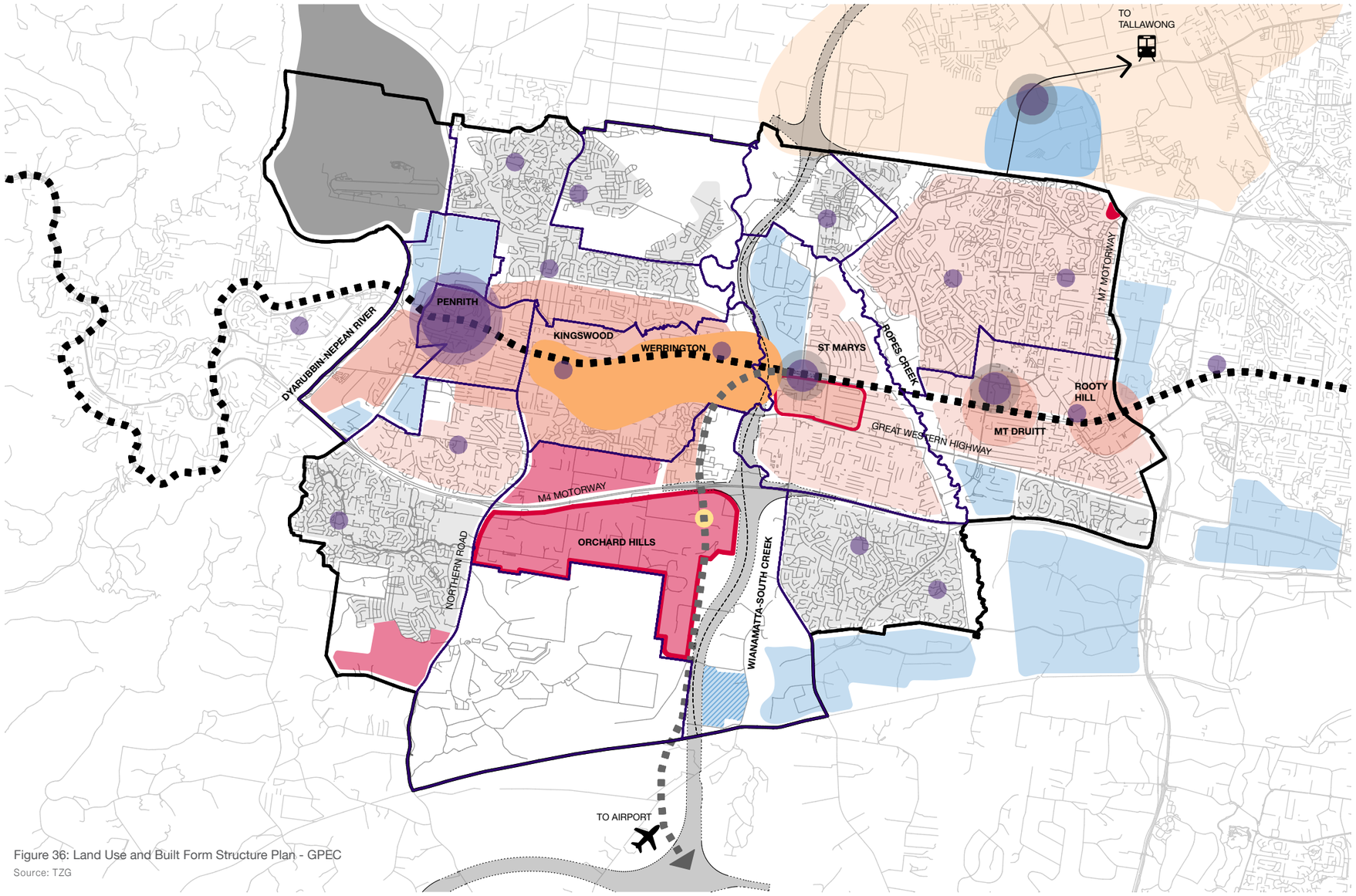


Figure 36: Land Use and Built Form Structure Plan - GPEC
Source: TZG

6.3 Connectivity

This Plan sets out a framework for transport, access, movement and connectivity elements that underpins the Structure Plan. Enhancing or implementing some or all of these connections will provide better access to open space amenity, transport and reduce vehicle reliance.

Ridges and natural landscape formations can be utilised as connectivity solutions, filling the gaps between green and open spaces and providing the community with better access to natural places as well as opportunities to connect with Country. This also provides vital habitat connections for the area's animals and plants.

An improved active transport and public transport movement network will better link residents and workers to centres, transport interchanges and regional destinations as well as community and cultural facilities. By providing improved east-west and north-south connections, permeability around infrastructure barriers will be improved and people will have better amenity, accessibility, and improved transport frequency, to move around GPEC.

To create a sense of place along new and future motorways, the plan identifies a series of key 'gateways' to be implemented at major intersections. Visitors and locals to the area will have a sense of arrival and transition through GPEC when approaching from areas such as the Blue Mountains, Aerotropolis and beyond.

For the Aboriginal communities in GPEC, accessibility to public transport can be a barrier for employment. Opportunities for public transport to be better connected to social housing can be explored, as will affordability of public transport and increased services outside of peak hours.

There should be exploration of new links between Glenmore Park, Orchard Hills and St Clair that could strengthen local connections, taking some pressure off the M4 motorway.

Prioritising additional connections over rail lines and across existing barriers will enhance connections and services to places that are important to community (Penrith, Marsden Park, Mt Druitt, Eastern Creek, Liverpool) and will provide better local walking and cycling networks for recreation.

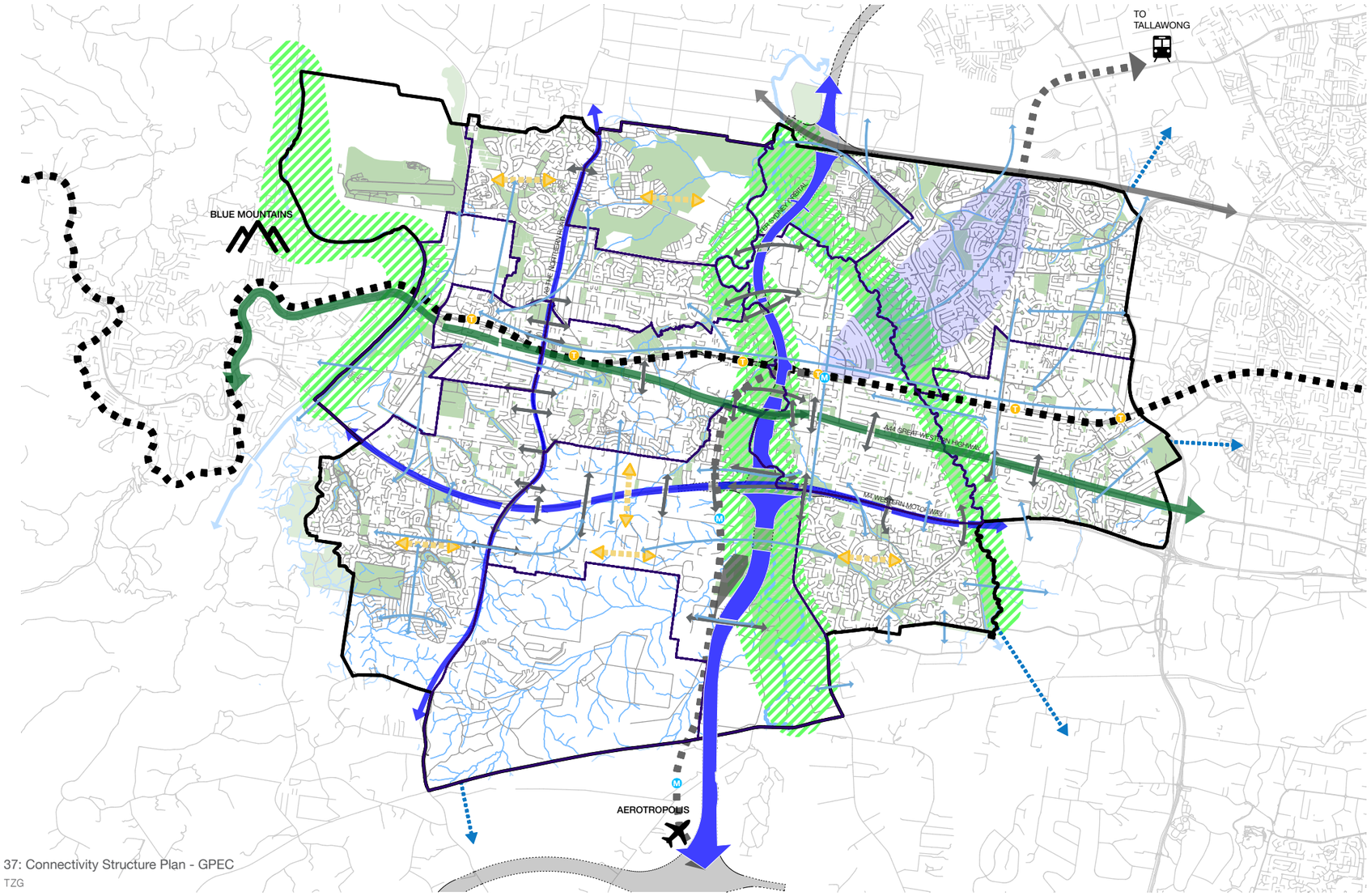


Figure 37: Connectivity Structure Plan - GPEC
Source: TZG

7.0

Next Steps

7.1 Next steps

This document provides a direction for the future transformation of the GPEC area.

Key areas for further consideration and analysis after this project include:

- Detailed planning for identified priority growth areas
- Ongoing Engagement
- Potential Planning Frameworks
- Transport Strategies and projects
- Renewal Sites and Opportunities
- Open Space and Public Domain Strategies

The information presented in this report and the draft GPEC Strategic Framework is an important step in realising the vision for GPEC.

The Department will continue to work with government agencies and other stakeholders to progress the Strategic Framework which will guide future precinct plans and inform subsequent rezonings in areas identified for change. Key agencies include Sydney Metro, Transport for NSW and Penrith and Blacktown City Councils. The draft Strategic Framework is accompanied by a new Ministerial Direction that will ensure future planning in the area generally aligns with the vision for GPEC.

Following finalisation of the Strategic Framework, detailed Precinct Planning could commence for areas identified for change. This would facilitate the rezoning process and allow development to happen in time for the opening of the Sydney Metro Western Sydney Airport Stage 1.

8.0
Glossary

8.1 Glossary of Terms

Asset Protection Zone: a fuel reduced area surrounding a built asset or structure, providing a buffer from fire hazard.

Biodiversity Values: land with high biodiversity value that is particularly sensitive to impacts from development and clearing, for the purposes of the Biodiversity Offsets Scheme.

Blue grid: used generally, includes waterways, and water-dependent vegetation and ecosystems.

CPCP (Cumberland Plain Conservation Plan): a strategic conservation plan that identifies strategically important biodiversity areas within the Cumberland subregion to offset the biodiversity impacts of future urban development.

CPCP: Certified – Urban Capable Land: area where new development may occur, strategically planned to avoid and minimise impacts on biodiversity values.

CPCP: Excluded Land: areas excluded from NSW strategic biodiversity certification and Federal strategic assessment due to being already developed for urban use, under development under a separate process, environmentally protected, Commonwealth land site, with roads or easements, or has specific urban zoning.

CPCP: Non-certified Land: areas outside certified-urban capable land avoided for biodiversity or other environmental purpose (riparian corridor or steep slopes), or certain land within the Western Sydney Aerotropolis area (not part of this study).

Cumberland Plain: an Interim Biogeographic Regionalisation of Australia (IBRA) Cumberland subregion that includes parts of eight Local Government Areas - Wollondilly, Camden, Campbelltown, Liverpool, Fairfield, Penrith, Blacktown and Hawkesbury. It is characterised by gentle rolling hills, shale and sandstone, and grassy sclerophyll woodlands.

Cumberland Plain Recovery Plan (January 2011 NSW Department of Environment Climate Change and Water): plan for conservation of threatened plants, animals and habitats by identifying priority conservation lands (PCLs) representing the best remaining opportunities in the region to maximise long-term biodiversity benefits for the lowest possible cost.

Dams and waterbodies: water body areas identified by Spatial Services where water is present for at least nine years out of ten years.

Deep soil infiltration/ zones: areas on development sites which enable planting of significant vegetation that can grow to a mature size and provide a permeable ground surface alternative to paving or other hard surface treatment, and allow infiltration of surface water into the soil. This may be expressed as a minimum percentage in development controls.

Density (low, missing middle, medium, high): Density used generally refers to the concept in urban planning to describe the intensity of people, jobs and housing units located in any one place. When used generally to describe residential, this refers to a measure of how many dwellings or intensity of dwellings located in any built form or urban location. Refer to low, missing middidle, medium or high density for detailed definitions relating to the Standard LEP instrument or planning control definitions and outlined with the Methodology and Design Assumptions for the Orchard Hills Urban Design Options.

E1 zoning (National Parks and Nature Reserves): is a zone which applies to land reserved under the National Parks and Wildlife Act 1974, including National Parks, reserves and conservation areas. The objective of the zone is to enable the management and appropriate use of land reserved as national park.

C2 zoning (Environmental conservation): zone generally intended to protect land that has high conservation values outside the national parks and nature reserve system. The area contains high ecological, scientific, cultural or aesthetic values. A number of land uses considered to be inappropriate for this zone have been prohibited.

Endangered: refer **Threatened Ecological Community.**

Flood event: 1% AEP (Annual Exceedance Probability): describes a flood that has a 1% chance of occurring, or being exceeded, in any one year.

Flood Event: Probable Maximum Flood (PMF): the largest flood likely to ever occur, the PMF defines the extent of flood prone level or flood liable land or flood plain.

Flood Planning Area: the area lower than the Flood Planning Level, where developments may be subject to flood related development controls.

Flood Planning Level: the combination of flood level and freeboard selected for planning purposes. This could be more than the 1-in-100-year flood.

Flood prone land: land susceptible to flooding up to the PMF.

Green assets: areas in the following list which are opportunities to improve the connectivity of the green grid:

- *Bushland (generally zoned E1 or C2).*
- *Cemetery.*
- *Civic – primarily paved urban open space area such as plazas, squares and public building forecourts.*
- *Community Purpose – Open space primarily associated with community facilities such as Libraries, Childcare Centres and Community Halls.*
- *OSL – Areas related to the Office of Strategic Lands.*
- *Golf Course – Open space dedicated to providing golfing facilities. Often managed privately but is part of open space inventory data collection due to the scale and its regional significance.*
- *Heritage and Cultural – Open spaces primarily recognised for heritage significance or have been created to protect natural and cultural resources; may include passive recreation components such as walking, cycling and tourist visitation.*
- *Operational – Open space primarily associated with operational facilities such as Fire Stations, Pumping Stations and Lighthouses.*
- *Parks and Gardens – Areas of open space primarily dedicated to passive recreation and the support of community recreation.*
- *Special – Areas of open space with special purposes.*
- *Sports – Open space areas primarily dedicated to sporting use.*
- *Undeveloped/Unspecified – Any proposed or anticipated open space parcel that is currently undeveloped for open space or recreation purposes. May have a minor and informal recreation use only. May include easements, road reserves, rail corridors, reservoirs or right of way access points*
- *Waterfront – Open space areas adjacent to the foreshore*

Green Grid: a network of open space, high-quality vegetation and riparian corridors combined with active transport paths that connect key locations such as town centres, public transport hubs, major residential areas and biodiversity protection areas. It builds on the **Sydney Green Grid** outlined by the NSW Government Architect. It can also incorporate blue elements such as waterways, dams, and WSUD initiatives.

Heritage (item, location, protection, value): used generally, this refers to diverse buildings, objects, monuments, gardens, bridges, trees, landscapes, archaeological sites, Aboriginal places, relics, streets, or conservation areas that are currently protected and identified under planning laws and within a heritage schedule of a Council's LEP, the State Heritage Register, National Heritage list or the AHIMS database. For the purposes of an equitable approach to historical significance, Heritage also covers areas of Indigenous, Aboriginal and Torres Strait Islander cultural, community and Country value within the area - whether identified, or identification withheld for cultural privacy and ownership reasons.

High Ecological Value (waterway and water dependent ecosystem): aquatic ecosystems that are identified for management through protection or improvement, a dataset used in Precinct Plans, Development Control Plans, Infrastructure NSW and Tyrell Studios' Blue-Green Framework.

Low Rise Housing Diversity Code: formerly the Low Rise Medium Density Housing Code, this code facilitates a diverse range of housing. The Code allows well designed dual occupancies, manor houses and terraces (up to two storeys) to be carried out under a fast track complying development approval. A complying development approval can be issued within the requirement of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (Codes SEPP).The Low Rise Housing Diversity Code and the Low Rise Housing Diversity Design Guide address housing choice by encouraging more variety in the form of dual occupancies, manor houses and terraces.

Net developable Land: Refers to the land that could be considered for urban development or renewal (including residential and commerical built form, roads, public open space and recreation) once constrained lands or non-developable lands are identified. See the Land Use Constraints - Environmental section.

Missing Middle: Refers to a housing typology that has been recent focus of NSW planning that provides for low to mediun density housing forms that have been identified as lacking within urban development. Refer further to **Low Rise Housing Diversity Code.**

Open Space: public or private land that has been set aside from development to accommodate recreation or respite from the built environment. Typologies can include areas listed above in Green Assets.

RE1 zoning (Public Recreation): zone which applies to public open space areas and land used for recreational activities. The intention of the zone is to provide a range of recreational settings and compatible land uses while protecting and enhancing the natural environment for recreational purposes. **See Open Space for Recreation.**

RE2 zoning (Private Recreation): zone which applies to privately owned land used for recreational activities. The intention of the zone is to provide for a range of recreational facilities compatible with protecting and enhancing the natural environment. While these may form part of the **Green assets** which make up the Green Grid, it will not qualify for **Open Space for Recreation** for the purposes of public open space targets.

Riparian Corridor: a transition zone between land and a watercourse providing a range of important environmental functions. It is comprised of the channel and a standardised vegetated riparian zone (VRZ) based on the Strahler order of the watercourse. Controlled activities provisions preserve the integrity of riparian corridors.

Runoff, stormwater: the amount of rainfall that ends up as flow in a stream, often increased by hard surfaces which prevent natural absorption by the ground.

Salinity potential: distribution and potential severity of dryland salinity based on biophysical factors that are known to cause dryland salinity, classified as known, high, moderate or very low.

Stream order: the watercourse order as classified under the Strahler System.

Sydney Green Grid: see Green Grid.

Threatened Ecological Community: an ecological community may be listed as vulnerable, endangered or critically endangered under the New South Wales Biodiversity Conservation Act 2016. Collectively these listed communities are referred to as threatened ecological communities (TECs).

Tree canopy coverage: the horizontal extent of an area covered by tree vegetation. A standard benchmark is the 40% provided by the Greater Sydney Commission Metropolis of Three Cities and the DPIE Draft Greener Places Guide.

Urban heat (island): where urban areas with less green cover and more hard surfaces absorb, store and radiate more heat than its surrounding rural area.

Vegetated Riparian Zone (VRZ): the required width of the VRZ measured from the top of the high bank on each side of the watercourse. Certain non-riparian uses such as Asset Protection Zones and certain cycleways and paths and detention basins can be built in the outer 50% of the VRZ.

Water Sensitive Urban Design: an approach to planning and designing urban areas to capture, reuse and treat stormwater, slowing or stopping it from reaching waterways (reducing runoff), and mimicking the natural water cycle as closely as possible by increased ground infiltration absorption closer to where the rain falls.