

infrastructure & development consulting

Western Sydney Aerotropolis Precincts
Section 7.12 Development Contributions Plans

Background Report

October 2023

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1 Introduction

1.1 Purpose of Report

This report has been prepared by infrastructure & development consulting Pty Ltd (IDC) for Liverpool City Council and Penrith City Council to assist in the preparation of Section 7.12 Development Contributions Plans to meet the cost of local infrastructure across the Western Sydney Aerotropolis Initial Precincts.

This report provides a summary of the determination of the extent of local infrastructure required to support the development four Aerotropolis precincts – Northern Gateway, Badgerys Creek, Agribusiness and Aerotropolis Core.

The report also contains the methodology and calculations for the submission to the Minister for Planning and Public Spaces to justify Liverpool and Penrith Councils' request to implement a Section 7.12 levy in excess of standard maximum 1% of the cost of development.

1.2 Land Subject to the Section 7.12 Development Contributions Plans

The Western Sydney Aerotropolis is shown in Figure 1. The Section 7.12 Development Contributions Plans only apply to some of the Aerotropolis Precincts, namely:

- Aerotropolis Core
- Badgerys Creek
- Northern Gateway
- Agribusiness

Two of the Precincts straddle the Liverpool / Penrith LGA boundary – Badgerys Creek and Agribusiness.

Two separate development contributions plans have been prepared to address local infrastructure contributions in the above precincts (and portions of precincts) within each of the two Local Government Areas. The land subject to the Liverpool Aerotropolis Precincts Contributions Plan is shown in Figure 2, and the land subject to the Penrith Aerotropolis Precincts Contributions Plan is shown in Figure 3.

Figure 1 - Western Sydney Aerotropolis

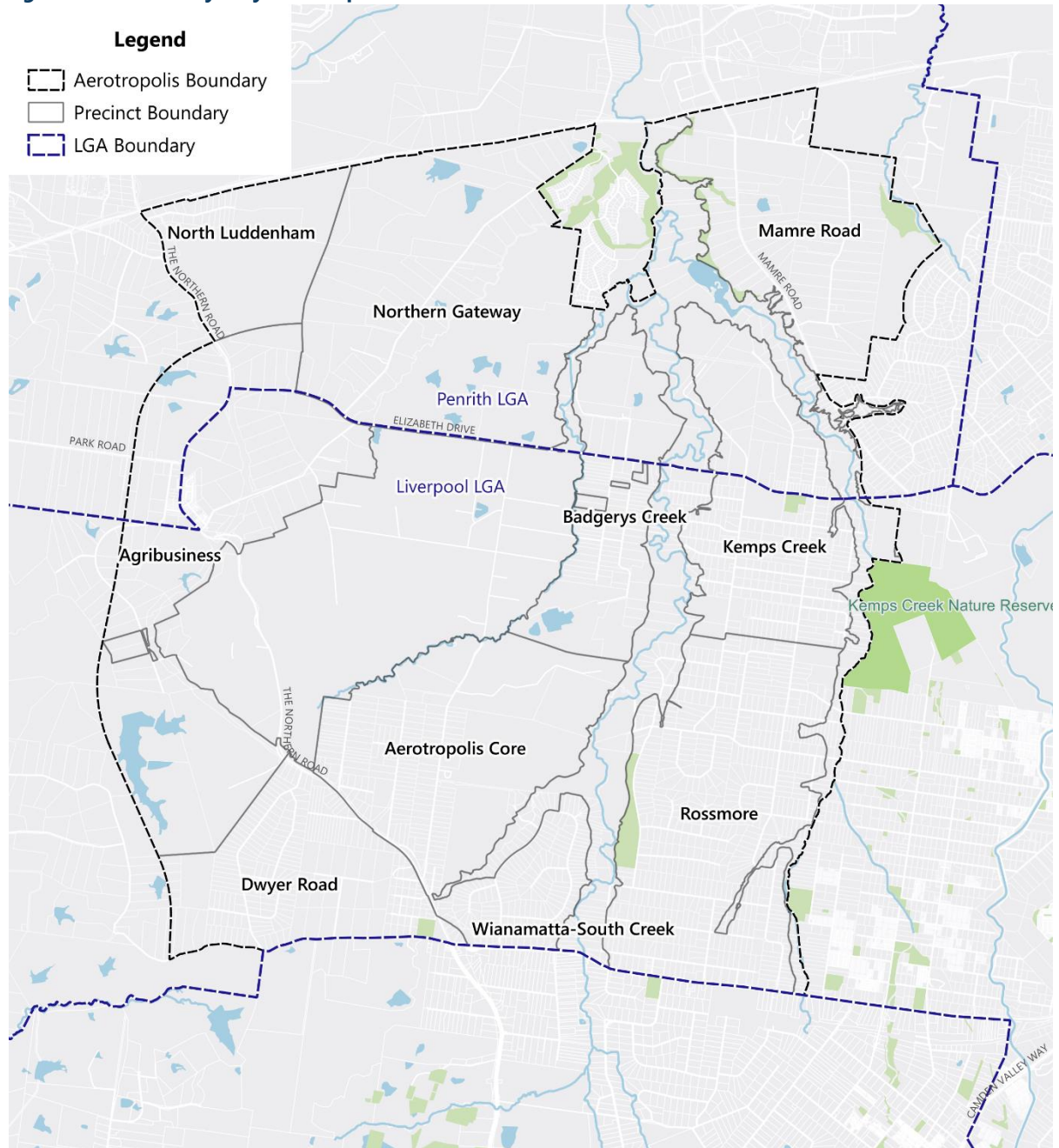


Figure 2 - Liverpool Aerotropolis Precincts Section 7.12 Development Contributions Plan – Land Application Area

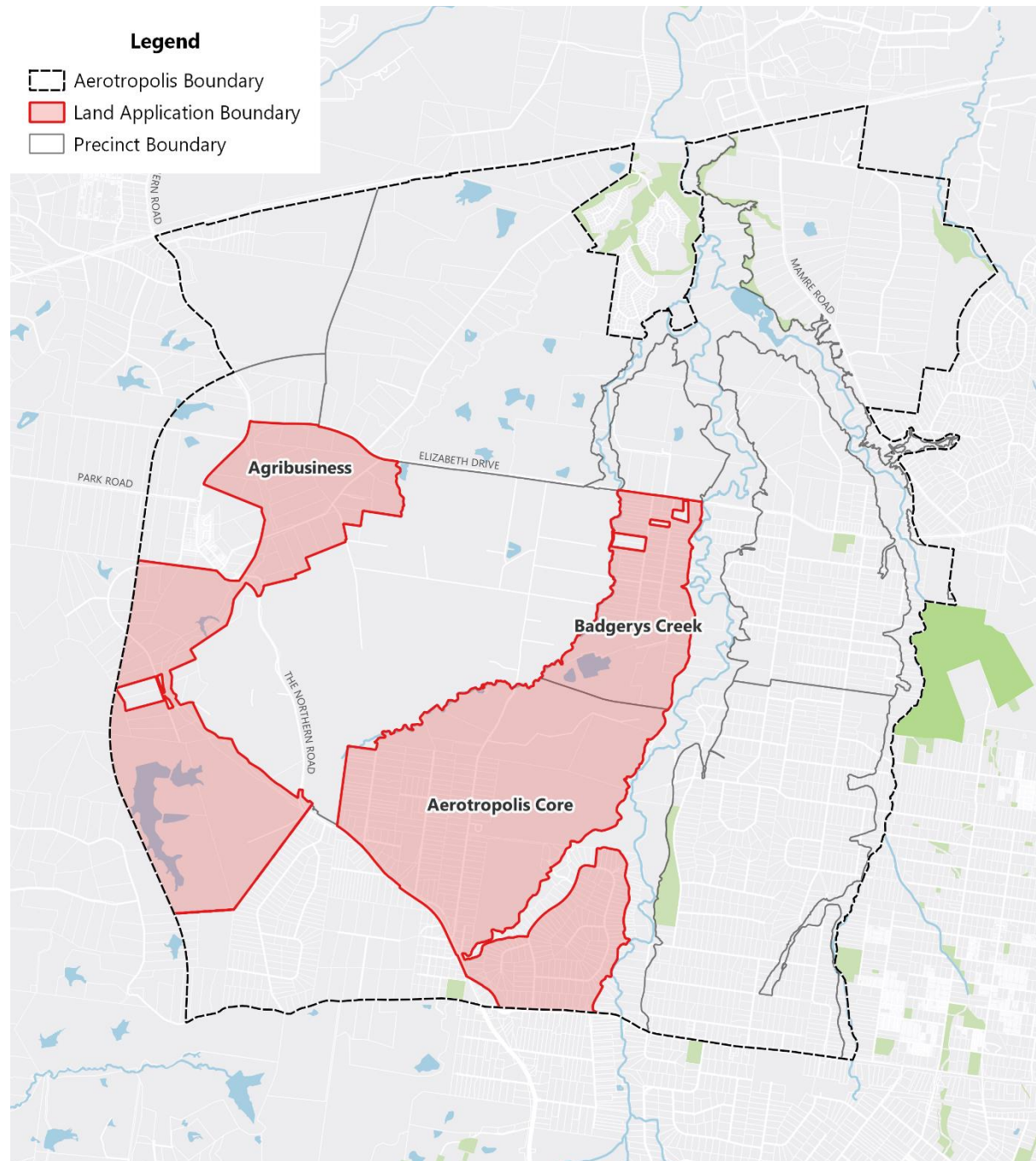
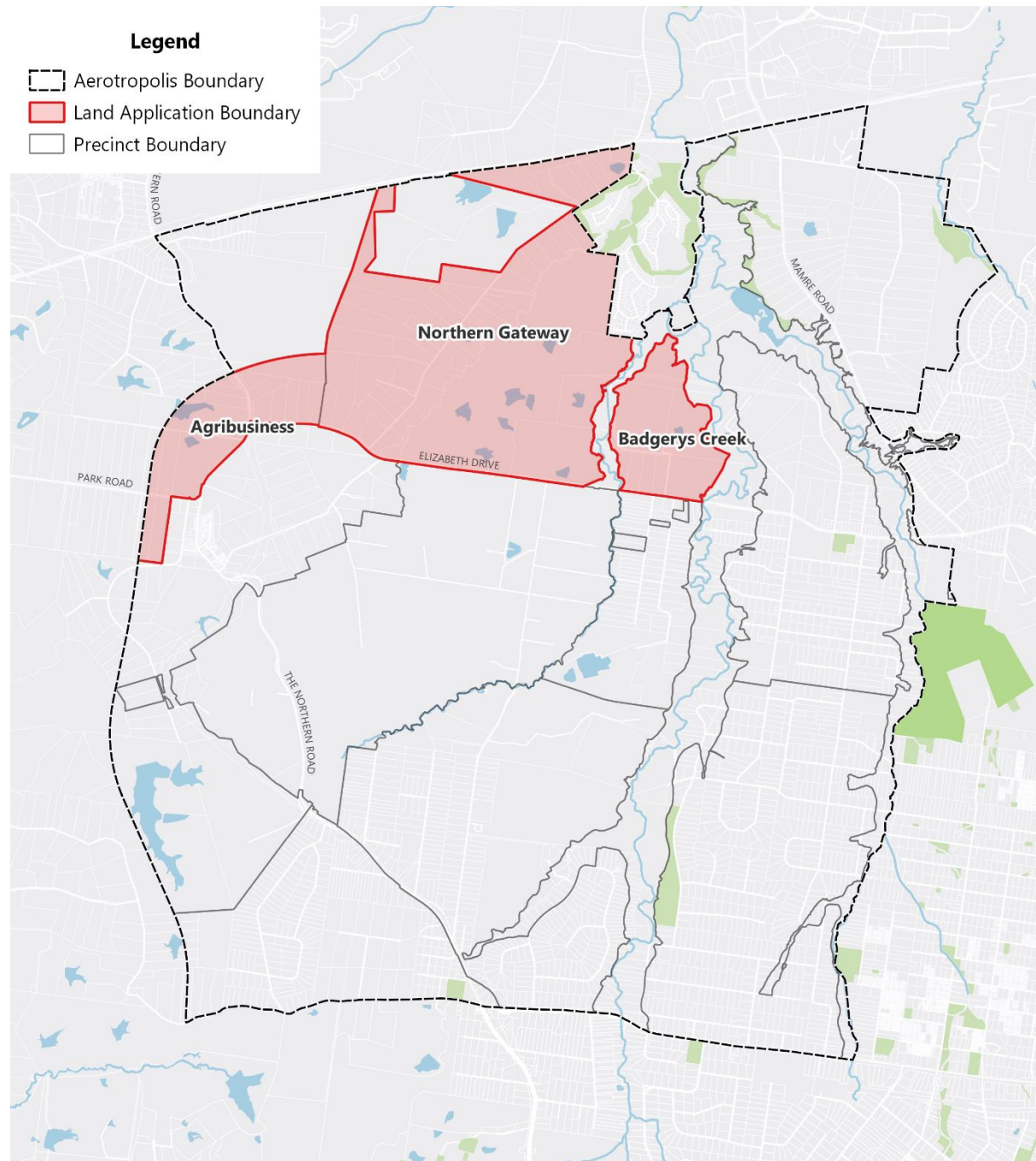


Figure 3 - Penrith Aerotropolis Precincts Section 7.12 Development Contributions Plan – Land Application Area



1.3 Excluded Development Areas

The following areas have been excluded from the Section 7.12 Development Contributions Plans:

- Western Sydney International (Nancy-Bird Walton) Airport – the Commonwealth Government is responsible for development and infrastructure decisions for this site.
- Aerotropolis precincts yet to be rezoned under the Aerotropolis SEPP.
- The Mamre Road Precinct, which is subject to a separate Section 7.11 Development Contributions Plan.
- Sydney Science Park site – here, separate infrastructure provision arrangements are included in a voluntary planning agreement between the developer of this site and Penrith City Council.
- The Wianamatta-South Creek Precinct as it has been assumed that any infrastructure or environmental rehabilitation works planned for this area will be delivered through State government mechanisms.
- Luddenham village has been excluded from development assumptions, as the planning for this area is ongoing. Open space infrastructure within this area has been included in the plan, as it is included in the Aerotropolis SEPP Land Reservation Acquisition Map.

1.4 Excluded State and Utility Infrastructure

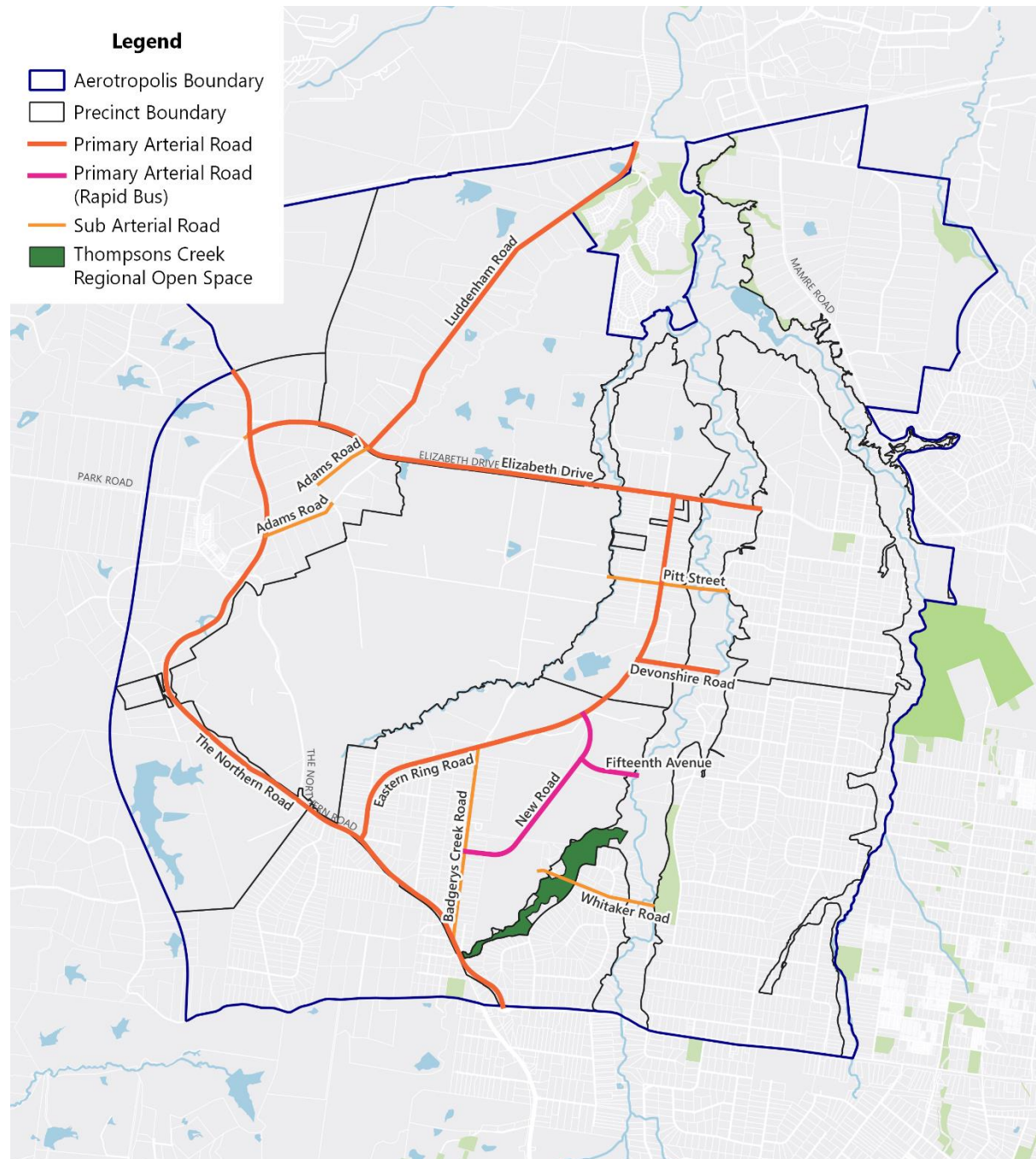
The Western Sydney Aerotropolis Special Infrastructure Contribution (SIC) was determined in March 2022. The SIC is anticipated to collect up to \$1.1 billion in contributions to deliver new state and regional roads, public and active transport, open space, health infrastructure, schools, justice facilities, emergency services and community facilities.

The costs of infrastructure items likely to be funded by the SIC are not included in the Development Contributions Plans or the calculation of the Section 7.12 rate. These include:

- **Roads:** The SIC includes over \$4.5 billion in road projects. Many of these roads are located within the Aerotropolis Precincts and have been identified in the WSAPP as Primary Arterial or Sub Arterial Roads. As these roads will be funded through the SIC, they have been excluded from this CP. The SIC roads identified in the WSAPP and located within the CP area are shown in Figure 4.
- **Open Space:** Thompsons Creek regional park will be funded through the SIC. The location of Thompsons Creek regional park is shown in Figure 4. The SIC also includes allowances for multifunctional and regional open space. Locations of this infrastructure are unknown at this stage.

The SIC includes an allowance to provide new and upgraded community facilities within the Aerotropolis. No specific projects have been identified in the SIC, although it is expected that SIC funds will be used to deliver more regional scale facilities.

Figure 4 - SIC Infrastructure Identified in WSAPP



1.5 Assumptions Used to Determine Levy Rates

This report provides an evidence base for the development consent levy rates in the Liverpool Aerotropolis Precincts Section 7.12 Development Contributions Plan and the Penrith Aerotropolis Precincts Section 7.12 Development Contributions Plan.

The levy rate is the **ratio of local infrastructure costs to development costs** in the Aerotropolis-zoned land within each LGA. A detailed list of assumptions used to determine the levy rates in both plans is included in Appendix A.

2 Anticipated Development

2.1 Planning Framework

The planning framework for the Aerotropolis heavily informs the type and extent of different development types expected. The main documents comprising the Aerotropolis planning framework which are referred to throughout this report are:

- Western Sydney Aerotropolis Plan, prepared by the Western Sydney Planning Partnership, September 2020 (the 'WSAP')
- State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (the 'Aerotropolis SEPP')
- Western Sydney Aerotropolis Precinct Plan, prepared by the Department of Planning and Environment, May 2023 (the 'WSAPP')
- Western Sydney Aerotropolis Development Control Plan 2022, prepared by the Department of Planning and Environment, (the 'DCP')

2.2 Land Use Zones

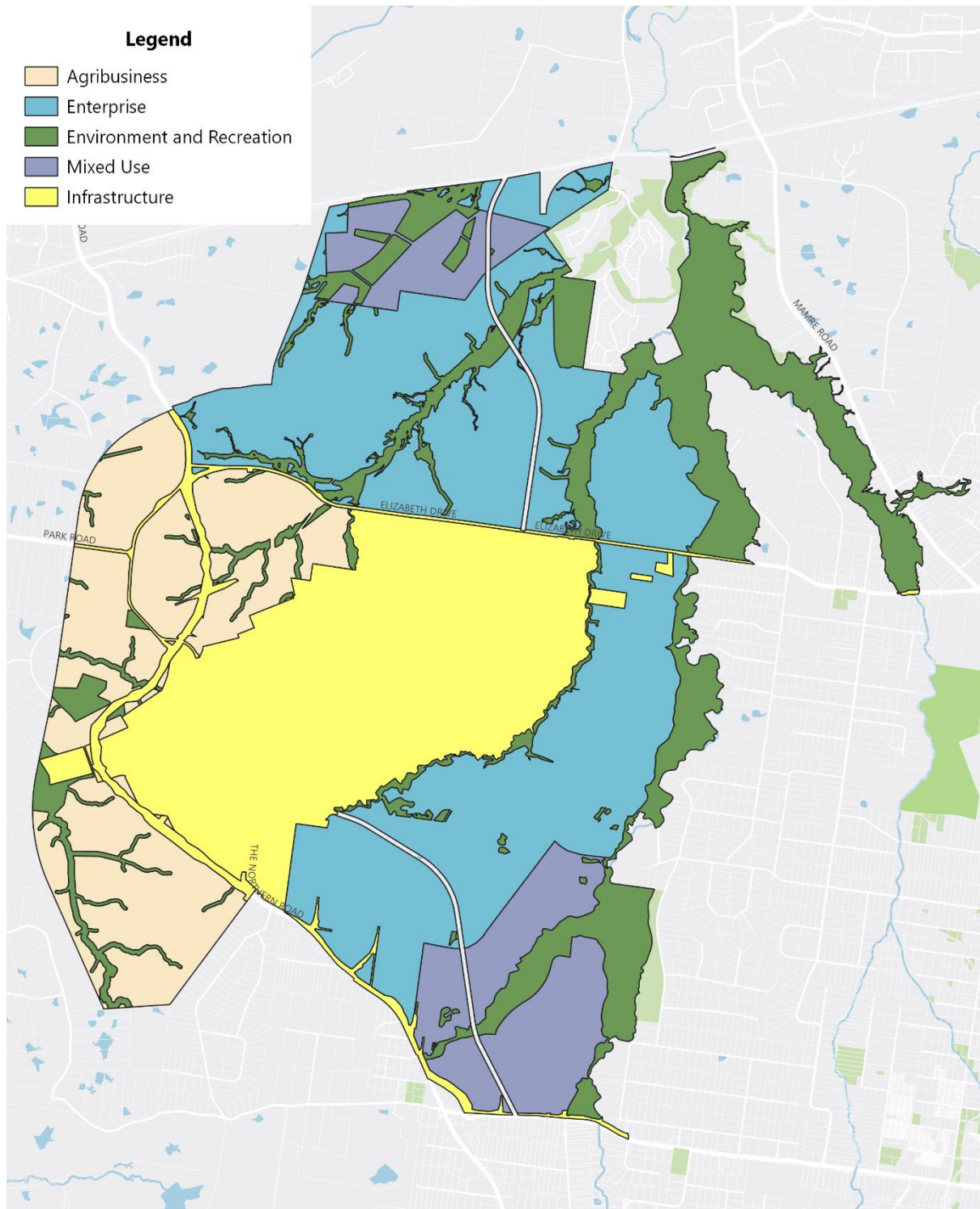
The Aerotropolis contains a number of flexible land use zones that guide how different land can be developed. The objective of each zone, as outlined in the Aerotropolis SEPP, is summarised in Table 1. Figure 4 shows the distribution of these zones.

Table 1 - Proposed Land Zoning

Zone	Code	Objective
Enterprise	ENT	To encourage employment and business related professional services, high technology, aviation, logistics, food production and processing, health, education and create industries.
Mixed Use	MU	To integrate a mixture of compatible land uses in accessible locations. To promote business, office, retail, entertainment and tourist uses and a high standard of public amenity and convenient urban living. To provide for residential and other accommodation that includes active non-residential uses at street level.
SP2 Infrastructure	SP2	To provide for infrastructure and related uses
Agribusiness	AGB	To encourage diversity in agribusiness, including related supply chain industries and food production and processing that are appropriate for the area as well as sustainable and high technology agribusiness, including agricultural produce industries.
Environment & Recreation	ENZ	To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values. To protect the ecological, scenic and recreation values of waterways, including Wianamatta–South Creek and its tributaries, and provide a range of recreational settings and activities and compatible land uses.

Source: Aerotropolis SEPP

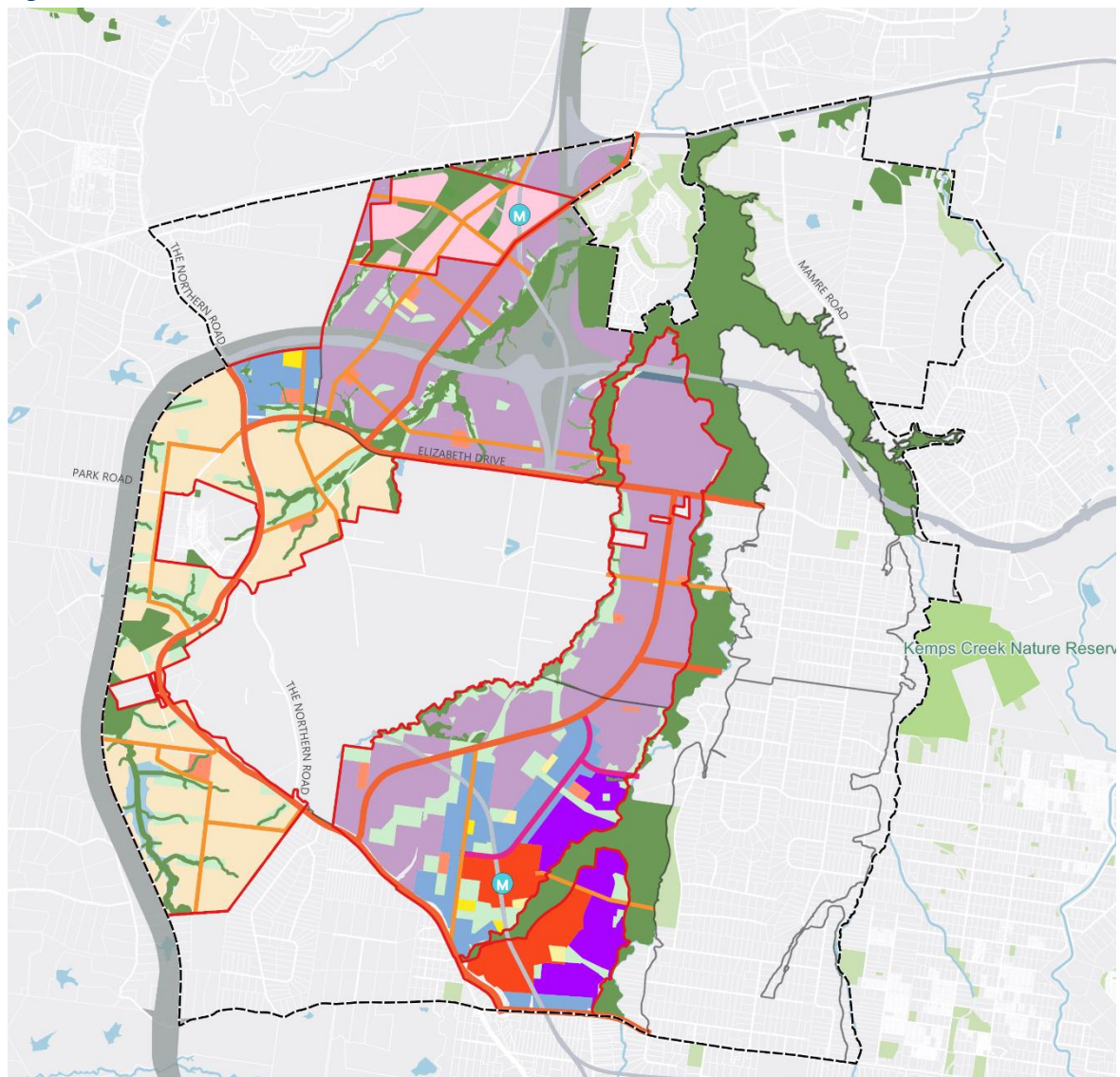
Figure 5 - Aerotropolis Land Zoning Plan



2.3 Land Use & Structure Plan

The WSAPP provides the place-based objectives and requirements to guide development in the Aerotropolis. The WSAPP sets out the finer grain detail to support the land use zoning and other provisions of the Aerotropolis SEPP. The WSAPP includes a Land Use & Structure Plan which provides the overall layout of within the Aerotropolis. The Land Use & Structure Plan is shown in Figure 6.

Figure 6 - Land Use & Structure Plan



Legend

Aerotropolis Boundary	Commercial Centre (Mixed Use)	Local/Neighbourhood Centre	Environment & Recreation
Precinct Boundary	East West Rail Link	Mixed Use Residential	Outer Sydney Orbital
Land Application Boundary	Education	Open Space/Stormwater	Primary Arterial Road
Agribusiness	Enterprise & Light Industry	Specialised Centre Mixed Use	Primary Arterial Road (Rapid Bus)
Business & Enterprise	Special Infrastructure		Sub Arterial Road

2.4 Precinct Development Visions

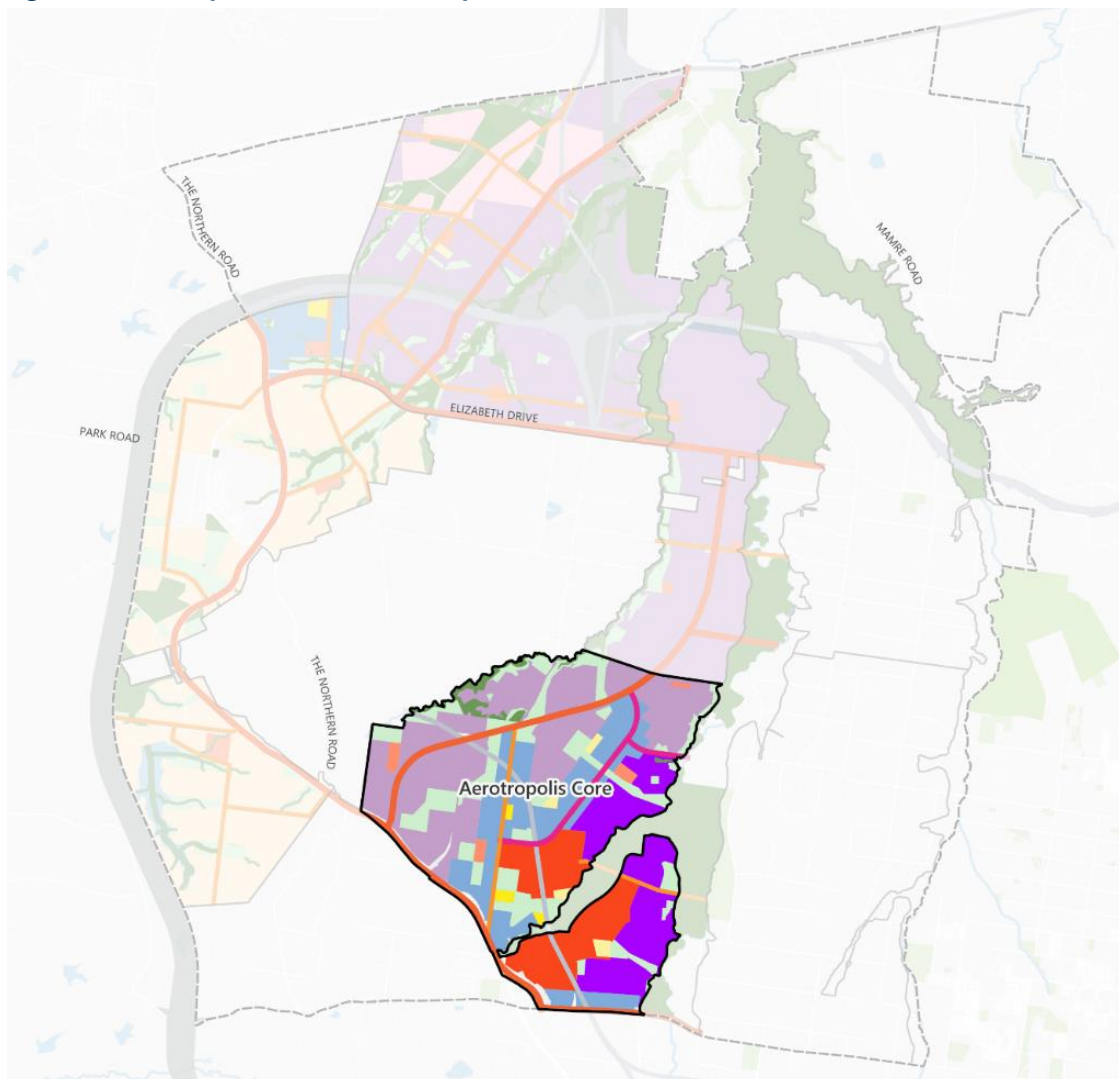
The development vision for each Aerotropolis precinct is detailed in the WSAPP. Key parts of the vision for each precinct are described below.

2.4.1 Aerotropolis Core

The Aerotropolis Core is a dense urban precinct planned around the Aerotropolis Metro station and the Wianamatta-South Creek Corridor system. The precinct is expected to accommodate up to 60,000 jobs, according to the WSAP.

Employment uses will be focused on advanced manufacturing, research and development, professional services, creative industries and science, technology, engineering and mathematics focused educational facilities, and will facilitate the emerging aerospace and defence industries. The Aerotropolis Core will also include residential development within walking distance of the Metro station or other public transport and will benefit from proximity to blue-green infrastructure including creeks and open spaces.

Figure 7 - Aerotropolis Core Precinct Map



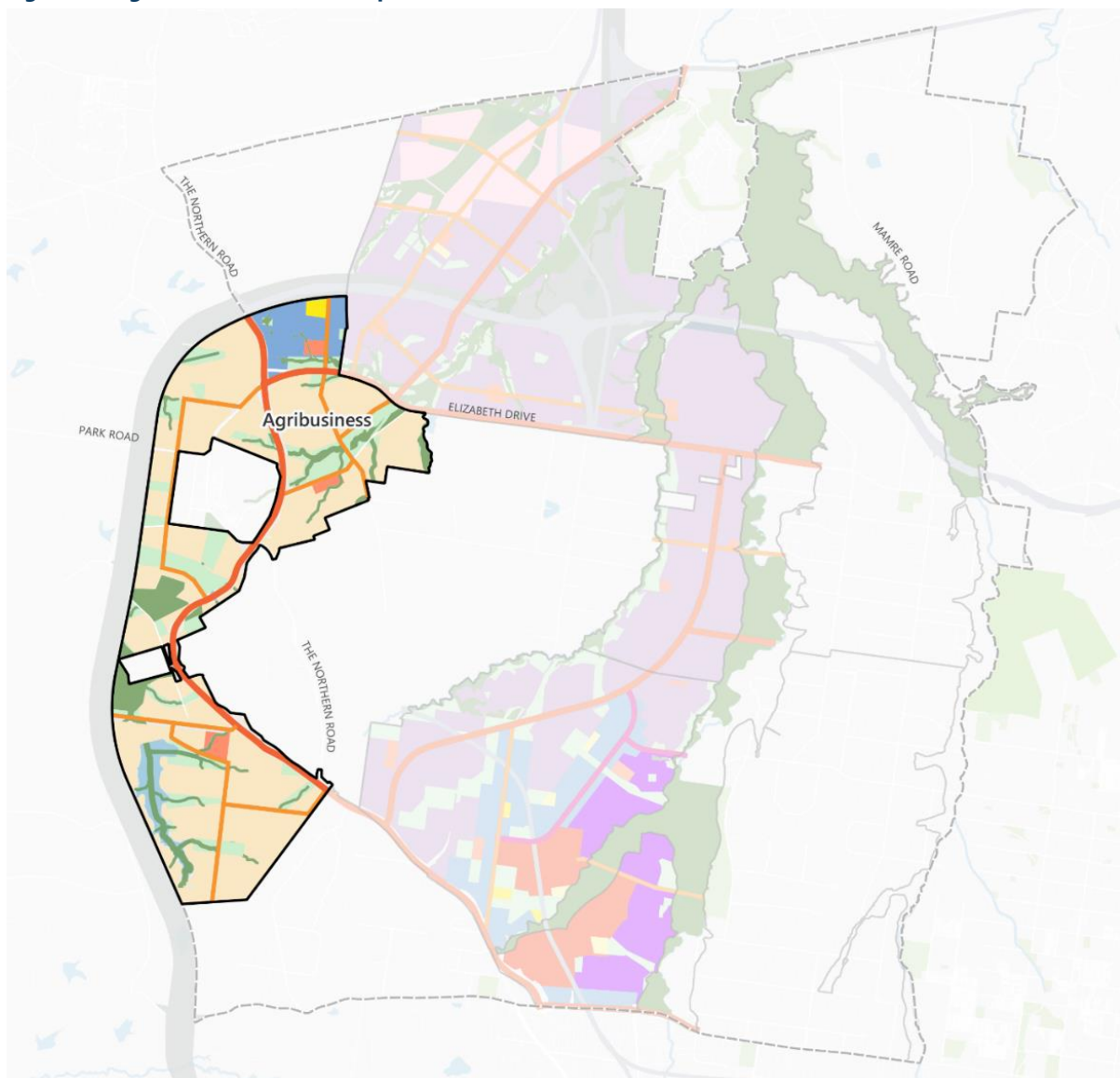
2.4.2 Agribusiness

The Agribusiness precinct wraps around the western edge of the airport and is framed by the proposed Outer Sydney Orbital. The close proximity of the precinct to the airport will allow the development of agribusiness uses which could include integrated logistics, air freight, integrated intensive production, food innovation, fresh product and value-added food – pharmaceuticals. The Precinct will also likely provide opportunities for education and tourism.

Open spaces have been identified in strategic locations to protect creek corridors and areas of high biodiversity significance, and to improve access to open space for residents in Luddenham Village.

The precinct traverses the Penrith / Liverpool LGA boundary. The development contributions plans respond to this by allocating the development and infrastructure costs on lands north and south of the LGA boundary to each council's development contributions plan.

Figure 8 - Agribusiness Precinct Map



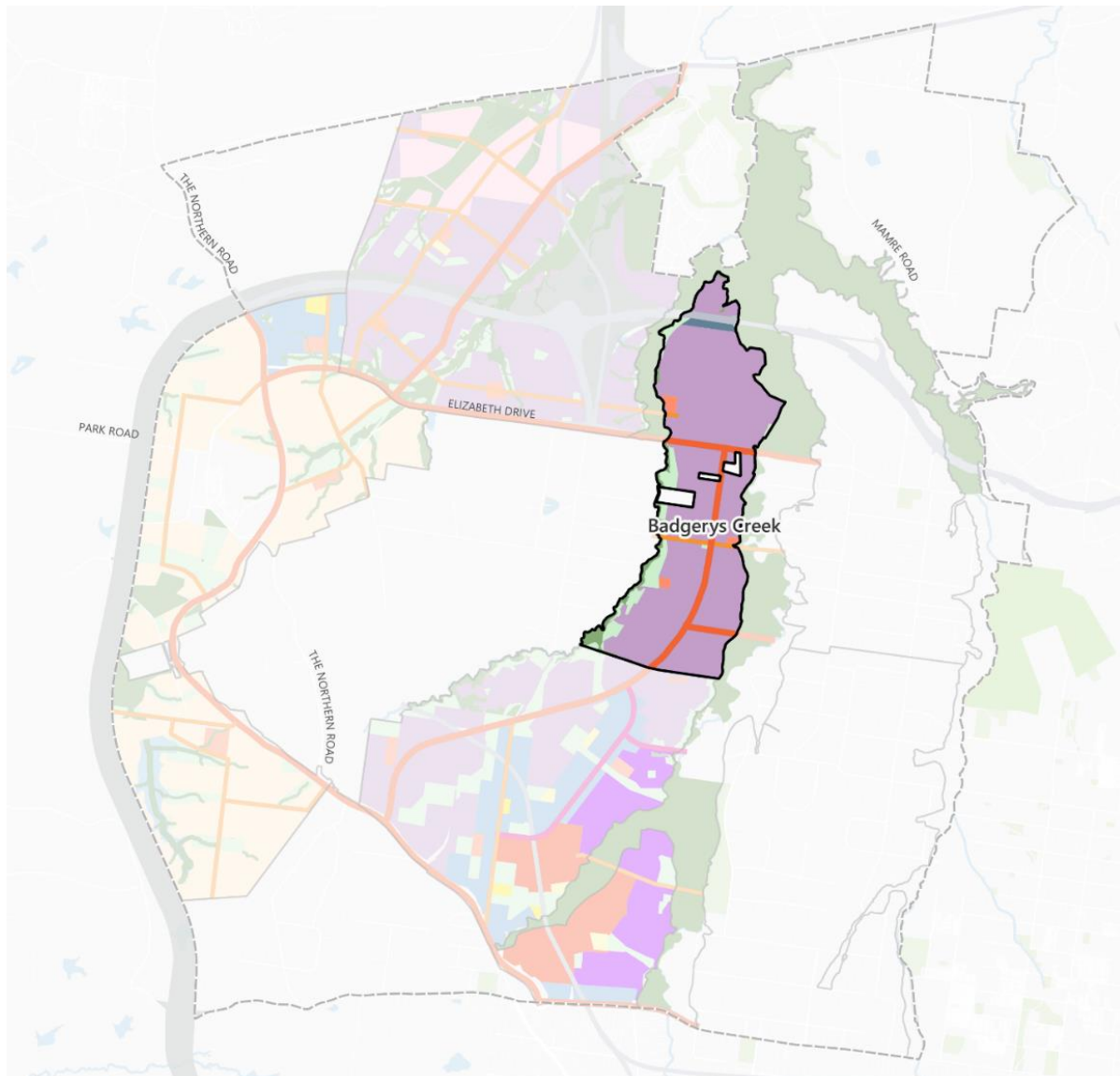
2.4.3 Badgerys Creek

The Badgerys Creek precinct is located on the eastern side of the airport and is bisected by Elizabeth Drive.

Badgerys Creek will support the Western Sydney Airport operations and will be well connected to the Aerotropolis Core metropolitan centre to the south and the Northern Gateway to the north-west. The Precinct will transform from lower density and less intensive land uses, buildings and structures to higher order employment-focused technology, advanced manufacturing and industry uses. Affected by aircraft noise, this Precinct is intended for a range of non-residential and employment generating uses that will benefit from proximity to the Western Sydney Airport.

The precinct traverses the Penrith/Liverpool LGA boundary. The development contributions plans respond to this by allocating the development and infrastructure costs on lands north and south of the LGA boundary to each Council's development contributions plan.

Figure 9 - Badgerys Creek Precinct Map

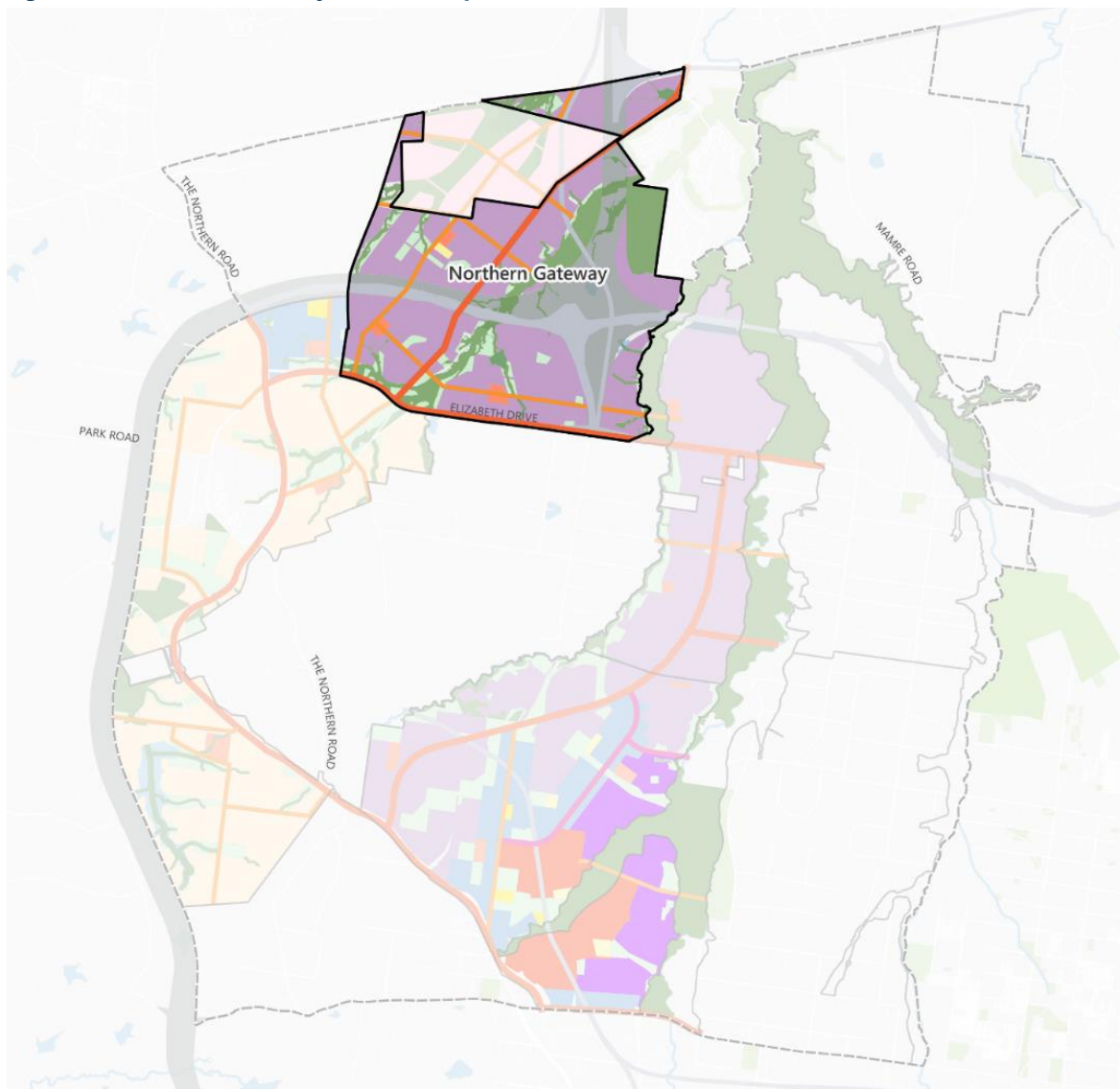


2.4.4 Northern Gateway

The Northern Gateway will link the Airport with the Western Parkland City Metropolitan Cluster through high frequency public transport, freight, road and rail connections. The precinct will build on the approved Sydney Science Park development to provide a variety of residential and employment generating uses. It should be noted that residential uses are only permitted in the Northern Gateway in the Sydney Science Park. This area is excluded from the plan.

High order employment uses will include freight & logistics, warehousing, technology, commercial enterprise, offices, industry, fresh food markets, education, civic, health, visitor accommodation, recreation and entertainment. Sydney Metro services will provide connections between the precinct, the Western Sydney Airport and Aerotropolis Core Precinct. The Precinct will have access via Luddenham Road, Elizabeth Drive and the Agribusiness Precinct to the Airport. The precinct is bisected by major transport infrastructure including the M12 interchange and Outer Sydney Orbital, as well as vegetated riparian corridors and open space links.

Figure 10 - Northern Gateway Precinct Map



2.5 Development Typologies

The WSAPP includes a land use and structure plan, which breaks down the intended land uses on developable land into the following categories:

- Enterprise & Light Industry
- Business & Enterprise
- Commercial Centre (Mixed Use)
- Residential (Mixed Use)
- Local Neighbourhood Centre
- Agribusiness
- Education

In order to calculate the total cost of construction for the anticipated development, each developable land use was further broken down into a unique construction profile. The assumed breakdown for each construction profile has been reviewed by quantity surveyors, Mitchell Brandtman.

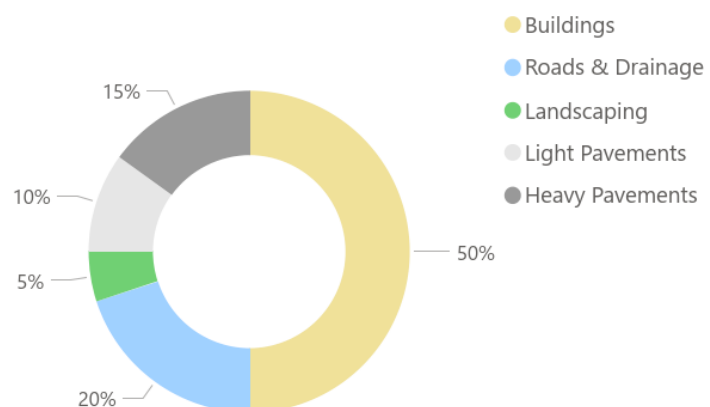
The construction profiles provide estimates of the required building, pavement (heavy duty), pavement (light duty), public roads and landscaping areas to assist in the cost estimation process.

A summary of each land use typology and the assumed construction profile is provided in the sections below.

2.5.1 Enterprise & Light Industry

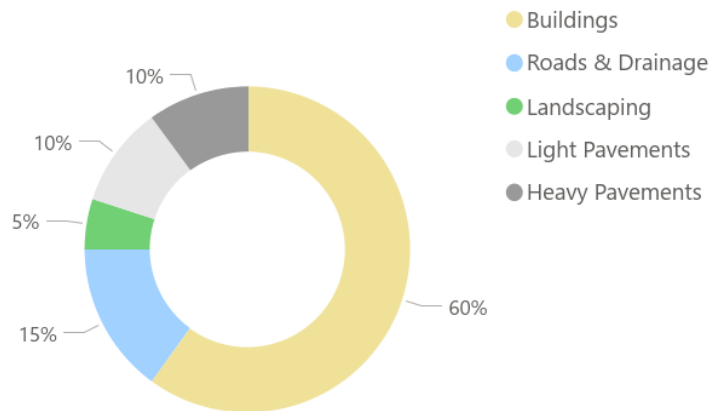
This land use typology is made up of large warehouses and general industrial uses. Larger lot sizes and building footprints are expected, with associated carparking with relatively few circulation roads.

Buildings within this land use type are generally expected to be one to two storeys.



2.5.2 Business & Enterprise

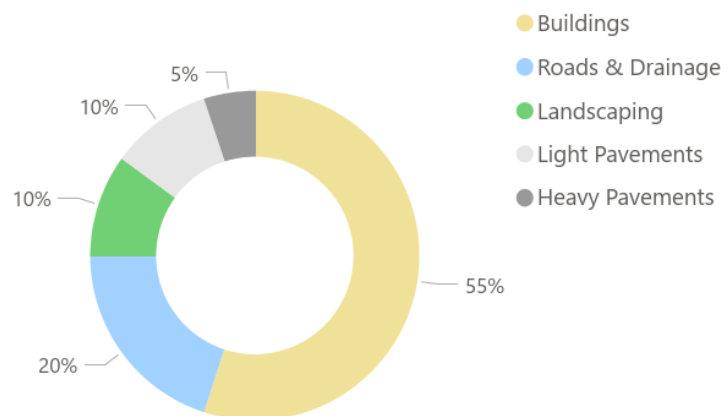
The Business & Enterprise typology is assumed to include warehousing with some office space located on upper floors of buildings. These sites are assumed to have a smaller average lot size than the above land use, and will accommodate a wide variety of business types.



2.5.3 Commercial Centre (Mixed Use)

Commercial centres will consist of mixed use environment focused on employment generating land uses, leveraging off the Metro and other mass transit.

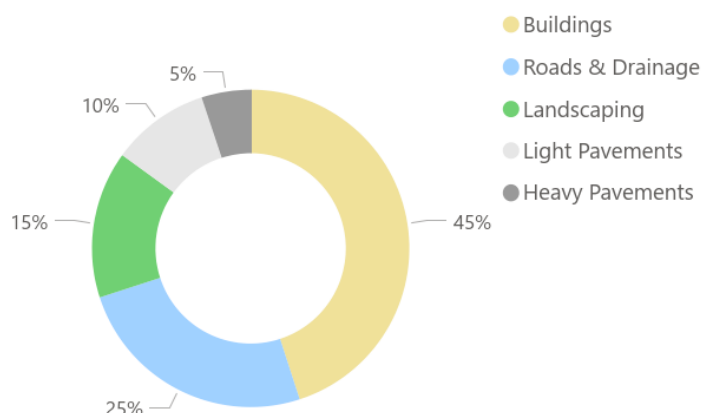
Multi-level retail and commercial facilities would be expected, with some at-grade parking as well as multi-deck parking within building footprints.



2.5.4 Local/Neighbourhood Centre

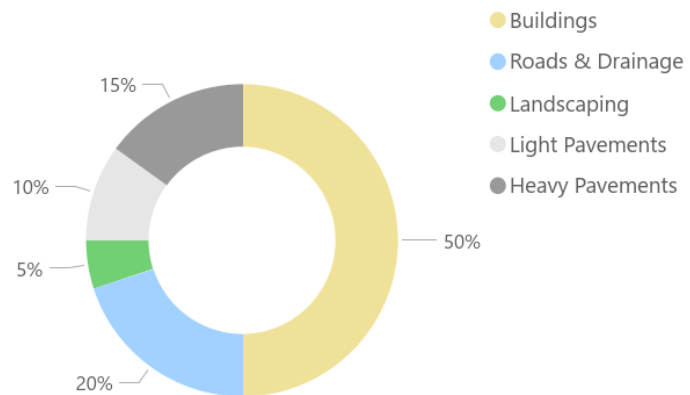
Local and neighbourhood centres are smaller retail centres that meet the convenience retailing needs of the community while acting as a local gathering place, particularly for employees.

These centres will include a mix of uses, including retail facilities, specialist shops and supermarkets, personal services, office and employment uses.



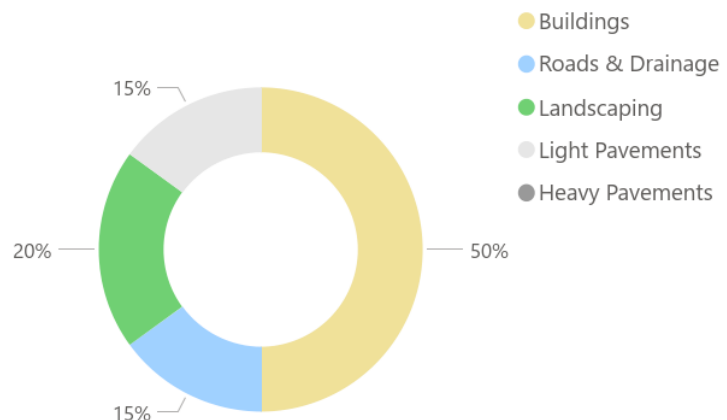
2.5.5 Agribusiness

Agribusiness uses could include integrated logistics, air freight, integrated intensive production and food innovation. This typology is similar to the Enterprise & Light Industry land use detailed above. Large lot sizes with warehousing and associated carparking are expected.



2.5.6 Education

This typology is based on typical primary and secondary schools, with an expectation for some vocational and/or tertiary education facilities. While a larger share of landscaping is expected in these land uses, many schools will also be co-located or adjacent to larger parks and sports fields.



2.5.7 Residential Typologies

In addition to non-residential building typologies, a similar exercise was taken into the likely composition and scale of residential development in the study area to assist in the cost estimation of works. Population forecasts from the WSAP 2020 were used to determine a feasible development mix. This is further detailed in Section 2.6 below.

2.6 Residential Land Use Composition

Based on the Aerotropolis SEPP zoning, all new residential development in the CP will be located within the Aerotropolis Core. Residential development is also permitted in the Sydney Science Park in Penrith LGA, however this site is excluded from the Section 7.12 Development Contributions Plan.

The WSAP indicates that a population of up to 24,000 is expected within the Aerotropolis Core Precinct. The upper range population projections were used to determine an approximate number of dwellings.

The anticipated resident populations were determined through a review of population assumptions and dwelling occupancy rates in six other contributions plans from across Western Sydney (Table 2).

Table 2 - Household Population Assumptions

Contribution Plan	Medium Density	Apartments (1 bed)	Apartments (2 bed)	Apartments (3 bed)
Liverpool City Council Established Areas	3.1	1.8	2.3	3.1
Edmondson Park*	2.4			
Showground Precinct	3.0	1.5	2.1	2.6
Rouse Hill**	2.7			
Schofields	2.7	1.2	1.9	2.9
Penrith City Centre	3.1	2.0	2.0	2.0

* Up to 38 dwellings/ha

** Up to 45 dwellings/ha

Based on the above, the following dwelling occupancy rates were assumed for determining social infrastructure demands for the Section 7.12 Development Contributions Plans.

Table 3 - Household Population Assumptions

Development Type	Persons per Dwelling
Medium Density	3.0
High Density (Low-Rise)	2.4
High Density (High-Rise)	2.1

Based on the above assumptions, a summary of the estimated residential development within the Aerotropolis Core is provided in Table 4.

Table 4 - Residential Development Breakdown (Aerotropolis Core)

Development Typology	Assumed Dwelling Split	Population per Dwelling	Population	Dwellings
Medium Density	50%	3.0	12,000	4,000
Apartments (Low Rise)	40%	2.4	9,600	4,000
Apartments (High Rise)	10%	2.1	2,400	1,143
Total			24,000	9,143

3 Development Costs

The proposed Land Use & Structure Plan was provided to IDC by DPE in geospatial format. This data has been used to determine the developable area within each precinct, and subsequently the expected cost of development.

3.1 Constrained & Non-Developable Land

To calculate the developable area, a number of areas which are constrained or non-developable were removed from the structure plan. These areas are shown in Figure 11 and include:

- Arterial and sub arterial roads funded and delivered through the SIC
- Sub arterial, collector and local roads funded through the Section 7.12 Development Contributions Plans
- Major transport corridors, such as the Outer Sydney Orbital, Western Sydney Airport Metro, M12 Motorway etc.
- Land below the 1% Annual Exceedance Probability (AEP) flood level
- Land identified for open space or stormwater infrastructure
- Areas identified within the Cumberland Plain Conservation Plan as avoided land

The total constrained area of constrained land within each precinct is summarised in Table 5.

Figure 11 - Constrained Land & Non-Developable Areas

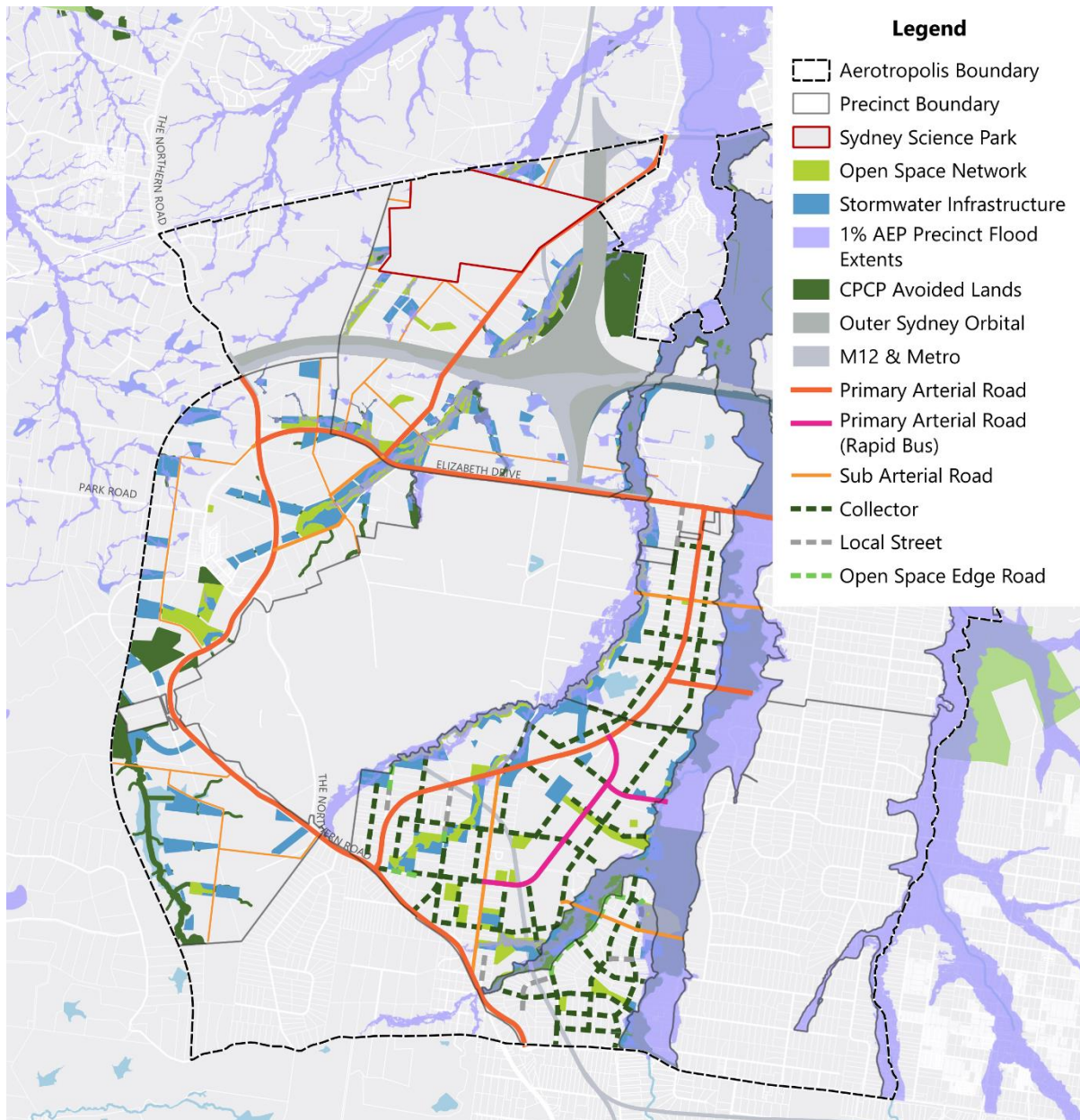


Table 5 - Constrained Land Summary

Precinct	Area (Ha)	Constrained Area (Ha)	% Constrained
Aerotropolis Core	1,381.5	419.7	30%
Badgerys Creek	633.5	58.6	10%
Northern Gateway*	1,382.4	717.3	54%
Agribusiness*	1,417.7	485.5	33%

* Excludes Sydney Science Park in the Northern Gateway & Luddenham Village in Agribusiness

3.2 Developable Area

The developable area was calculated for each land use type within each precinct. Development and infrastructure costs in precincts which cover both LGAs have been separated by LGA to allow for separate contribution rates to be calculated. The developable areas within each precinct are tabulated below.

Table 6 - Developable Area (m²)

	Aerotropolis Core	Badgerys Creek (Liverpool)	Badgerys Creek (Penrith)	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Residential (Mixed Use)	1,810,742	-	-	-	-	-
Enterprise & Light Industry	3,942,321	3,463,163	2,132,562	-	-	6,419,925
Business & Enterprise	2,010,852	-	-	8,681	650,623	-
Commercial Centre (Mixed Use)	1,471,317	-	-	-	-	-
Local Neighbourhood Centre	144,214	35,693	34,963	128,642	50,190	99,586
Agribusiness	-	-	-	6,894,349	1,487,635	10
Education	119,309	-	-	-	-	25,035
Total Developable Area	9,498,755	3,498,856	2,167,525	7,031,670	2,188,448	6,544,556

3.3 Floor Space Ratios

Floor Space Ratios (FSR) were applied to all non-residential land uses to assist in calculating building costs. Where FSRs were not listed in the WSAPP, rates have been adopted from similar developments. The results are tabulated below.

Table 7 - Adopted Floor Space Ratios

Land Use	FSR	Source
Enterprise & Light Industry	0.5:1	Benchmarked Developments
Business & Enterprise	1:1	Benchmarked Developments
Commercial Centre (Mixed Use)	3.5:1	WSAPP
Residential (Mixed Use)	2.5:1	WSAPP
Local Neighbourhood Centre	1:1	WSAPP
Agribusiness	0.5:1	Benchmarked Developments
Education	0.5:1	Benchmarked Developments

3.4 Site & Cost Rate Assumptions

Development costs were determined by first developing a typical site area breakdown, as outlined in Section 2.5. For employment development typologies, each site was split into hardstand, landscape, roads & drainage, and developable area. Hardstand areas have been separated into light and heavy to account for varying pavement thicknesses.

For residential development typologies it was assumed that 30%, 20% and 15% of the site will be required for roads and drainage infrastructure for high rise apartments, low rise apartments and medium density development respectively. Costs for hardstand and landscaped areas are assumed to be included in building costs, which forms the balance of the site area.

The development typology breakdowns outlined in Section 2.5 are summarised in Table 8 below.

Table 8 - Employment Development Typology Site Breakdowns

Development Typology	Pavements (Light Duty)	Pavements (Heavy Duty)	Landscaping	Public Roads & Drainage	Building
Enterprise & Light Industry	10%	15%	5%	20%	50%
Business Enterprise	10%	10%	5%	15%	60%
Commercial Centre (Mixed Use)	10%	5%	10%	20%	55%
Local Neighbourhood Centre	10%	5%	15%	25%	45%
Agribusiness	10%	15%	5%	20%	50%
Education	15%	0%	20%	15%	50%

The following cost rates were assumed for each development typology. Both the site breakdown assumptions and cost rates were reviewed and updated by Mitchell Brandtman Quantity Surveyors.

Table 9 - Assumed Building Cost Rates

Development Typology	Pavements (Light Duty) (\$/m ²)	Pavements (Heavy Duty) (\$/m ²)	Landscaping (\$/m ²)	Public Roads & Drainage (\$/m ²)	Building Cost (\$/m ²)
Enterprise & Light Industry	\$175	\$350	\$50	\$345	\$2,250
Business Enterprise	\$175	\$350	\$50	\$345	\$2,450
Commercial Centre (Mixed Use)	\$175	\$350	\$50	\$345	\$3,500
Local Neighbourhood Centre	\$175	\$350	\$50	\$345	\$3,750
Agribusiness	\$175	\$350	\$50	\$345	\$1,800
Education	\$175	\$350	\$50	\$345	\$4,750
Medium Density Development	Included in build	Included in build	Included in build	\$345	\$3,050
Apartments (low rise)	Included in build	Included in build	Included in build	\$345	\$2,900
Apartments (high rise)	Included in build	Included in build	Included in build	\$345	\$3,350

Source: Rawlinsons (2020), reviewed and confirmed/updated by Mitchell Brandtman

3.5 Cost Summary

The approximate development costs were calculated based on the assumptions outlined above. A breakdown of these costs per development typology is provided below. The total cost of development for the four precincts included in the plans is expected to be in the order of \$60 billion.

Table 10 - Development Costs (\$ millions)

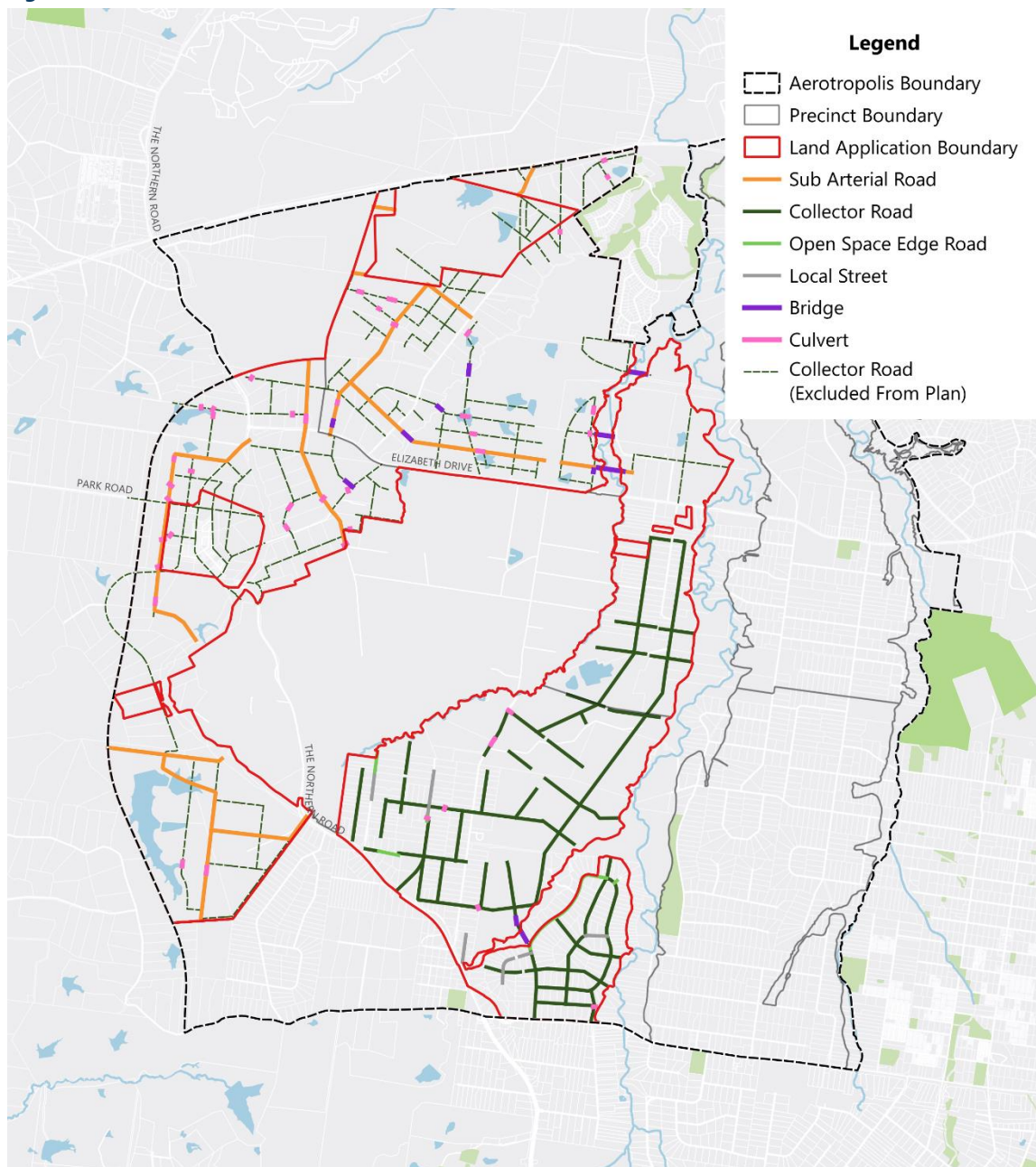
	Aerotropolis Core	Badgerys Creek (Liverpool)	Badgerys Creek (Penrith)	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Residential (Mixed Use)	\$3,969.62					
Enterprise & Light Industry	\$4,992.95	\$4,386.10	\$2,700.89			\$8,130.84
Business & Enterprise	\$5,141.25			\$22.20	\$1,663.48	
Commercial Centre (Mixed Use)	\$18,184.01					
Local Neighbourhood Centre	\$559.37	\$138.44	\$135.61	\$498.97	\$194.67	\$386.27
Agribusiness				\$7,180.46	\$1,549.37	\$0.01
Education	\$293.86					\$61.66
Total Costs	\$33,141.05	\$4,524.54	\$2,836.50	\$7,701.63	\$3,407.53	\$8,578.78

4 Roads Infrastructure

The roads included in the Aerotropolis Precincts Development Contributions Plans have been informed by the Street Hierarchy plan included in the WSAPP. As discussed in Section 1.4, many roads will be funded by the SIC and are therefore excluded from this plan. Roads funded through the SIC are shown in Figure 4.

Local roads will be provided by developers at their own cost through development conditions of consent in accordance with current practice in both LGAs. All roads included within the CP are discussed in the following sections and are shown in Figure 12. Maps showing the infrastructure included in the respective plans for each LGA are provided in Appendix B.

Figure 12 - Roads Infrastructure



4.1 Sub Arterial Roads

Many proposed sub arterial roads within the Aerotropolis will be funded through the proposed Western Sydney Aerotropolis SIC. There are a number of additional sub arterial roads shown in the Street Hierarchy plan in the WSAPP which are not included the SIC. A number of these sub arterial roads will be funded through the Section 7.12 Development Contributions Plans and are shown in Figure 12.

It should be noted that the WSAPP includes a primary arterial road within the southern portion of the Agribusiness Precinct. No funding for a primary arterial road in this location is included in the SIC. This Section 7.12 Development Contributions Plan has included an allowance for this road to be constructed as a sub arterial road.

4.2 Collector Roads

Collector roads have been included within the Aerotropolis Core and the Liverpool component of the Badgerys Creek precinct. The collector roads included in the Section 7.12 Development Contributions Plans are shown in Figure 12.

4.3 Local Roads & Open Space Edge Roads

New local roads are assumed to be provided by developers at their own cost through development conditions of consent in accordance with current practice in both LGAs.

Proposed local roads located along existing road alignments within the Aerotropolis Core and the Liverpool component of the Badgerys Creek precinct have been included in the CP. This includes local roads which are located adjacent to proposed open space (denoted as Open Space Edge Roads in the Street Hierarchy plan in the WSAPP and on Figure 12). This is to ensure that existing roads can be upgraded to match the proposed typical section outlined in the Aerotropolis DCP. The local roads included in the Section 7.12 Development Contributions Plans are shown in Figure 12.

4.4 Bridges and Culverts

In addition to the above, the CP has included an allowance for bridges and culverts. Bridges and culverts will be provided along roads included in this CP as well as collector roads within all precincts. The following assumptions were adopted to determine the locations of bridges and culverts:

- A bridge will be required when the roads listed above crosses a watercourse that is fourth order or above and is impacted by the 1% AEP flood extents
- A culvert will be required when the roads listed above cross a watercourse that is second order or above, or a first order watercourse which is impacted by the 1% AEP flood extents

4.5 Quantities

The roads included in the plans were split based on road type and precinct. The results are tabulated below.

Table 11 – Road Lengths & Culvert Numbers by Precinct

Roads Infrastructure	Aerotropolis Core	Badgerys Creek (Liverpool)	Badgerys Creek (Penrith)	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Collector Road (m)	32,796	7,722				
Sub Arterial Road (m)			140	9,228	3,724	7,949
Local Road (m)	2,393	498				
Open Space Edge Road (m)	2,345					
Collector Road Bridge (m)	78		465	122		215
Collector Road Culvert (item)	5			5	7	12
Sub Arterial Road Bridge (m)			357			196
Sub Arterial Road Culvert (item)				4	6	3
Local Road Bridge (m)						
Local Road Culvert (item)						
Open Space Edge Road Bridge (m)						
Open Space Edge Road Culvert (item)	1					

4.6 Cost Rates

4.6.1 Sub Arterial Roads

All new roads within the Aerotropolis are to be constructed in accordance with the Western Sydney Aerotropolis Phase 2 DCP. The DCP provides typical sections for each road typology. The typical section for sub arterial roads is provided in Figure 13.

IDC have developed cost rates per lineal metre of road based on contractor rates provided to IDC on past projects. These costs have been reviewed by Mitchell Brandtman and adjusted for current market conditions where necessary. The cost rate for Sub Arterial Roads is provided in Table 12.

Figure 13 - Sub-Arterial Road Typical Section



Source: Western Sydney Aerotropolis Development Control Plan 2022

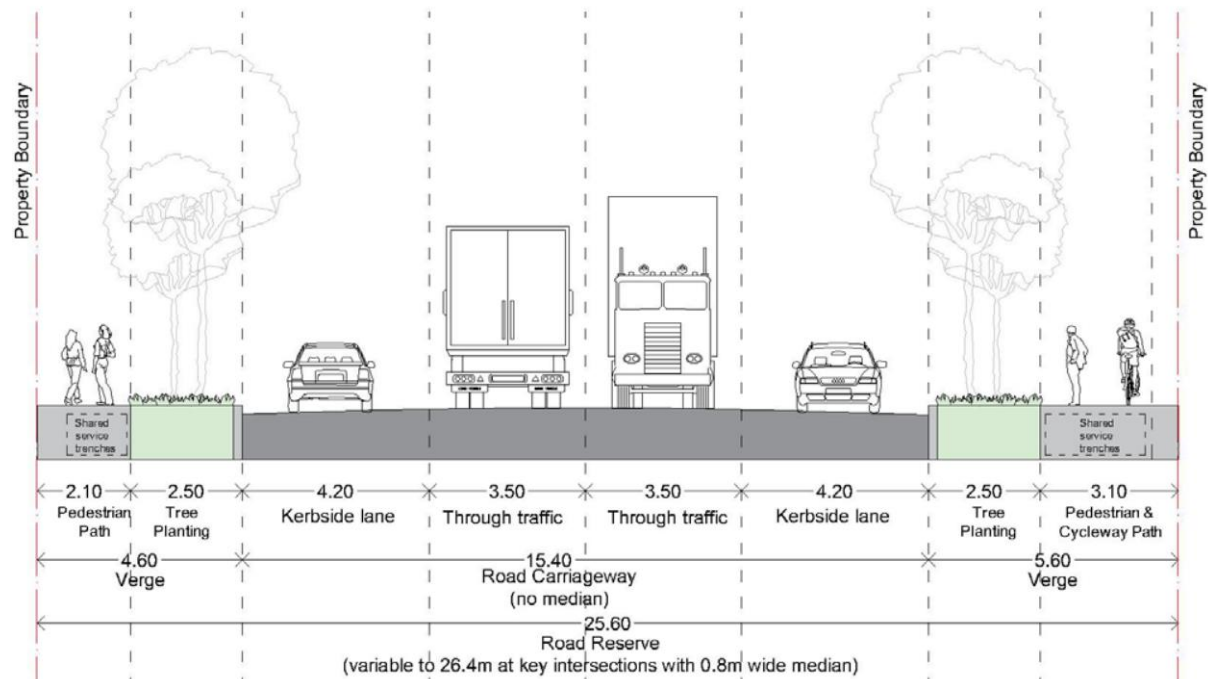
Table 12 - Sub Arterial Road Cost Rate

Item	Rate (\$/m)
Earthworks	\$28
Carriageway	\$2,191
Flex Zone (landscaping/parking)	\$831
Planted/WSUD Median	\$2,138
Utilities & Stormwater	\$2,119
Verge & Landscaping	\$2,450
Administration, Design, Contingency etc.	\$4,390
Total	\$14,150

4.6.2 Collector Roads

Collector roads have been included within the Aerotropolis Core and the Liverpool component of the Badgerys Creek precinct. The typical section for collector roads is shown in Figure 14, and the cost rate developed for this typology is summarised in Table 13.

Figure 14 - Collector Road Typical Section



Source: Western Sydney Aerotropolis Development Control Plan 2022

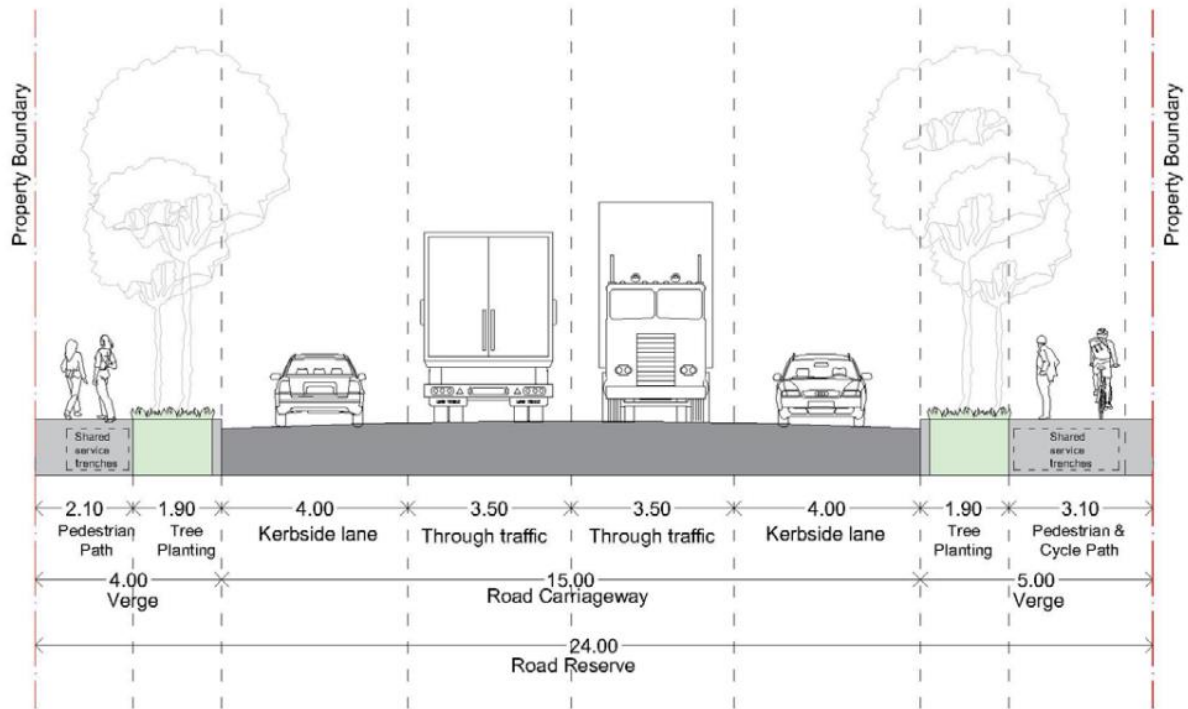
Table 13 - Collector Road Cost Rate

Item	Rate (\$/m)
Earthworks	\$13
Carriageway	\$1,625
Utilities & Stormwater	\$1,605
Verge & Landscaping	\$1,634
Administration, Design, Contingency etc.	\$2,195
Total	\$7,070

4.6.3 Local Street

As discussed in Section 4.3, local streets which are located along existing road alignments have been included within the Aerotropolis Core and Liverpool component of Badgerys Creek. The typical section for local streets is shown in Figure 15 and the cost rate developed for this typology is summarised in Table 14.

Figure 15 - Local Street Typical Section



Source: Western Sydney Aerotropolis Development Control Plan 2022

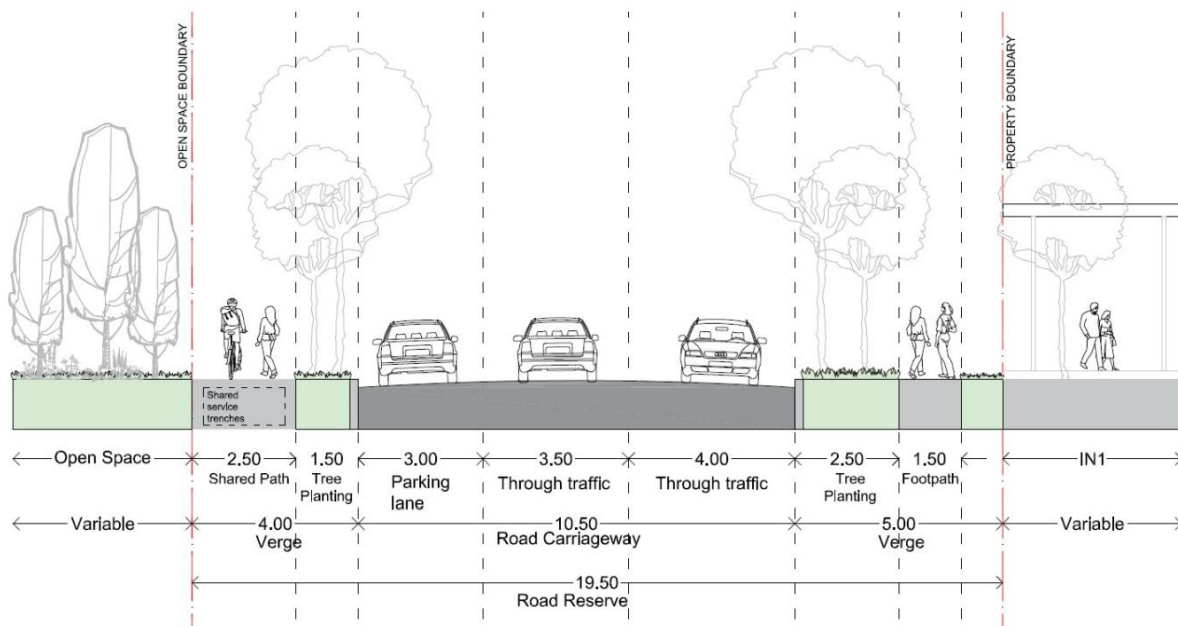
Table 14 - Local Street Cost Rate

Item	Rate (\$/m)
Earthworks	\$12
Carriageway	\$1,586
Utilities & Stormwater	\$1,605
Verge & Landscaping	\$1,435
Administration, Design, Contingency etc.	\$2,088
Total	\$6,730

4.6.4 Open Space Edge Roads

As discussed in Section 4.3, local streets which are located along existing road alignments have been included within the Aerotropolis Core and Liverpool component of Badgerys Creek. This has included local streets which front proposed open space, called Open Space Edge Roads in the WSAPP. The typical section for open space edge roads is shown in Figure 16 and the cost rate developed for this typology is summarised in Table 15.

Figure 16 - Open Space Edge Road Typical Section



Source: Western Sydney Aerotropolis Development Control Plan 2022

Table 15 - Open Space Edge Road Cost Rate

Item	Rate (\$/m)
Earthworks	\$10
Carriageway	\$906
Flex Zone (landscaping/parking)	\$374
Utilities & Stormwater	\$1,605
Verge & Landscaping	\$1,496
Administration, Design, Contingency etc.	\$1,976
Total	\$6,370

4.6.5 Bridges and Culverts

Cost rates for bridges and culverts were provided by Mitchell Brandtman. Bridge costs are provided on a per metre basis and assumes each bridge includes road carriageway, footpath and cycle path, with the respective widths for each component taken from the typical sections outlined above.

Culverts are assumed to cross the entire road reserve width. For sub arterial roads, it has been assumed twin 1200mm by 900mm precast concrete box culverts will be required. For collector and local roads, culverts are assumed to be twin 600mm diameter precast concrete pipes.

The cost rates adopted for bridges and culverts is summarised in Table 16. Note no bridges or culverts are required for the Local Streets provided in this plan.

Table 16 - Bridge and Culvert Cost Rates

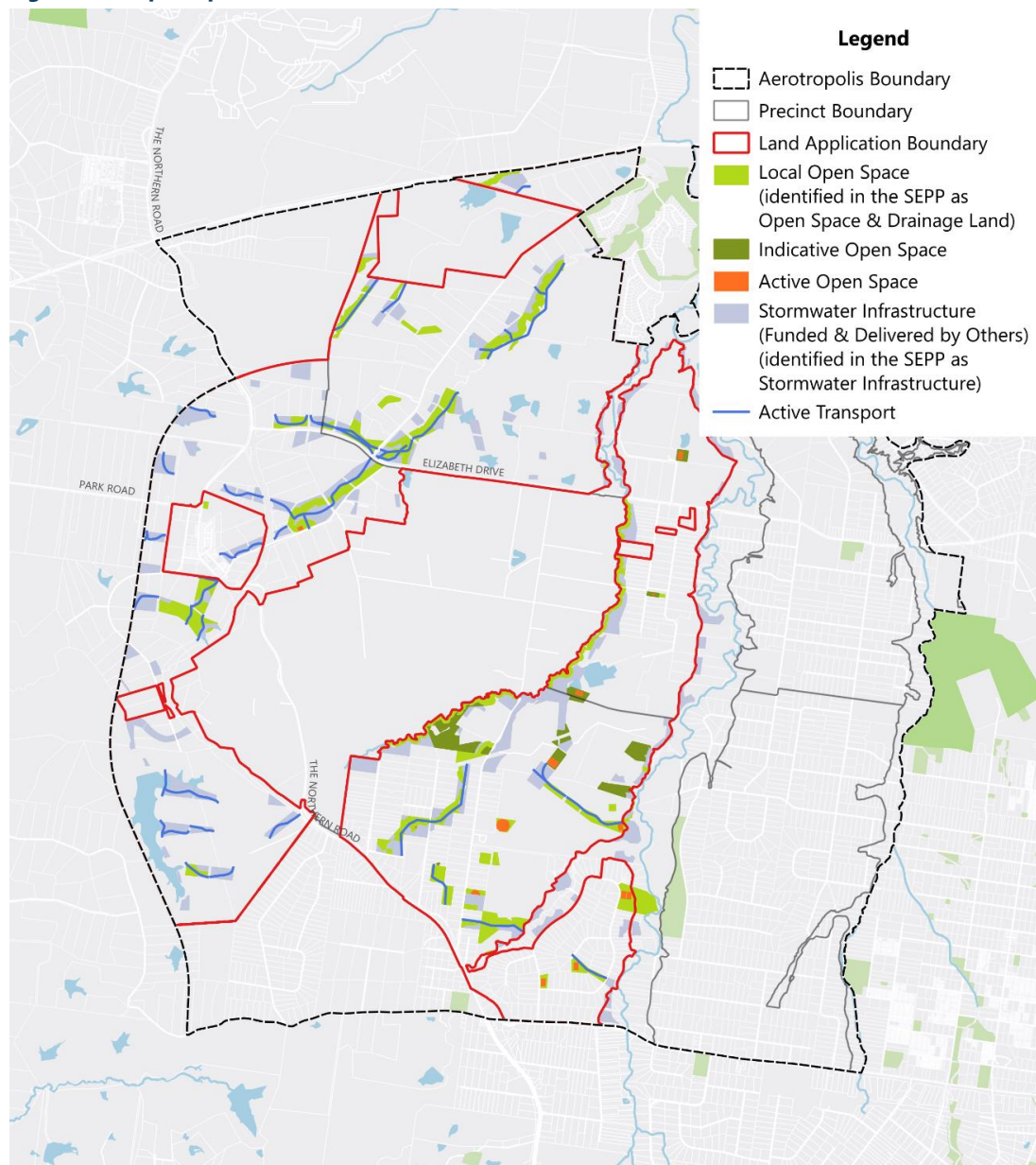
Infrastructure Type	Sub Arterial Road	Collector Road	Open Space Edge Road	Notes
Bridge (\$/m)	\$135,300	\$118,450	N/A	Assumed bridge width includes road carriageway, footpath and cycle path
Culvert (\$/item)	\$194,000	\$119,040	\$90,675	Assumed culvert crosses entire road reserve width, includes headwalls and scour protection

5 Open Space Infrastructure

The open space infrastructure included in the Aerotropolis Precincts Section 7.12 Development Contributions Plans have been informed by the Blue-Green Infrastructure Framework plan included in the WSAPP and the Aerotropolis SEPP maps showing local open space land to be acquired by the councils. As discussed in Section 1.4, the Thompsons Creek Regional Park will be funded by the SIC and has therefore excluded from the plans. Responsibility for provision stormwater drainage infrastructure in the Aerotropolis lies with Sydney Water.

The open space included in the plans are discussed in the following sections and are shown in Figure 17. Maps showing the infrastructure included in the respective plans for each LGA are provided in Appendix B.

Figure 17 - Open Space Infrastructure



5.1 Local Open Space

Areas proposed for local open space are shown above in Figure 17. These areas correspond with land identified as 'Open Space and Drainage Land' on the Aerotropolis SEPP Land Reservation Acquisition Map. For the purpose of this CP, it has been assumed that local open space will have minimal embellishment.

5.2 Indicative Open Space

The Blue-Green Infrastructure Framework plan in the WSAPP includes additional open space areas which are not included in the SEPP Land Reservation Acquisition Map. These areas are labelled 'Indicative Open Space' in the Blue-Green Infrastructure Framework plan. While these areas are not included in the Land Reservation Acquisition Map in the Aerotropolis SEPP, they have been included in the Section 7.12 Development Contributions Plans and it is assumed that these areas will be acquired by Liverpool and Penrith City Councils to deliver open space infrastructure.

5.3 Active Open Space

Areas for active open space are shown above in Figure 17. These areas are located within areas identified for local open space, indicative open space or stormwater infrastructure on the Blue-Green Infrastructure Framework plan. While the locations proposed in the WSAPP may clash with proposed stormwater infrastructure (to be delivered and managed by Sydney Water), it has been assumed that the total quantum of active open space will be as shown in the Blue-Green Infrastructure Framework plan, however the locations can change where required.

5.4 Active Transport in Open Space

In addition to the above, this CP has also included costs associated with providing active transport connections through open space. The WSAPP includes an Active Transport Network plan which identifies key cycle paths across the Aerotropolis. This CP has included all active transport connections labelled as "cycle paths through open space" on the Active Transport Network plan. These connections are shown above in Figure 17. and are expected to connect to cycle paths provided as part of new local and collector roads within the Aerotropolis. While the locations proposed in the WSAPP may clash with proposed stormwater infrastructure, it has been assumed that the total quantum will be as shown in the Blue-Green Infrastructure Framework plan, however the locations can change where required.

The open space included in this Section 7.12 Development Contributions Plans is shown in Figure 17. Separate maps showing the infrastructure included in the respective plans for each LGA are provided in Appendix B.

5.5 Quantities

The open space infrastructure included in this CP was split based on infrastructure type and precinct. The results are tabulated below.

Table 17 - Open Space Areas by Precinct

Open Space Infrastructure	Aerotropolis Core	Badgerys Creek (Liverpool)	Badgerys Creek (Penrith)	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Open Space (m ²) (Open Space & Drainage Land identified in the SEPP)	1,042,242	167,632		493,958	50,065	828,503
Indicative Open Space (m ²)	353,365	40,648	23,119			
Active Open Space (m ²)	87,156	8,677	7,758	4,327		
Active Transport in Open Space (m)	5,725			8,769	1,746	8,158
Total Open Space* (m²)	1,395,607	208,280	23,119	493,958	50,065	828,503

*Active Open Space is excluded from the total, as these areas are provided within either Open Space or Indicative Open Space

5.6 Cost Rates

Open space costs were calculated using two separate cost rates:

- A base embellishment cost rate which applies to all open space land. This base embellishment rates allows for planting of grass and trees and some basic landscaping. This cost rate was increased slightly at the request of both Councils to allow for additional embellishment, such as provision of benches, drinking fountains, etc. (note active transport connections in open space have been costed separately).
- An active open space embellishment rate which applies to areas identified for active open space. This is an extra-over rate (applied on top of the base embellishment rate) and allows for irrigation, lighting, benches, hardstand areas and amenities blocks.

The active transport through open space cost rates includes the provision of a 3m wide concrete path, bollard lighting and associated low voltage electrical infrastructure.

Both embellishment cost rates were provided by Mitchell Brandtman and are summarised in Table 17. The active transport in open space cost rate is based on contractor rates provided to IDC on past projects.

Table 18 - Open Space Embellishment Cost Rates

Infrastructure Type	Cost Rate	Inclusions
Open Space Base Embellishment Rate (\$/m ²)	\$100	Grassed area with some trees/basic landscaping
Active Open Space Embellishment Rate (\$/m ²)	\$125	Higher grade grassed area, amenities blocks, hardstand areas, benches, lighting and irrigation
Active Transport in Open Space (\$/m)	\$510	3m wide path, bollard lighting (every 10m) and associated LV electrical infrastructure

6 Social Infrastructure

6.1 Social Infrastructure Needs Assessment

A SINA prepared by GHD to identify the infrastructure required to support development of the initial precincts in the Aerotropolis. The recommendations are summarised in Table 19.

The recommendations of the SINA include local and regional infrastructure to be funded by public and private sources. Only those items that relate to these Section 7.12 Contributions Plans are shown in the table below.

Table 19 - Social Infrastructure Recommendations Included in this Contributions Plan

Infrastructure Type	Aerotropolis Core	Badgerys Creek	Agribusiness	Northern Gateway	Note
Community Facilities	3x local community spaces			2x local community spaces	Community spaces have been included in this CP. Sizes have been calculated using the provision rates outlined in Section 6.2.
	1x district community centre co-located with the district library			1x district community centre co-located with the district library.	
Childcare	1x council owned childcare centre		1x council owned childcare centre	2x council owned childcare centres	Childcare centres have been included in this CP. Sizes have been calculated using the provision rates outlined in Section 6.2.
Cultural Facilities	2x local cultural facilities			1x local cultural facility	Cultural facilities have been included in this CP. Sizes have been calculated using the provision rates outlined in Section 6.2.
Library	2x district libraries (one co-located to maker spaces and / or community services and the other is a joint library with the Multiversity).		1x branch library	1x branch library	Libraries have been included in this CP. Sizes have been calculated using the provision rates outlined in Section 6.2.
	1x branch library				Assumed district library within Multiversity is

Infrastructure Type	Aerotropolis Core	Badgerys Creek	Agribusiness	Northern Gateway	Note
					funded and delivered by others.
Sports Field	1x football field				
	2x district sports field (2 x rectangles and 1 x oval)				
	1x indoor sports facility		Add three netball courts to the existing three courts		Sports infrastructure within the Northern Gateway to be delivered in the Sydney Science Park
	1x indoor aquatic / swimming facilities				
	2x youth focussed outdoor recreation facilities				
Open Space	14x local parks		3x local parks	8x local parks	Open space is being provided in accordance with areas identified in the WSAPP.
	4x district parks	1x local park	1x district park	4x district parks	

Source: *Social Infrastructure Needs Assessment* – GHD (2020)

6.2 Provision Rates

The SINA provides high-level recommendations for the social infrastructure required to support the Aerotropolis initial precincts. To cost the recommended infrastructure, sizes were first estimated using provision rates provided by Cred Consulting.

The provision rates provide an estimate of the required area in square metres for each infrastructure type per person. Different rates are provided for residential and employment population. The provision rates are summarised in Table 20.

Table 20 - Social Infrastructure Provision Rates

Infrastructure Type	Residential Rate (m ² /person)	Employment Rate (m ² /person)
Library/Community Facilities		
Library floorspace	0.042	0.008
Multi-purpose community hall space	0.022	0.004
Flexible meeting space (within Aerotropolis Core district multi-purpose community hall and library)	0.031	N/A

Infrastructure Type	Residential Rate (m ² /person)	Employment Rate (m ² /person)
Cultural production space (small scale e.g. tech or pottery)	0.031	0.006
Community kitchen (within Aerotropolis Core district multi-purpose community hall and library)	0.046	N/A
Subsidised office space x 4 offices & hot desks (within Aerotropolis Core district multi-purpose community hall and library)	0.046	N/A
Foyer, lounge & café (within Aerotropolis Core district multi-purpose community hall and library)	0.092	N/A
Recording studio spaces (within Aerotropolis Core district multi-purpose community hall and library)	0.025	N/A
Connected outdoor, public civil space (within Aerotropolis Core district multi-purpose community hall and library)	0.307	N/A
High quality, 90 space council owned and managed early childhood education and care centre	0.056	0.034
Parks		
Play space (assumed located within a park) (item/person)	0.0005	0.0001
Outdoor fitness stations (item/person)	0.000067	0.00001
Youth precinct	0.02	N/A
Water play (provided in district park)	0.0002	N/A
Indoor Leisure Centre		
Outdoor toddler pool (within Aerotropolis Core)	0.0125	N/A
Outdoor 50m pool (8 lanes) (within Aerotropolis Core)	0.029	N/A
Shower/changeroom block (within Aerotropolis Core)	0.07	N/A
Amenities block including café/kiosk and community meeting rooms (within Aerotropolis Core)		N/A
Adjoining open space/picnic area (within Aerotropolis Core)	0.33	N/A
Learn to swim/hydrotherapy indoor pool (within Aerotropolis Core)	0.17	N/A
25m indoor pool (within Aerotropolis Core)	0.17	N/A
2x indoor courts (within Aerotropolis Core)	0.25	N/A
Community meeting rooms (within Aerotropolis Core)	0.05	N/A
Youth recreation hang out space (within Aerotropolis Core)	0.07	N/A
Foyer, lounge & café (within Aerotropolis Core)	0.13	N/A

Source: Cred Consulting (2020)

6.3 Quantities

Social infrastructure sizes were calculated based on the recommendations from the SINA and the provision rates outlined in Section 6.2.

Where a social infrastructure item is recommended in a precinct that covers both LGAs, the assumed size of the facility has been apportioned between each LGA's part of the precinct based on the expected population. These facilities will likely be provided in a single location, however splitting the area between each part of the precinct has allowed for costs to be apportioned between each of the Section 7.12 Development Contributions Plans. The results are summarised in Table 21. It should be noted that no social infrastructure is recommended for the Badgerys Creek precinct.

Table 21 - Social Infrastructure Provision

Social Infrastructure	Aerotropolis Core	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Community Facilities				
High quality, council owned and managed early childhood education and care centre (m ²)	1,350	257	80	709
Branch Library (m ²)		64	20	176
Local community centre (m ²)				92
Local cultural facility (m ²)				129
District multi-purpose community hub with the following features (2,260m²) with adjoining open space (1,000m²):	3,260			
Library floorspace (m ²)	1,008			
Multi-purpose community hall space (m ²)	528			
Flexible meeting space (m ²)	100			
Cultural production space (small scale e.g. tech or pottery) (m ²)	100			
Community kitchen (m ²)	150			
Subsidised office space x 4 offices & hot desks (m ²)	150			
Foyer, lounge & café (m ²)	300			
Recording studio spaces (m ²)	80			
Connected outdoor, public civil space (m ²)	1,000			
Sport and Recreation Facilities				
District sports grounds (2 double playing fields and amenities) (ha)				
Multi-purpose outdoor courts (ha)				

Social Infrastructure	Aerotropolis Core	Agribusiness (Liverpool)	Agribusiness (Penrith)	Northern Gateway
Play space (assumed located within a park - average size 100m ²)	12			11
Outdoor fitness stations	2			
Youth precinct (ha)	0.1			
Water play (provided in district park)	6			
Indoor Leisure Centre (approx. 3,000m²) plus ancillary facilities	3,000			
Outdoor toddler pool (m ²)	300			
Outdoor 50m pool (8 lanes) (m ²)	700			
Shower/changeroom block (m ²)	200			
Adjoining open space/picnic area (m ²)	1,000			
Learn to swim/hydrotherapy indoor pool (m ²)	500			
25m indoor pool (m ²)	500			
2x indoor courts (m ²)	750			
Community meeting rooms (m ²)	150			
Youth recreation hang out space (m ²)	200			
Foyer, lounge & café (m ²)	400			
Add three netball courts to existing three courts (assumed no land acquisition required)		3		

6.4 Cost Rates

Social infrastructure cost rates were provided by Penrith City Council in 2020 and were reviewed and updated where appropriate by Mitchell Brandtman. A summary of the cost rates adopted is provided in Table 22.

Table 22 - Social Infrastructure Cost Rates

Facility	Base Building Rate (\$/m ²)	Fit Out Rate (\$/m ²)	Source
Library/Community Facilities			
Library floorspace	\$4,250	\$2,500	Mitchell Brandtman
Multi-purpose community hall space	\$3,750	\$3,000	Mitchell Brandtman
Flexible meeting space	\$3,250	\$2,250	Mitchell Brandtman
Cultural production space (small scale e.g. tech or pottery)	\$2,500	\$1,850	Mitchell Brandtman
Community kitchen	\$4,850	\$1,850	Mitchell Brandtman
Subsidised office space	\$2,600	\$980	Mitchell Brandtman
Foyer, lounge & café	\$3,250	\$1,350	Mitchell Brandtman
Recording studio spaces	\$3,500	\$1,490	Mitchell Brandtman
Connected outdoor, public civil space	\$1,500	\$250	Mitchell Brandtman
High quality, council owned and managed early childhood education and care centre	\$3,600	\$1,650	Mitchell Brandtman
Parks and Open Space			
Play space (assumed located within a park)	\$600,000		Penrith City Council
Outdoor fitness stations	\$120,000		Penrith City Council
Youth precinct	\$4,500	\$4,500	Penrith City Council
Water play (provided in district park)	\$800,000		Cred Consulting
Indoor Leisure Centre			
Outdoor toddler pool	\$3,850	\$550	Mitchell Brandtman
Outdoor 50m pool (8 lanes)	\$3,850	\$550	Mitchell Brandtman
Shower/changeroom block	\$4,250	\$900	Mitchell Brandtman
Amenities block including café/kiosk and community meeting rooms	\$3,750	\$2,250	Mitchell Brandtman
Adjoining open space/picnic area	\$1,000	\$1,850	Mitchell Brandtman
Learn to swim/hydrotherapy indoor pool	\$4,500	\$1,550	Mitchell Brandtman
25m indoor pool	\$4,500	\$1,500	Mitchell Brandtman
2x indoor courts	\$3,250	\$1,480	Mitchell Brandtman
Community meeting rooms	\$3,000	\$2,250	Mitchell Brandtman

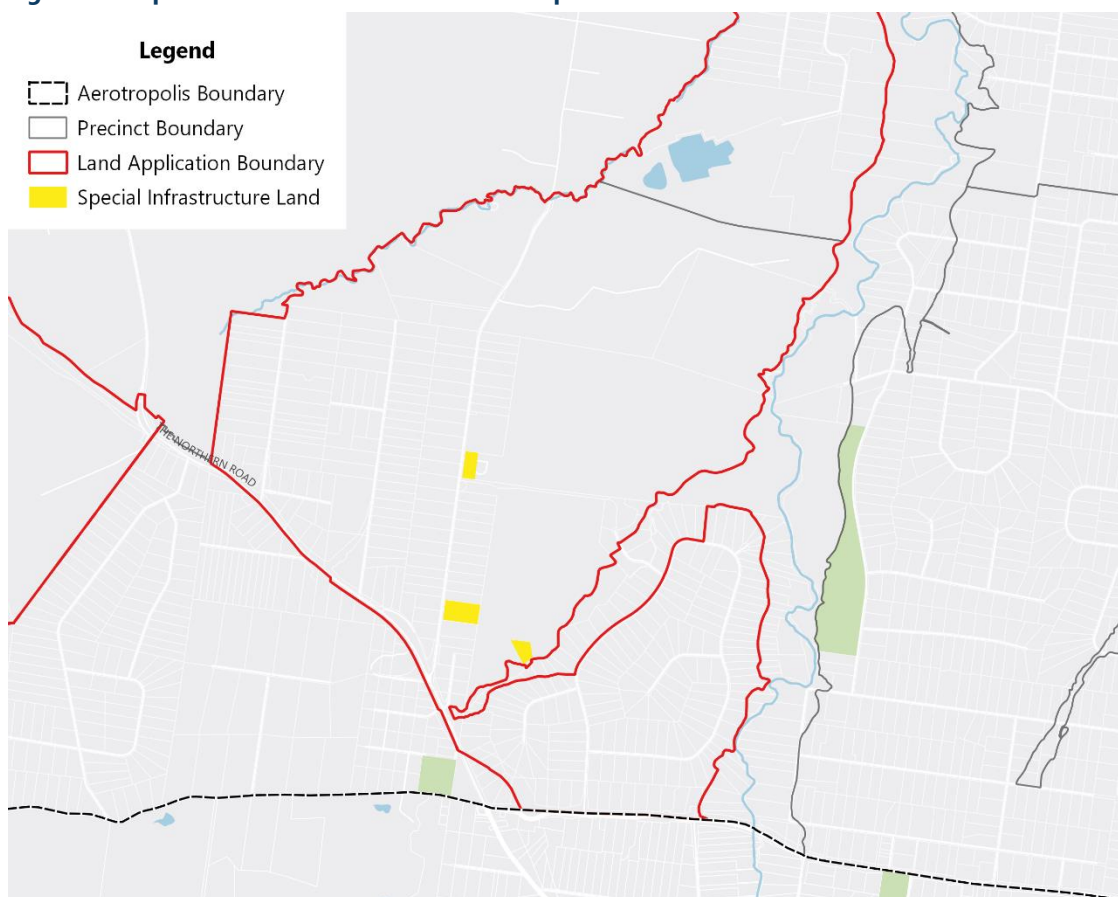
Facility	Base Building Rate (\$/m ²)	Fit Out Rate (\$/m ²)	Source
Youth recreation hang out space	\$2,650	\$1,350	Mitchell Brandtman
Foyer, lounge & café	\$2,400	\$1,350	Mitchell Brandtman

6.5 Locations

6.5.1 Aerotropolis Core

Liverpool City Council have requested three sites located within the Aerotropolis Core precinct which are identified as Special Infrastructure on the Land Use and Structure Plan in the WSAPP be acquired for the purpose of providing social infrastructure. It should be noted that these sites are larger than what will be required for the proposed social and community infrastructure. The locations of these sites are shown in Figure 18 below.

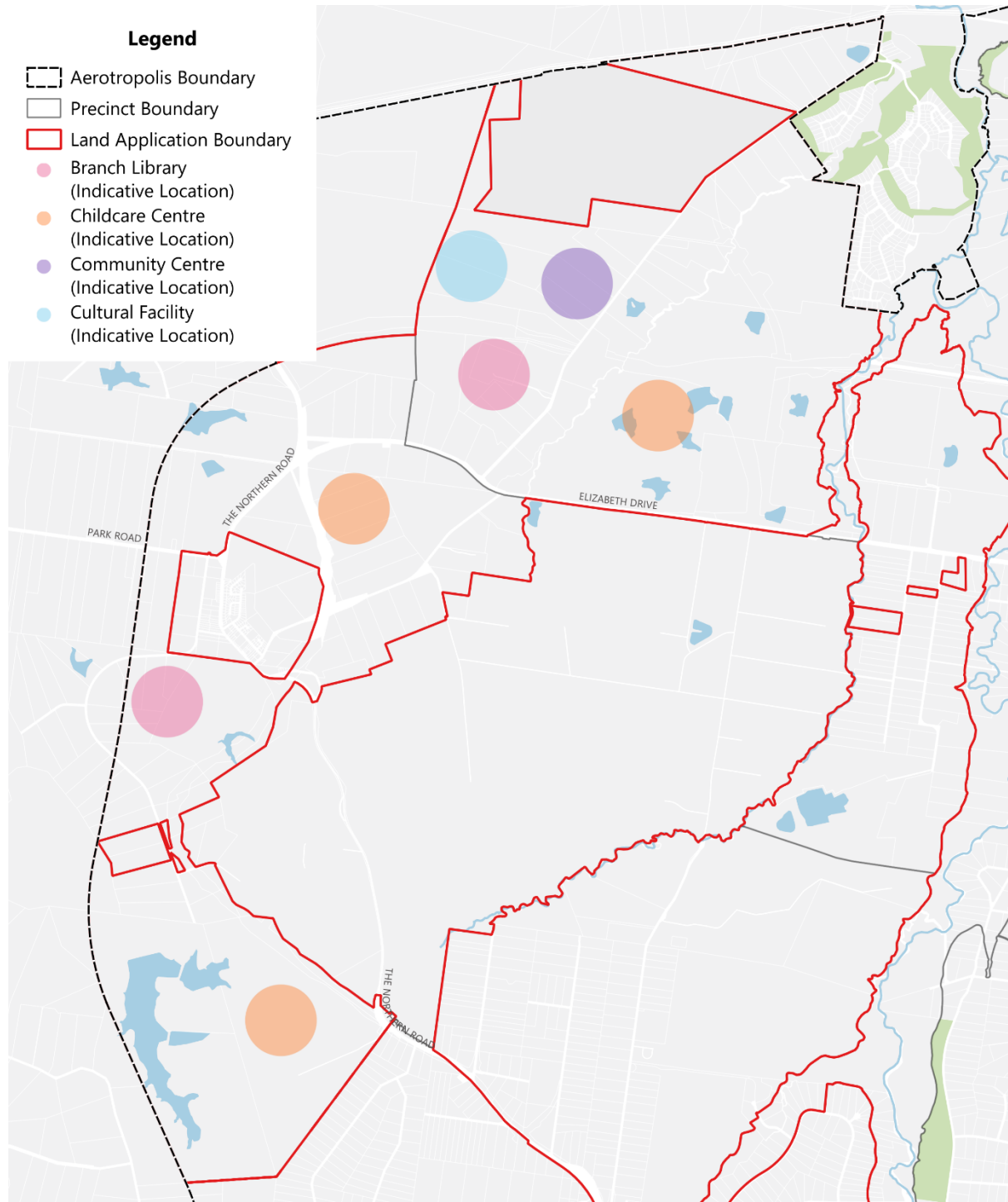
Figure 18 – Special Infrastructure Sites – Aerotropolis Core



6.5.2 Agribusiness & Northern Gateway

Locations for social infrastructure have not yet been nominated. This CP includes a land acquisition allowance for the areas required within each precinct. It is expected that Councils will determine appropriate locations and acquire sites as required. Some potential locations for this infrastructure are shown in Figure 19.

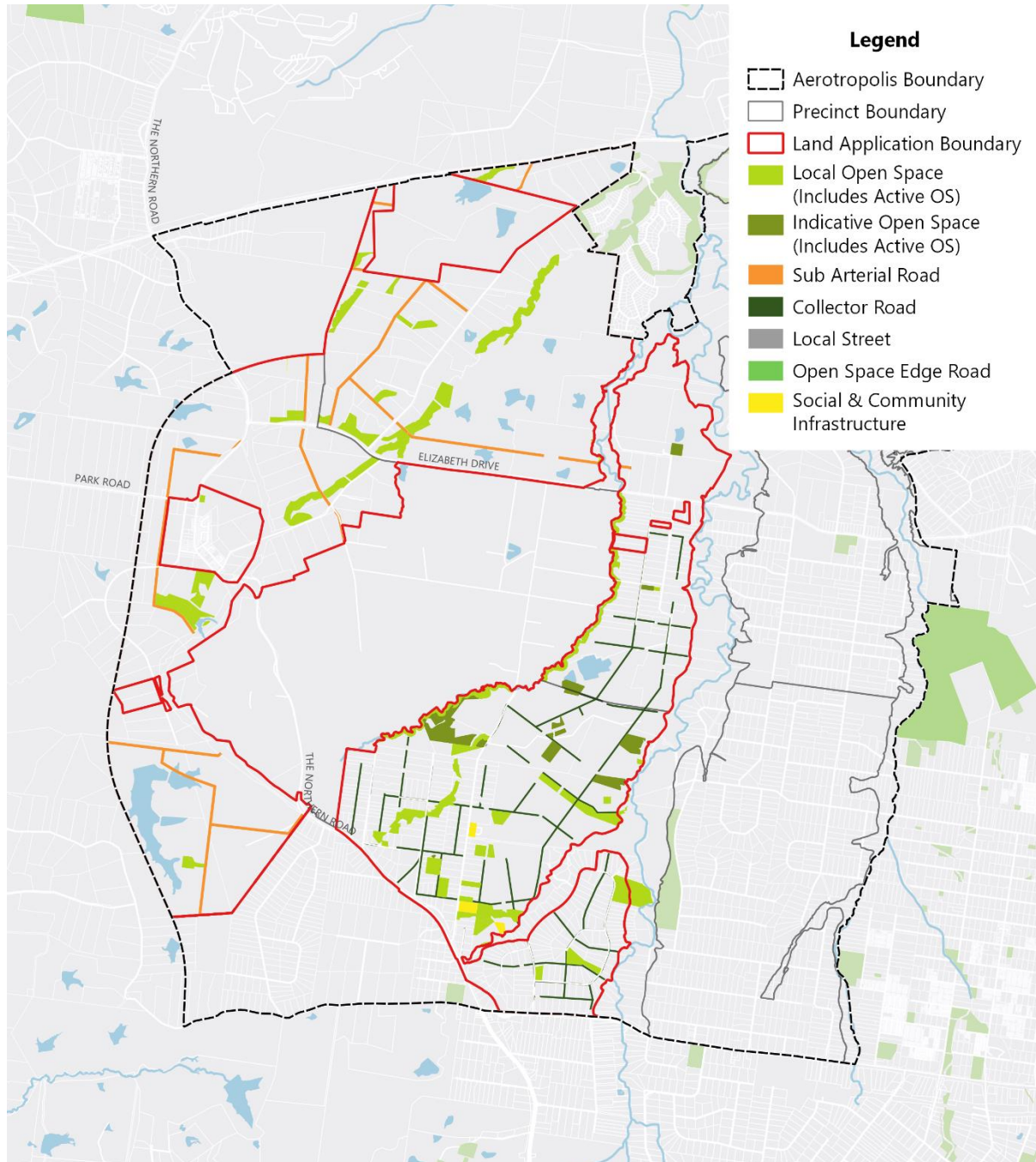
Figure 19 - Potential Social Infrastructure Locations (Indicative Only)



7 Land Acquisition

The land required to provide the infrastructure outlined in the above Sections 4 to 6 is shown in Figure 20.

Figure 20 - Land to be Acquired



7.1 Cost Rates

Penrith City Council sought an independent valuation of land values in the Aerotropolis due to the time that had elapsed since the exhibition of the draft CP. This valuation was peer reviewed by Deloitte and the Office of Strategic Lands (OSL). Land values have been updated to reflect current values that are being applied to land acquisition with the Western Parkland City and the Western Sydney Aerotropolis.

The rates adopted for the Section 7.12 Development Contributions Plans are summarised in Table 23.

The constrained land acquisition rate applies to land to be acquired for which one or more of the following applies:

- The land is zoned Environment and Recreation (ENZ) or Infrastructure (SP2)
- The land is impacted by the 1%AEP flood extents
- The land is identified in the Cumberland Plain Conservation Plan as avoided land

The good developable land acquisition rate applies to any land to be acquired for open space or social infrastructure where the above criteria do not apply.

Table 23 - Land Acquisition Rates

Land Type	Cost Rate (\$/m ²)
Constrained Land	95
Good Developable Land (Mixed Use)	550
Good Developable Land (Enterprise)	500
Good Developable Land (Agribusiness)	330

8 Section 7.12 Levy Rate

A summary of the total development costs, Section 7.12 infrastructure costs and applicable Section 7.12 contribution rates for each LGA are provided in Table 24.

A governance, management and planning levy has been added to account for the scale of additional resources that will be required by both Councils to implement and manage the plans.

Table 24 - Proposed Section 7.12 Contribution Rate

Component	Liverpool LGA Total	Penrith LGA Total
Development Costs (from Table 10)	\$45,367,222,584	\$14,822,805,010
Road Infrastructure Costs	\$495,302,465	\$326,528,610
Open Space Infrastructure Costs	\$229,696,440	\$96,189,490
Social Infrastructure Costs	\$67,955,326	\$13,251,016
Land Acquisition Costs	\$1,276,002,584	\$390,737,403
Sub Total (Infrastructure & Land Acquisition)	\$2,068,956,815	\$826,706,519
Governance, Management and Planning Levy (1.5% of infrastructure costs)	\$11,894,313	\$6,539,537
Calculation Formula for Section 7.12 Levy Rate	$\frac{\text{Total Infrastructure \& Admin Costs}}{\text{Total Development Costs}} \times 100$	
Section 7.12 Levy Rate	4.6%	5.6%

Maps showing the infrastructure provided in each of the plans are provided in Appendix B.

Appendix A – Assumptions

#	Planning & Land Use Assumptions	Source
1.1	The Aerotropolis Section 7.12 Development Contributions Plans will apply only to land within the Aerotropolis Core, Badgerys Creek, Northern Gateway and Agribusiness Precincts.	N/A
1.2	The Sydney Science Park has been excluded from the Section 7.12 Area	Existing Agreed VPA with Penrith City Council
1.3	Job projections have been extracted from the <i>Western Sydney Aerotropolis Plan (WSAP 2020)</i> and <i>Western Sydney Aerotropolis Precinct Plan (WSAPP)</i>	
	The upper range value has been adopted to provide a conservative approach to infrastructure estimation. The following projections were adopted for employment (jobs):	
	Aerotropolis Core	60,000 Aerotropolis Precinct Plan
	Badgerys Creek	11,000 Aerotropolis Precinct Plan
1.4	Agribusiness	10,000 WSAP 2020
	Northern Gateway	21,000 WSAP 2020
	For population, the following projection was adopted for residential (population):	
	Aerotropolis Core	24,000 WSAP 2020
1.5	All dwellings within the Northern Gateway Precinct are located within the Sydney Science Park site, per 1.2 the Sydney Science Park has been excluded from the S7.12 Area.	WSAP 2020
	Assumed average gross Floor Space Ratio (FSR) for employment development typologies:	
	Enterprise & Light Industry	0.5 Benchmarked Developments
	Business & Enterprise	1 Benchmarked Developments
1.6	Commercial Centre (Mixed Use)	3.5 Aerotropolis Precinct Plan
	Residential (Mixed Use)	2.5 Aerotropolis Precinct Plan
	Local Neighbourhood Centre	1 Aerotropolis Precinct Plan
	Agribusiness	0.5 Benchmarked Developments
	Education	0.5 Benchmarked Developments
	Assumed average GFA (m ² per unit) for residential development typologies:	
1.7	Medium Density	180
	Apartments (low rise)	110
	Apartments (high rise)	90

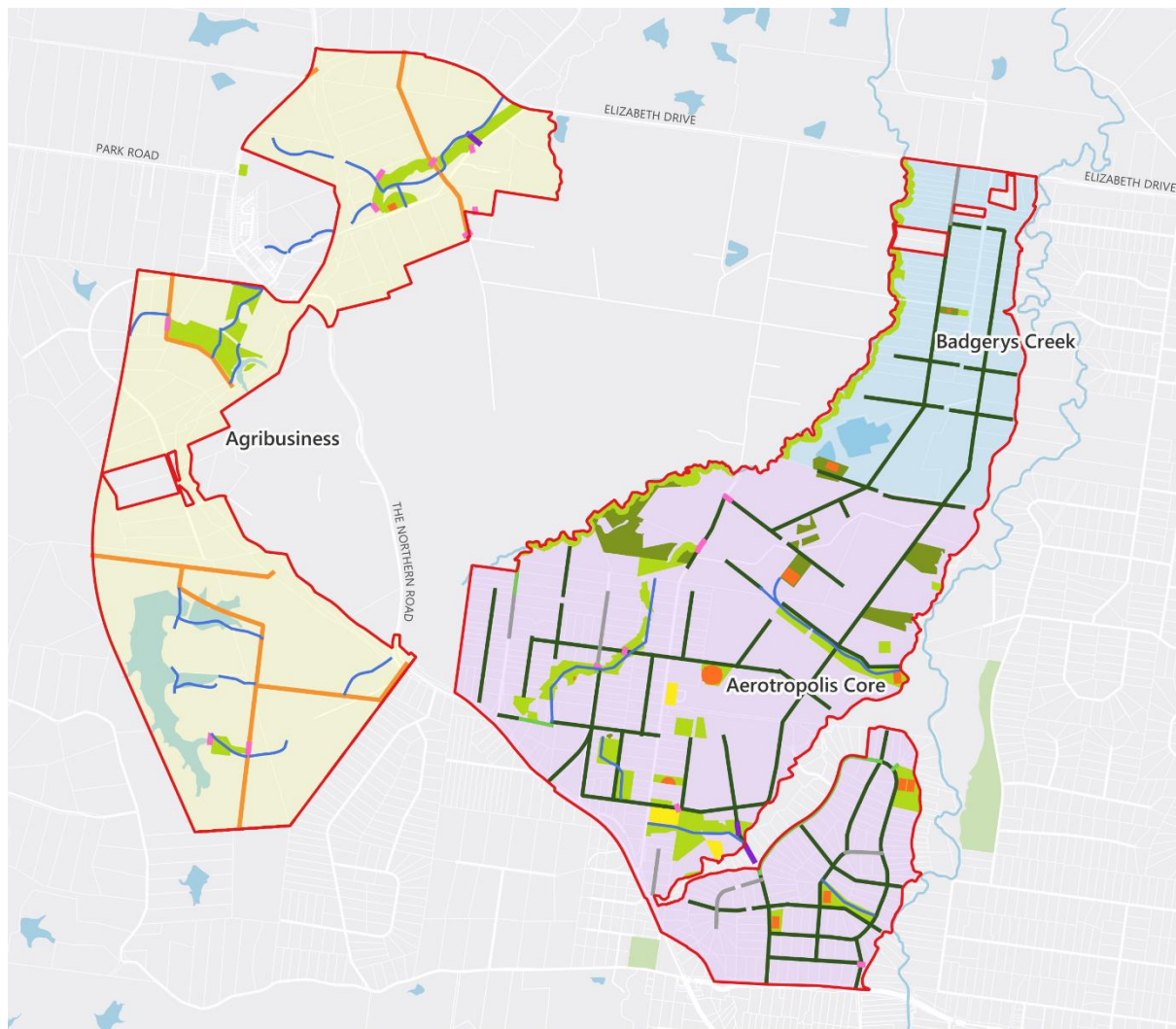
#	Planning & Land Use Assumptions		Source
1.8	Total Residential Population	24,000	WSAP 2020
1.9	Residential Development Typology Split		Agreed rate in discussions with Councils
	Low Density	0%	
	Medium Density	50%	
	Apartments Low Rise	40%	
	Apartments High Rise	10%	
2.0	Dwelling Occupation Rates (population per dwelling)		Review of other Contributions Plans, ABS data & GSC projections
	Medium Density	3.00	
	Apartments Low Rise	2.40	
	Apartments High Rise	2.10	
Road Quantities & Rates			
2.1	Typical road cross sections have been informed by the Aerotropolis DCP		IDC estimate from WSSDG
	Flex Zone Composition (pavement/landscape)		
	Local Road (pavement percentage)	50%	
	Sub Arterial Road (pavement percentage)	50%	
	Assumed Recycled water "Purple Pipe" reticulation on all roads	Yes	
Bridge & Culvert Rates			
2.2	Assumed bridge width includes road carriageway, footpath and cycle path		Mitchell Brandtman
	Assumed culvert crosses entire road reserve width, includes headwalls and scour protection		Mitchell Brandtman
Stormwater Infrastructure			
2.3	Responsibility for provision stormwater drainage infrastructure in the Aerotropolis lies with Sydney Water.		
Open Space Embellishment Rates			
2.4	Open Space Base Embellishment (per sqm)	\$ 100.00	Base rate of \$75 provided by QS, extra \$25 added for additional embellishment, as requested by Councils.
	Active Open Space Embellishment Rate (per sqm)	\$ 125.00	Rate provided by QS
	Active Transport in Open Space Rate (per metre)	\$ 510.00	Locations taken from <i>Blue-Green Infrastructure Framework</i> plan in WSAPP. Cost rate includes 3m wide path, LV cabling and bollard lighting every 10m
Community Facilities			
2.5	Social infrastructure requirements have been informed by the SINA prepared by GHD.		

#	Planning & Land Use Assumptions		Source
	Cost rates were provided by Penrith City Council in 2020 and were reviewed and updated where appropriate by Mitchell Brandtman		
	Land Acquisition Rates		
	Constrained Land	\$ 95.00	
2.6	Good Developable Land (Mixed Use)	\$ 550.00	Independent Land Valuation commissioned by PCC, reviewed by Deloitte and Office of Strategic Lands
	Good Developable Land (Enterprise)	\$ 500.00	
	Good Developable Land (Agribusiness)	\$ 330.00	
2.7	Governance, Management and Planning	1.5%	Standard allowance for 1.5% of infrastructure costs Governance, Management and Planning

Appendix B – Infrastructure Maps

Roads, Open Space and Community Infrastructure – Liverpool Section 7.12 Development Contributions Plan

Figure 21 - Liverpool Infrastructure Plan

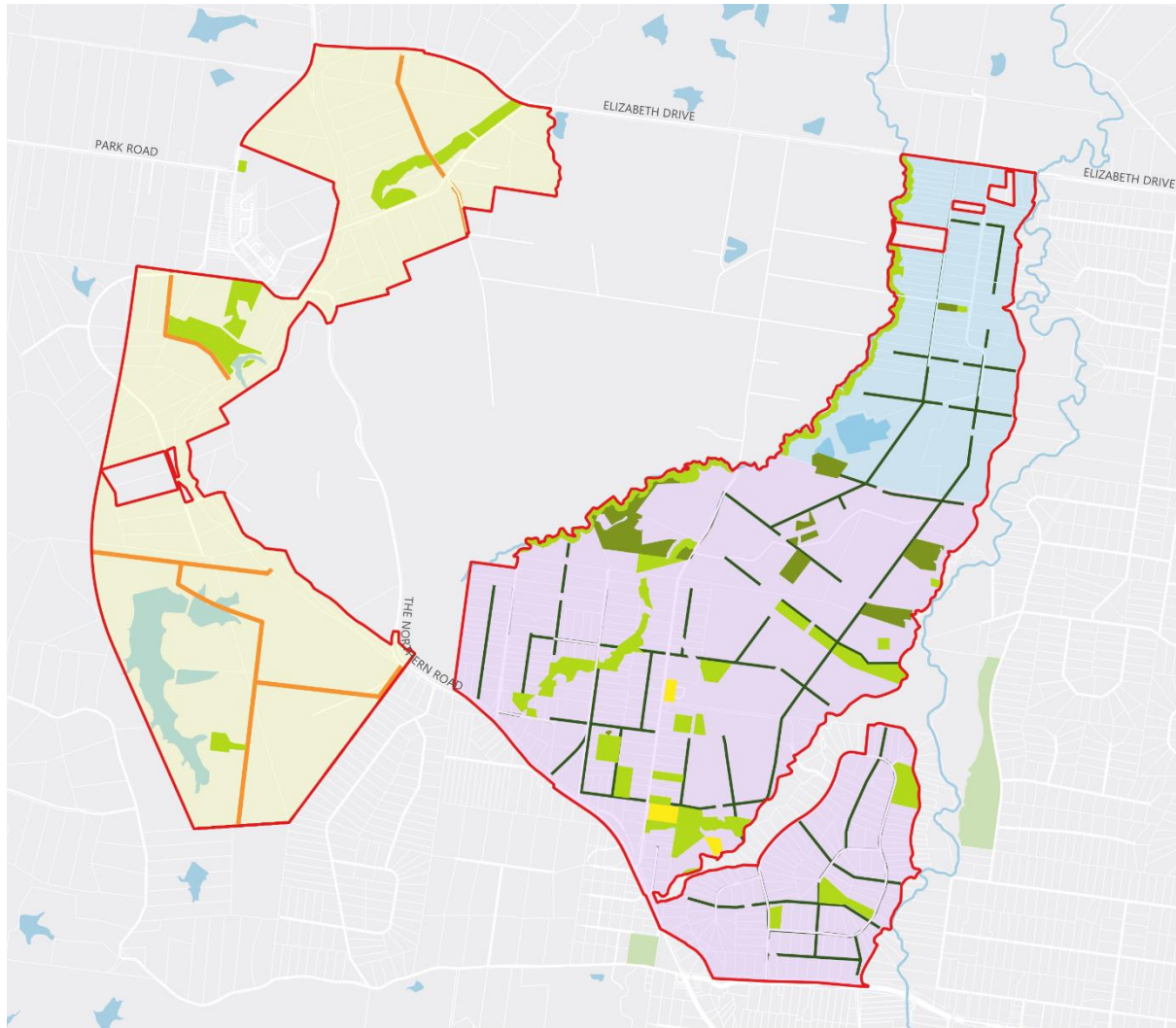


Aerotropolis Section 7.12 Plan (Liverpool) - Infrastructure

 Land Application Boundary	 Local Open Space	 Sub Arterial Road	 Active Transport
 Aerotropolis Core Precinct	 Indicative Open Space	 Collector Road	 Bridge
 Agribusiness Precinct	 Active Open Space	 Local Street	 Culvert
 Badgerys Creek Precinct	 Community Facilities	 Open Space Edge Road	

Land to be Acquired – Liverpool Section 7.12 Development Contributions Plan

Figure 22 – Liverpool Land Acquisition Plan

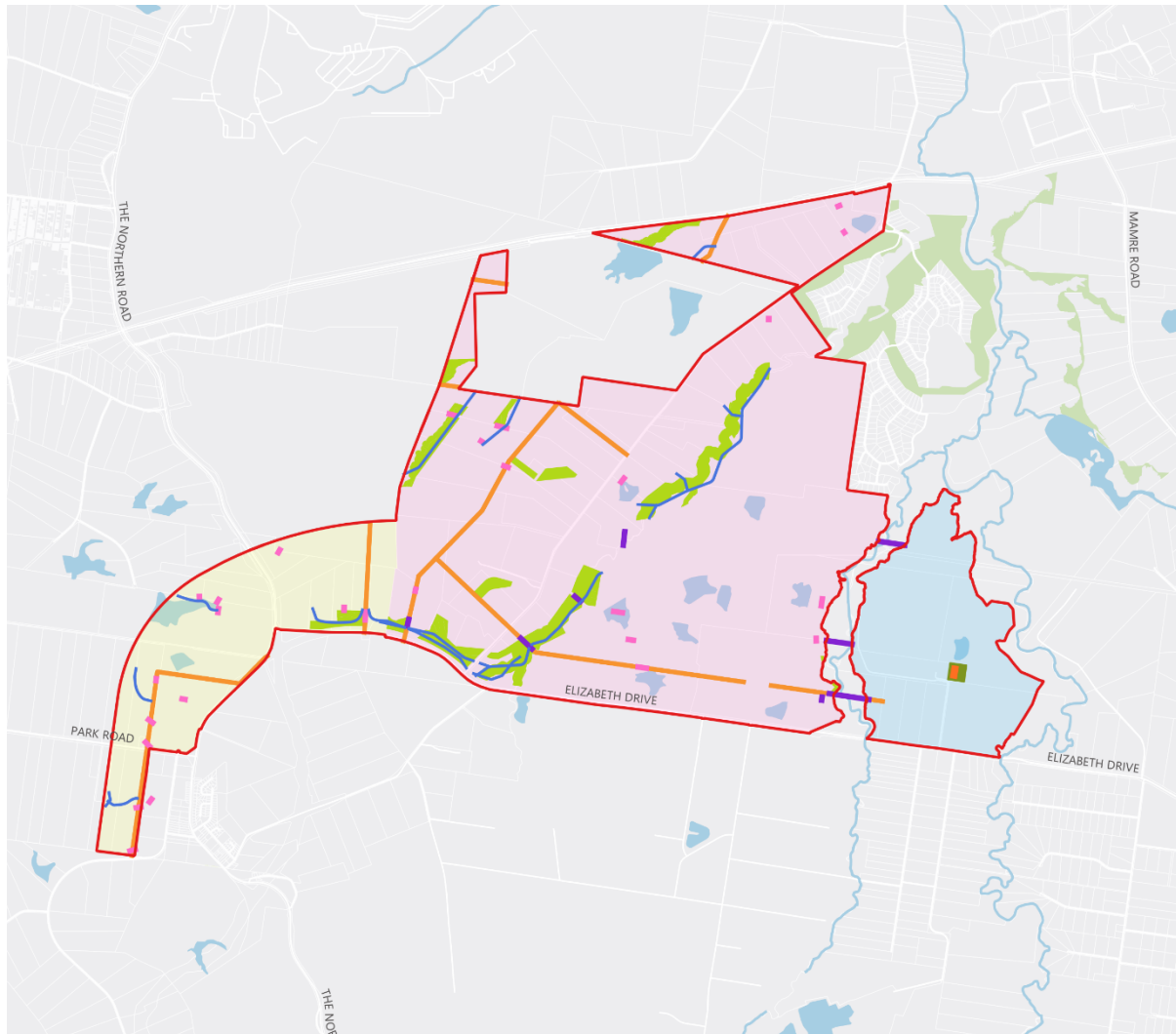


Aerotropolis Section 7.12 Plan (Liverpool) - Land

Land Application Boundary	Local Open Space	Collector Road
Aerotropolis Core Precinct	Indicative Open Space	Local Street
Agribusiness Precinct	Community Facilities	Open Space Edge Road
Badgerys Creek Precinct	Sub Arterial Road	

Roads and Open Space Infrastructure – Penrith Section 7.12 Development Contributions Plan

Figure 23 – Penrith Infrastructure Plan

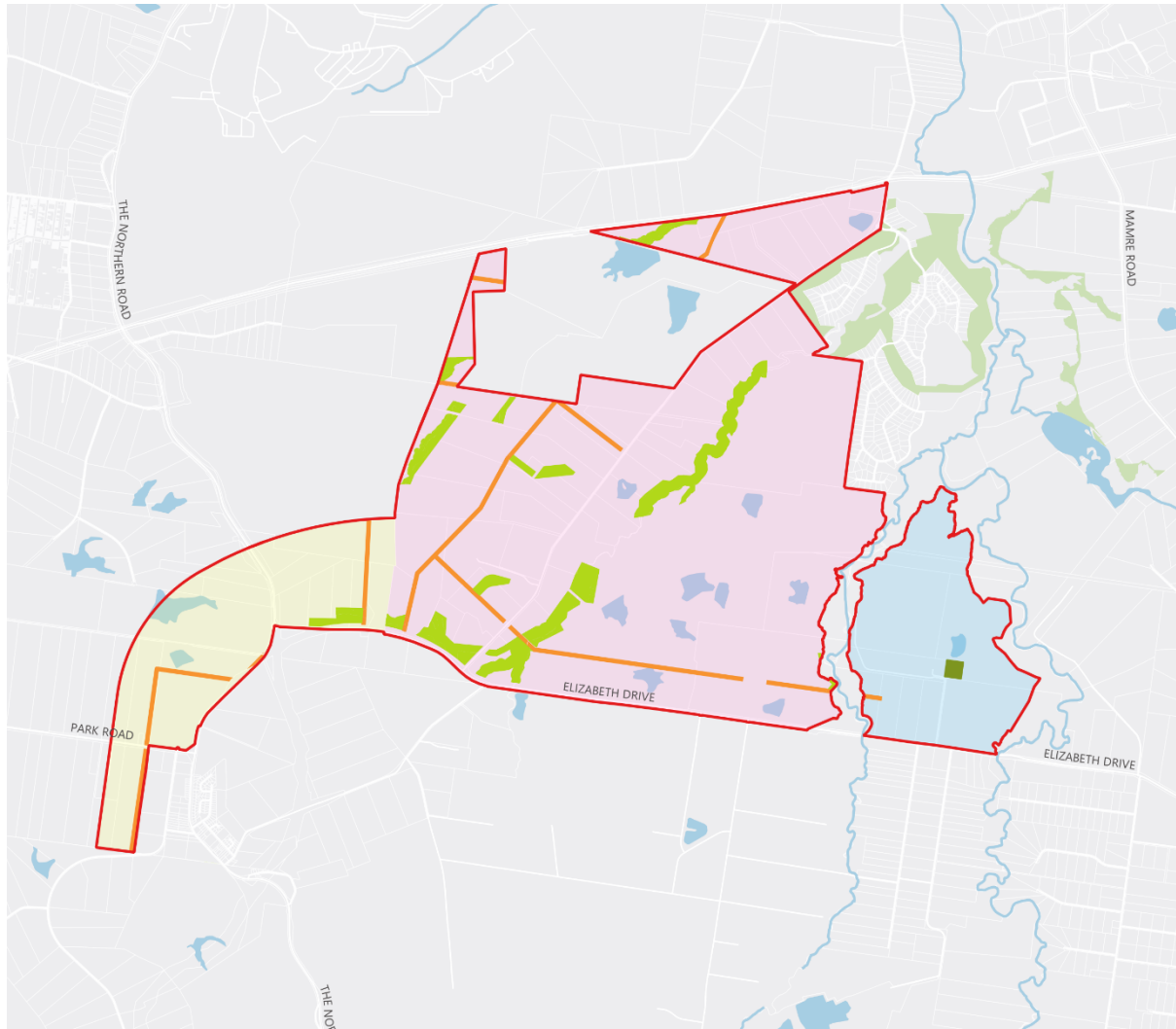


Aerotropolis Section 7.12 Plan (Penrith) - Infrastructure

 Land Application Boundary	 Local Open Space	 Bridge
 Agribusiness Precinct	 Indicative Open Space	 Culvert
 Badgerys Creek Precinct	 Active Open Space	 Active Transport
 Northern Gateway Precinct	 Sub Arterial Road	

Land to be Acquired – Penrith Section 7.12 Development Contributions Plan

Figure 24 – Penrith Land Acquisition Plan



Aerotropolis Section 7.12 Plan (Penrith) - Land

- | | |
|--|--|
| Land Application Boundary | Local Open Space |
| Agribusiness Precinct | Indicative Open Space |
| Badgerys Creek Precinct | Sub Arterial Road |
| Northern Gateway Precinct | |

Appendix C – Infrastructure Schedule

Aerotropolis Core Precinct

Table 25 - Aerotropolis Core Precinct Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Road Infrastructure			
Collector Road	\$231,867,720	\$357,096,615	First/Second
Local Road	\$16,104,890	\$4,720,275	First/Second
Open Space Edge Road	\$14,937,650	\$925,145	Second
Bridges & Culverts			
Collector Road Bridge	\$27,361,950	incl. in road reserve	First
Collector Road Culvert	\$595,200	incl. in road reserve	First/Second
Open Space Edge Road Culvert	\$90,675	incl. in road reserve	Second
Open Space Infrastructure			
Open Space	\$104,224,200	\$410,793,150	First/Second
Indicative Open Space	\$35,336,500	\$128,006,635	First/Second
Active Open Space (in Open Space)	\$9,020,375	incl. in open space	First/Second
Active Open Space (in Indicative Open Space)	\$1,874,125	incl. in open space	First/Second
Active Transport in Open Space	\$2,919,750	incl. in open space	First/Second
Social Infrastructure			
Childcare Centre	\$7,087,500	\$6,308,741	First/Second
District multi-purpose community hub	\$16,424,200	\$15,234,442	First/Second
Play space	\$7,200,000	incl. in open space	First/Second
Outdoor fitness stations	\$240,000	incl. in open space	First/Second
Youth precinct	\$9,000,000	\$4,673,142	First/Second
Water play (provided in district park)	\$4,800,000	incl. in open space	First/Second
Indoor Leisure Centre	\$20,940,000	\$14,019,425	First/Second
Total	\$510,024,735	\$941,777,570	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP

Badgerys Creek Precinct (Liverpool)

Table 26 - Badgerys Creek Precinct (Liverpool) Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Roads Infrastructure			
Collector Road	\$54,594,540	\$77,507,265	First
Local Road	\$3,351,540	\$931,525	First
Open Space Infrastructure			
Open Space	\$16,763,200	\$28,674,035	First
Indicative Open Space	\$4,064,800	\$14,573,000	First
Active Open Space (in Open Space)	\$0	incl. in open space	First
Active Open Space (in Indicative Open Space)	\$1,084,625	incl. in open space	First
Active Transport in Open Space	\$0	incl. in open space	First
Total			
	\$79,858,705	\$121,685,825	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP

Badgerys Creek Precinct (Penrith)

Table 27 - Badgerys Creek Precinct (Penrith) Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Roads Infrastructure			
Sub Arterial Road	\$1,981,000	\$3,301,500	First
Bridges & Culverts			
Collector Road Bridge	\$55,079,250	incl. in road reserve	First
Sub Arterial Road Bridge	\$48,302,100	incl. in road reserve	First
Open Space Infrastructure			
Indicative Open Space	\$2,311,900	\$11,559,500	First
Active Open Space (in Indicative Open Space)	\$969,750	incl. in open space	First
Total			
	\$108,644,000	\$14,861,000	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP

Agribusiness Precinct (Liverpool)

Table 28 - Agribusiness Precinct (Liverpool) Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Roads Infrastructure			
Sub Arterial Road	\$130,576,200	\$107,211,595	First/Second/Third
Bridges & Culverts			
Collector Road Bridge	\$14,450,900	incl. in road reserve	First/Second/Third
Collector Road Culvert	\$595,200	incl. in road reserve	First/Second/Third
Sub Arterial Road Culvert	\$776,000	incl. in road reserve	First/Second/Third
Open Space Infrastructure			
Open Space	\$49,395,800	\$105,221,520	First/Second/Third
Active Open Space (in Open Space)	\$540,875	incl. in open space	First/Second/Third
Active Transport in Open Space	\$4,472,190	incl. in open space	First/Second/Third
Social Infrastructure			
Childcare Centre	\$1,351,232	\$84,935	First/Second/Third
Branch Library	\$432,394	\$21,139	First/Second/Third
Three Netball Courts (to be provided on existing site)	\$480,000	\$-	First/Second/Third
Total	\$203,070,791	\$212,539,189	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP

Agribusiness Precinct (Penrith)

Table 29 - Agribusiness Precinct (Penrith) Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Roads Infrastructure			
Sub Arterial Road	\$52,694,600	\$48,743,535	Third
Bridges & Culverts			
Collector Road Culvert	\$833,280	incl. in road reserve	Third
Sub Arterial Road Culvert	\$1,164,000	incl. in road reserve	Third
Open Space Infrastructure			
Open Space	\$5,006,500	\$20,100,410	Third
Active Transport in Open Space	\$890,460	incl. in open space	Third
Social Infrastructure			
Childcare Centre	\$420,643	\$26,440	Third
Branch Library	\$134,606	\$6,581	Third
Total	\$61,144,089	\$68,876,966	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP

Northern Gateway Precinct

Table 30 - Northern Gateway Precinct Works Schedule

Infrastructure Works	Works Cost	Land Cost	Priority Area
Roads Infrastructure			
Sub Arterial Road	\$112,478,350	\$147,497,430	First/Second
Bridges & Culverts			
Collector Road Bridge	\$25,466,750	incl. in road reserve	First/Second
Collector Road Culvert	\$1,428,480	incl. in road reserve	First/Second
Sub Arterial Road Bridge	\$26,518,800	incl. in road reserve	First/Second
Sub Arterial Road Culvert	\$582,000	incl. in road reserve	First/Second
Open Space Infrastructure			
Open Space	\$82,850,300	\$158,948,815	First/Second
Active Transport in Open Space	\$4,160,580	incl. in open space	First/Second
Social Infrastructure			
Childcare Centre	\$3,720,938	\$354,375	First/Second
Branch Library	\$1,190,700	\$88,200	First/Second
Local Community Centre	\$623,700	\$46,200	First/Second
Local Cultural Facility	\$560,429	\$64,417	First/Second
Play space	\$6,600,000	incl. in open space	First/Second
Total	\$266,181,027	\$306,999,437	

*Note priority areas for infrastructure works are as per Figure 2 of the WSAPP