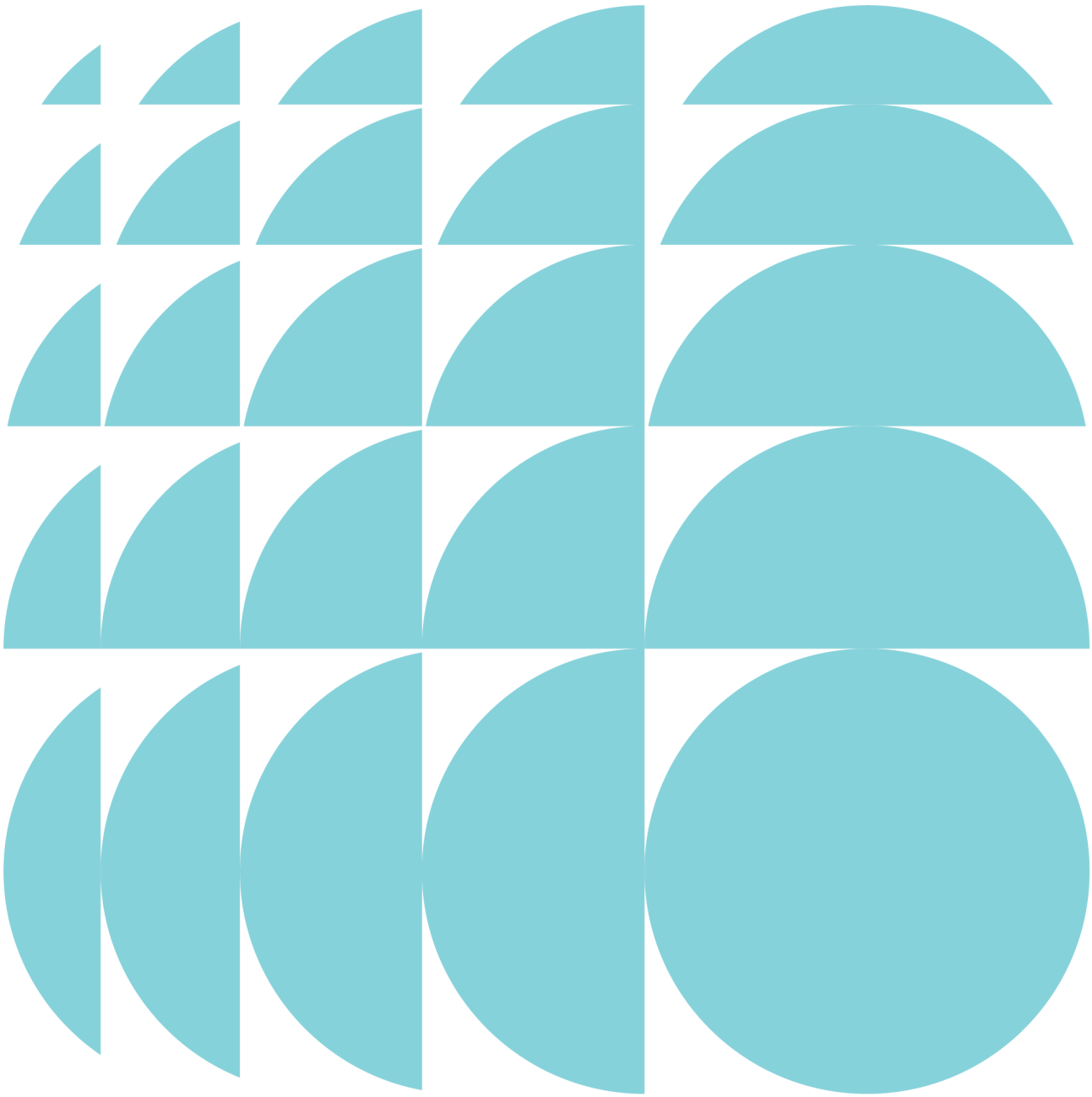
ETHOS URBAN

Public Exhibition Draft State Significant Precinct Study - Planning Report

Cherrybrook Station Government Land
State Significant Precinct

Prepared on behalf of Landcom & Sydney Metro

May 2022 | 2190510



CONTACT

Chris Bain	Director – Strategic Planning	office@ethosurban.com	(02) 9956 6962

This document has been prepared by:

Chris Bain May 2022

This document has been reviewed by:

Chris Bain May 2022

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Ethos Urban Pty Ltd
ABN 13 615 087 931.
www.ethosurban.com
173 Sussex Street, Sydney
NSW 2000 t 61 2 9956 6952

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Glossary

Abbreviation	Definition
1% AEP	Statistical flood event occurring once every 100 years
BASIX	Building Sustainability Index
Cherrybrook SSP	Cherrybrook State Significant Precinct
DCP	Development Control Plan
DGL	Developable Government Land
DPE	Department of Planning and Environment
ESD	Ecologically Sustainable Development
FSR	Floor Space Ratio
GFA	Gross Floor Area
GSC	Greater Sydney Commission
JTW	Journey to Work
LEP	Local Environmental Plan
LGA	Local Government Area
LSPS	Local Strategic Planning Statement
OEH	NSW Office of Environment and Heritage
SEPP	State Environmental Planning Policy
SR	Study Requirement
SSP	State Significant Precinct
SSP Study	State Significant Precinct Study
TfNSW	Transport for New South Wales
The Act	Environmental Planning and Assessment Act 1979
TOD	Transit Oriented Development
TTA	Traffic and Transport Assessment
WSUD	Water Sensitive Urban Design

Executive Summary

This document is a planning report that summarises the outcomes of a State Significant Precinct Study (SSP Study) undertaken pursuant to the 'State Significant Precincts Guideline' (Department of Planning, Industry and Environment (DPE), 2016) and the study requirements for land located at Bradfield Parade, Cherrybrook, known as the Cherrybrook Station Government Land State Significant Precinct (the State Significant Precinct). It has been prepared by Ethos Urban on behalf of Landcom and Sydney Metro as the landowner.

Landcom is proposing to amend the planning framework (called a "rezoning") for the State Significant Precinct to enable its development as a vibrant, mixed-use and transit-oriented local centre for the surrounding Cherrybrook and West Pennant Hills communities.

Under the proposed rezoning, the State Significant Precinct could include:

- a mix of uses including retail, residential, services and community space
- approximately 390 new homes in buildings up to five (5) storeys in height (when viewed from Bradfield Parade) to meet the needs of people with changing lifestyles and different income levels
- over 1 hectare of high-quality open space
- 1,300sqm of community facilities
- retail GFA, including the potential for a supermarket providing for the day to day convenience and lifestyle needs of residents
- potential for local office and other employment space
- new pedestrian and cycle paths
- a landscape character which reflects the surrounding area.

In 2019, the Minister for Planning and Public Spaces declared that the government-owned lands at Cherrybrook be a Nominated State Significant Precinct. This decision was made on the basis of it being of State or regional planning significance because of its social, economic or environmental characteristics, in particular due to its ability to increase the delivery of homes and jobs.

Subsequent to this declaration, Landcom commenced a State Significant Precinct Study (the SSP Study) to investigate a potential change to the planning controls applicable to the State Significant Precinct. The SSP Study has been undertaken in accordance with study requirements developed by DPE in collaboration with Hornsby Shire Council, The Hills Shire Council and other State government stakeholders, including Transport for NSW.

This study has considered a range of matters relevant to a rezoning, in particular, investigating the strategic and precinct specific merit. Strategic merit may be drawn from a multiple of considerations, such as:

- relevant plans and/or strategies in the Greater Sydney and district-level context
- a relevant local strategy that has been endorsed by DPE
- responding to a change in circumstances, such as the investment in new infrastructure or changing demographic trends that have not been recognized by existing planning controls.

The population of Greater Sydney is growing and changing. NSW Government forecasts predict that Greater Sydney will grow by approximately 100,000 persons each year between 2018 and 2036 to reach a population of 6.6 million. These forecasts also suggest that the proportion of older persons is forecast to substantially increase and the greatest growth in household type is in single-person households. Research also suggests that due to a number of factors, people are increasingly choosing to live in smaller, well-located dwellings. Housing statistics support this, with the proportion of people living in higher density living increasing to 60% of all dwellings in Greater Sydney. State government figures suggest that Greater Sydney needs to deliver an additional 30,000 new homes by 2036.

This growth and change requires the delivery of not only additional housing, but housing of the right type and mix.

To manage this growth, State and local government have prepared an integrated suite of strategic plans. This includes the Greater Sydney Region Plan – A Metropolis of Three Cities, the North District Plan and the Hornsby Local Strategic Planning Statement. These strategic plans seek to direct most new housing growth to established communities that are well served by high-quality public transport infrastructure. This spatial pattern of growth is more sustainable than many other forms and can help deliver the aspiration of a 30-minute city where people can access jobs, services and facilities within a 30-minute journey from their home. The next phase in planning for growth is to give effect to the intent of these strategic plans through amending the statutory planning framework.

Consistent with this strategic planning intent, precincts around Metro North West stations including locations such as Cherrybrook, Castle Hill and Rouse Hill have been identified for significant growth.

To leverage the city-shaping potential of the Metro North West, in 2013, DPE and TfNSW published the North West Rail Link Corridor Strategy. This included the Cherrybrook Station Structure Plan. Consistent with the purpose of the study requirements, this Structure Plan sought for the State Significant Precinct to develop as a mixed use local centre at the heart of a broader renewal precinct. Development of greater intensity and scale was envisaged. The intent of this Structure Plan was reflected in the Section 9.1 Ministerial direction under the Act for the North West Rail Link Corridor Strategy (Direction 5.9), which requires any planning proposal that applies to land located within the North West Rail Link Corridor to “promote the principles of transit-oriented development” and a number of other matters.

The investigations undertaken as part of this SSP study, which has included development of a comprehensive technical and design evidence base through a collaborative process, has shown that the State Significant Precinct has a number of precinct specific attributes that support its development in accordance with the intent of the Cherrybrook Station Structure Plan.

Strategically, the Cherrybrook Station SSP’s co-location with a metro station provides an important opportunity to deliver on transit-oriented development, which is acknowledged as a more sustainable development pattern and promoted under current, applicable strategic plans.

The State Significant Precinct is of a large size, is largely an “island” precinct surrounded by roads to the west, south and east, is in consolidated State government ownership and has an absence of significant constraints that can challenge delivery of high-quality density such as contamination. This represents a rare and valuable combination of assets that have the potential to optimise transit-oriented development and its associated benefits. This includes land use and transport integration that encourages more sustainable movement patterns, high quality open space and a greater amount and choice of housing.

Informed by these considerations, the SSP Study sought to develop an indicative concept proposal for an amended planning framework that was also derived from an iterative and collaborative design process consistent with the intent of NSW Government Architect guidance.

Studies were commissioned into a number of matters to provide the technical evidence base, and in particular address the key issues identified in the study requirements.

Key issues for consideration included:

- place making opportunities
- the potential for greater housing diversity
- connectivity to the surrounding area
- consideration of opportunities for green linkages.

Technical studies were commissioned to address key issues identified in the Study Requirements, which included transport and traffic, economics, housing and social infrastructure. The findings of these studies,

together with input from the community and stakeholders, were considered and synthesised as part of a design led process. The consequent vision for the Cherrybrook Station SSP was expressed as a desired outcome at the time of ultimate development. Landcom's vision for the Cherrybrook SSP is for:

> *"an inviting, welcoming place that provides a range of housing choices, open spaces for community activity, spaces for businesses and community facilities, and easy access to new metro services".*

This has been translated into the following vision:

> *"Cherrybrook Station Government Land State Significant Precinct is a liveable, transit oriented and mixed use local centre that has a strong sense of place, is compatible with the bushland character of the Hornsby Shire and is a destination of choice for the surrounding Cherrybrook and West Pennant Hills community".*

This vision is reflected in the proposed site-specific development control plan (design guide) (the design guide).

Key principles supporting the realisation of this vision include:

- the prevailing land use is higher density residential uses providing for greater housing choice
- non-residential uses support the metro station as an 'origin station', and include retail uses such as shops, restaurants and cafes that cater for the everyday needs of the local community and activate the public domain
- the public domain comprises an integrated network of open spaces, streets and pedestrian and cyclist paths and accommodates an urban forest that integrates buildings within a bushland setting
- a continuous corridor of publicly accessible open space connects the metro station pedestrian through the Cherrybrook Station SSP to adjoining land to the north
- an Environmental Space protects, enhances and celebrates the Blue Gum High Forest
- Bradfield Parade is the Cherrybrook Station SSP's main street, and is a vibrant place that accommodates a high quality public transport interchange, connecting metro, bus, taxis and commuter carpark users
- the public domain, including the open space and movement networks
- a multi-purpose community facility occupies a prominent part of the Cherrybrook Station SSP and facilitates community gathering, interaction and learning
- development manages the steep landform to ensure seamless public domain connections and a high level of engagement between the public and private domain
- the Cherrybrook Station SSP supports built form of scale, including buildings of up to five (5) storeys in height (when viewed from Bradfield Parade) with an opportunity for an additional storey at lower ground floor level to the north of the B4 zone
- building siting, layout and design reinforces the character of the Cherrybrook Station SSP, engages with the public domain, provides for a high level of residential amenity, complements the provision of the urban forest to the north and achieves architectural excellence.

The above vision and principles, as well as key findings of the technical studies, were used to inform development of the proposed amendments to the planning framework. The proposed amendments are to the Hornsby Local Environmental Plan 2013 (LEP 2013).

In addition, it is also proposed to establish a design guide to function in a role similar to that of a DCP for the precinct, in particular providing for more detailed design and amenity guidance.

The intent of the proposed amendments to the Hornsby LEP 2013 is to allow the making of subsequent development applications that seek to give effect to the strategic intent for the Cherrybrook Station SSP as a vibrant, mixed use and transit oriented local centre. Amendments will affect land use zoning, maximum

building height and maximum floor space ratio. Height of buildings has been subject to considerable discussion as part of the SSP Study process. Prior to Test of Adequacy, Landcom and Sydney Metro proposed a maximum height of 22m. However, as part of ToA, DPE requested that the 22m height be reduced to 20.5m (a height Landcom have previously suggested) to better reflect the mixed-use section of a 5 storey scheme. Consequent to this, Landcom and DPE have agreed to work on refining the Reference Scheme and supporting studies following public exhibition to ensure consistency with the proposed height control. As such, any reference in a supporting document to 22m, in particular the material appended to this SSP Study, should be read as 20.5m. It is noted that the inconsistency between the Reference Scheme and DPE's height control is minor and relates to a relatively small portion of the built form.

Consistent with the Cherrybrook Station SSP's public domain focus, amendments to the Hornsby LEP 2013 includes provisions requiring a minimum amount of open space within the Cherrybrook Station SSP. Development must also consider any design guidelines that apply to the site. This will provide finer grain guidance for future development applications, seeking to ensure high quality public domain and built form outcomes consistent with the intent for the Cherrybrook Station SSP.

Development applications will be assessed in detail by the consent authority against the amended planning framework prior to granting development consent. Importantly, as required under the Hornsby LEP 2013, development will be required to demonstrate design excellence. The assessment process allows for collaboration with State agencies and Hornsby Council, public exhibition to enable the community to be made aware of and provide comment on its proposals and the imposition of any relevant and reasonable conditions to mitigate impact.

The SSP Study has assessed the consistency of the proposal against the Act, relevant strategic plans and the aims and objectives of key environmental planning instruments. It is considered that it either promotes or meets the intent of all relevant strategic plans, in particular:

- clause 1.3 of the Act by facilitating ecologically sustainable development in the form of transit oriented development and promoting good design and amenity of the built environment through a well-considered, appropriate design and planning response to the place attributes of the Cherrybrook Station SSP and its context
- promoting objective 14 of the Greater Sydney Region Plan by integrating land use and transport to create a compact, walkable urban form that contributes to a 30 minute city
- promoting planning priority N5 of the North District Plan by providing greater housing supply and choice, including smaller homes to support affordability, in a new local centre next to a metro station
- promoting planning priority N6 of the Hornsby LSPS by creating a great place that delivers new, high quality public domain and a vibrant local centre with retail options
- promoting local priority LP2 of the Hornsby LSPS by providing housing in the right locations, in this case co-located with a metro station
- promoting local priority LP3 of the Hornsby LSPS by providing the potential for a new multi-purpose community facility that meets the needs of the broader Cherrybrook and West Pennant Hills communities
- promoting local priority SP1 of the Hornsby LSPS by protecting areas of high biological importance in the form of Blue Gum High Forest
- promoting local priority SP6 of the Hornsby LSPS by providing for urban forest outcomes, including greater tree canopy, through extensive areas capable of accommodating deep soil.

In summary, the SSP Study has found that renewal of the Cherrybrook Station SSP in accordance with the proposed amendments to the planning framework is justified on strategic and site specific grounds taking into consideration the study requirements, including relevant parts of the planning framework. In particular, it:

- provides for a greater amount and choice of new homes in an accessible and high amenity setting
- transforms vacant, underutilised land into a mixed-use and transit oriented local centre that supports the function of the metro station and the needs of the surrounding Cherrybrook and West Pennant Hills communities

- delivers public benefit through high quality new public domain, including a vibrant, community focussed community open space, potential for a new multi purpose community facility and increasing the amount and choice of new homes, enabling greater opportunities for the aging population and more affordable housing options
- promotes easier, safer and more attractive pedestrian connections to the metro station, with provision for connectivity to the broader Cherrybrook Station precinct in the future
- will be compatible with the bushland character of the surrounding areas, and will include measures to ensure acceptable impact on surrounding land
- will have a distinct place character derived from consideration of its unique opportunities.

1.0 Introduction

1.1 What is this document?

This document is a planning report that summarises the outcomes of a State Significant Precinct Study (SSP Study) undertaken pursuant to the 'State Significant Precincts Guideline' (Department of Planning, Industry and Environment, 2016) (DPE) and the study requirements for land located at Bradfield Parade, Cherrybrook, known as the Cherrybrook Station Government Land State Significant Precinct (Cherrybrook Station SSP).

For the purposes of this document, it will be referred to the State Significant Precinct study (SSP Study).

1.2 Why has this SSP Study been prepared?

In accordance with the study requirements, the purpose of this SSP Study has been to undertake planning investigations for the nominated State Significant Precinct to address the following objectives:

- facilitate a mixed-use local centre at Cherrybrook Station that supports the function of the station and the needs of the local community
- deliver public benefit through a mixed use local centre
- deliver transport and movement initiatives and benefits
- demonstrate the suitability of the site for the proposed land uses
- integrate the plans for the mixed use local centre for the government land with the surrounding precinct
- prepare a new planning framework for the site to achieve the above objectives.

1.3 Who has prepared this SSP Study

This SSP Study has been prepared by Ethos Urban on behalf of Landcom and Sydney Metro as the landowner.

1.4 How will this SSP Study be used?

In accordance with the '*State Significant Precincts Guideline*' (DPE, 2016), this SSP Study will be used to inform the Planning Minister's determination on the suitability of the proposed planning framework for the Cherrybrook Station SSP.

1.5 Structure of this SSP Study

The structure of this SSP Study is as follows:

- **Section 1** – Introduction: Outlines the purpose of this SSP Study for the Cherrybrook State Significant Precinct
- **Section 2** – The Cherrybrook Station Government Land State Significant Precinct: Describes the site and surrounds
- **Section 3** – Background: Describes the history of Sydney Metro and historical planning investigations into the site and surrounds
- **Section 4** – Community and stakeholder engagement: Discusses the community and stakeholder engagement process undertaken which informs the SSP Study
- **Section 5** – The existing planning framework: Outlines the existing planning framework affecting the site and surrounds
- **Section 6** – The Reference Scheme: Describes the Reference Scheme developed by SJB
- **Section 7** – The proposed planning framework: Outlines the proposed amendments to planning controls sought as a result of this SSP Study and supported by the Reference Scheme

- **Section 8** – Address of Study Requirements: Addresses the Study Requirements issued by DPE in May 2020 for the State Significant Precinct.
- **Section 9** – Conclusion: Outlines future actions to be taken prior to the adoption of amended planning controls.

1.6 Scope of this document

In accordance with the study requirements, the scope of this SSP Study is to consider the following matters:

- State or regional planning significance of the site
- suitability of the site for any proposed land use, and the intensity of any use; taking into consideration the public domain, transport, heritage, arts and culture, environmental, social, health, education, economic and urban design factors, the principles of ecological sustainable development and any State, regional or local planning strategy, policy or plan
- implications of any proposed land use for infrastructure and service delivery
- the integration of the SSP with and its relationship with the surrounding precinct
- means by which developer contributions should be secured for the site
- recommended land uses and development controls for the site
- staging strategy for the government-owned lands
- determine the Place Agenda for the Government land and how to achieve the proposal, including the considerations of the District Plan and Local Strategic Planning Statements (DPE, 2020).

The SSP Study has been prepared having regard to this scope, and in particular the following relevant legislation and guidelines:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- 'State Significant Precincts Guideline' (DPE, 2016).

2.0 The Cherrybrook Station Government Land State Significant Precinct

2.1 Cherrybrook Station Government Land State Significant Precinct

The State Significant Precinct comprises the Cherrybrook Station, commuter carpark, station access road (Bradfield Parade) and vacant land to the east of the station (referred to as the Developable Government Land) (DGL). It is bound by Castle Hill Road (south), Franklin Road (south east) and Robert Road (north west) (refer **Figure 1**). This land is the subject of this SSP Study.

The Cherrybrook Station SSP comprises four (4) sites, including:

- 2 Bradfield Parade, Cherrybrook (Lot 30 DP1253104)
- 4 Bradfield Parade, Cherrybrook (Lot 31 DP1253104)
- 6 Bradfield Parade, Cherrybrook (Lot 32 DP1253104)
- 1-19 Bradfield Parade, Cherrybrook (Lot 33 DP1253104).

The Cherrybrook Station SSP is wholly contained in the Hornsby local government area (LGA). **Figure 1** and **Figure 2** provide photos of the Cherrybrook Station SSP.

Figure 1 The Cherrybrook Station Government Land State Significant Precinct

Source: Ethos Urban & Nearmap

Figure 2 Bradfield Parade and Cherrybrook Station

Source: Ethos Urban

2.2 Adjoining and adjacent land

Adjoining and adjacent land (as shown on **Figure 3**) can be broadly described as follows:

- **North**: comprises two single street residential estates (Oliver Way and Kayla Way) that have two storey, detached houses surrounded by landscaped grounds (including perimeter trees) arranged around narrow access roads that resemble private courts as well as a large lot comprising a stand of Blue Gum High Forest. Of note, the residential areas do not include fencing separating each dwelling
- **South**: comprises Castle Hill Road, which is a wide, heavily trafficked main road, with single and double storey detached houses surrounded by landscaped grounds on its southern side setback substantial distances from the road reserve. Two heritage items are also in this segment of Castle Hill Road
- **East**: Franklin Road, which is a narrow, well trafficked road, with the grounds of the Inala School on its eastern side
- **West**: Robert Road, with conventional, one and two storey detached houses surrounded by landscaped grounds.

North (Kayla Way)

South (Castle Hill Road)

East (Franklin Road)

West (Robert Road)

Figure 3 Adjoining land

Source: Ethos Urban

2.3 Cherrybrook Station Precinct

The Cherrybrook Station Precinct covers the broader area around Cherrybrook Station consistent with the Cherrybrook Station Structure Plan (DPE & TfNSW, 2013) (refer to **Figure 4**). While considered where relevant as part of this SSP Study, no amendments to the planning framework outside of the State Significant Precinct are proposed as part of this SSP Study. Any potential changes to the planning framework for the broader Cherrybrook Station Precinct would be subject to a separate planning process.

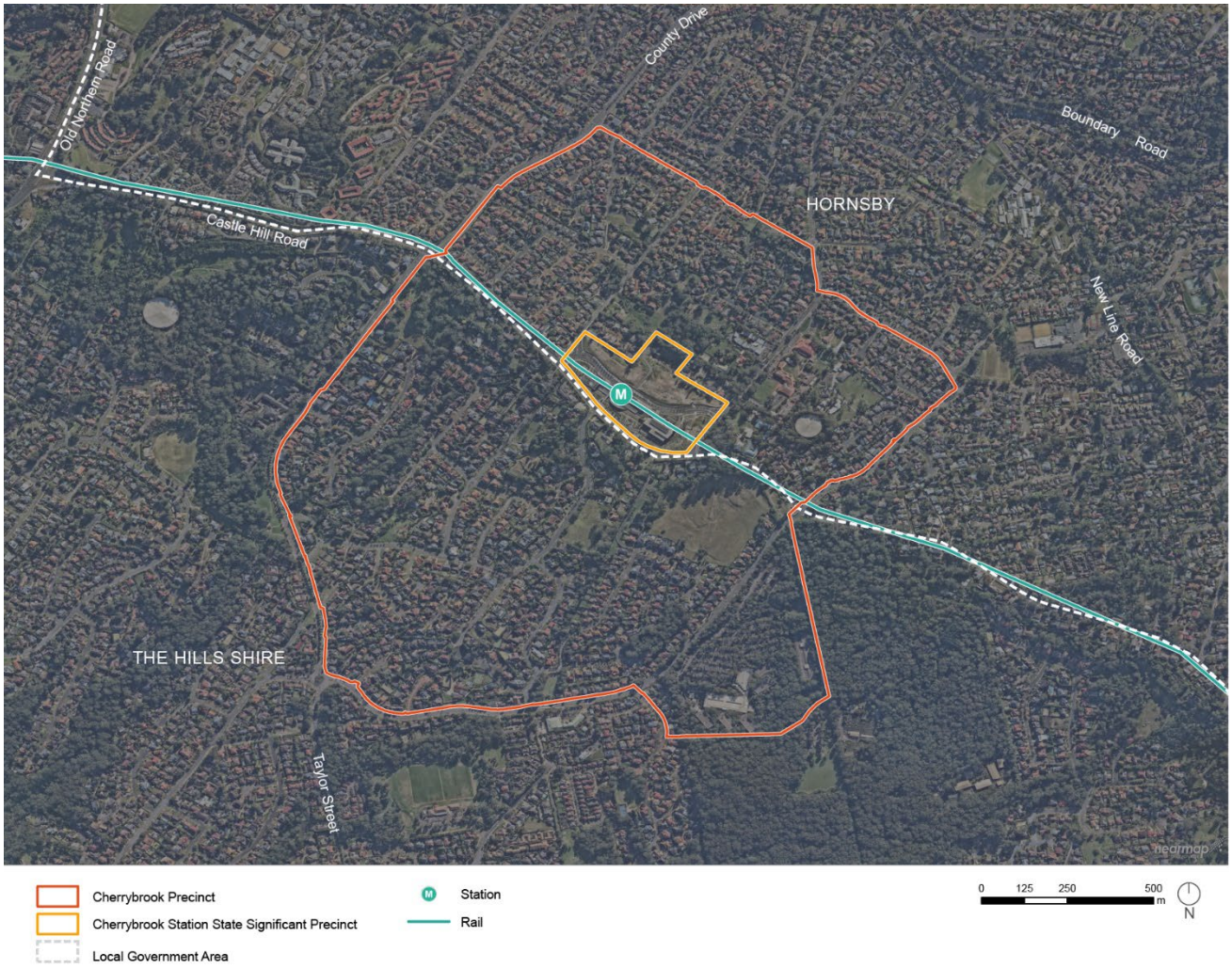

Figure 4 Cherrybrook Station Government Land SSP and the Cherrybrook Station Precinct

Source: NSW Department of Planning, Industry and Environment

Prevailing characteristics of the Cherrybrook Station Precinct include:

- an undulating landform comprising small valleys, ridges and hills (refer **Figure 5**)
- a largely disconnected, narrow cul-de-sac dominated road network with reliance on a small number of roads such as Robert Road, Franklin Road and John Road to provide for higher order movement functions (refer **Figure 6**)
- proximity to a large number of smaller public open spaces mainly catering for outdoor passive recreation, however a large proportion of open spaces are privately owned which provide some visual amenity to local residents, but little public benefit. (refer **Figure 7**)
- an extensive public transport network in general, with opportunities to better integrate with the metro station. (refer **Figure 8**)
- comprehensive suburban residential subdivision, however a number of larger lots both north and south of the Cherrybrook Station SSP
- consistent with much of the Hornsby LGA, Cherrybrook and West Pennant Hills, a prevailing established, low-density residential land use pattern with few local centres in walking distance of most homes.

Within this general pattern there is a number of distinct, notable elements:

- a distinct, east-west ridgeline that delineates the visual catchment into two parts – one generally being north of Castle Hill Road and one to the south of Castle Hill Road
- Castle Hill Road as a wide, heavily trafficked east-west road that as noted demarcates this prominent ridgeline
- a contiguous corridor of larger lots to the immediate north of the Cherrybrook Station SSP (likely remnant from earlier subdivision) connecting Robert Road to the west of Franklin Road to the north
- a number of larger built forms, including the metro station and its associated infrastructure such as the multi-storey commuter carpark, the Tangara School for Girls, Inala School and the Dulkara Centre for Life Skills and the Arts
- high voltage electricity lines and supporting pylons.

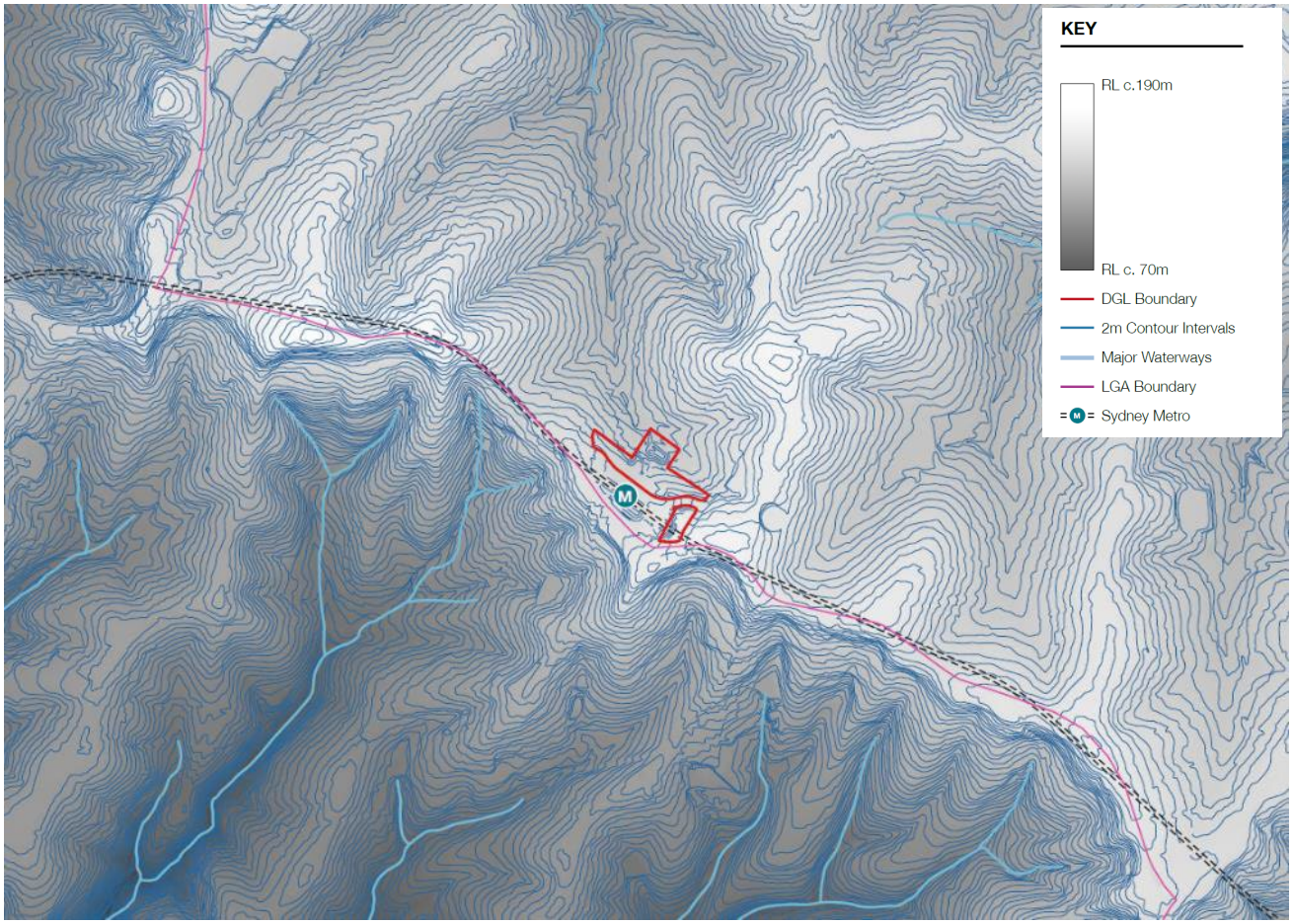

Figure 5 Surrounding landform

Source: SJB

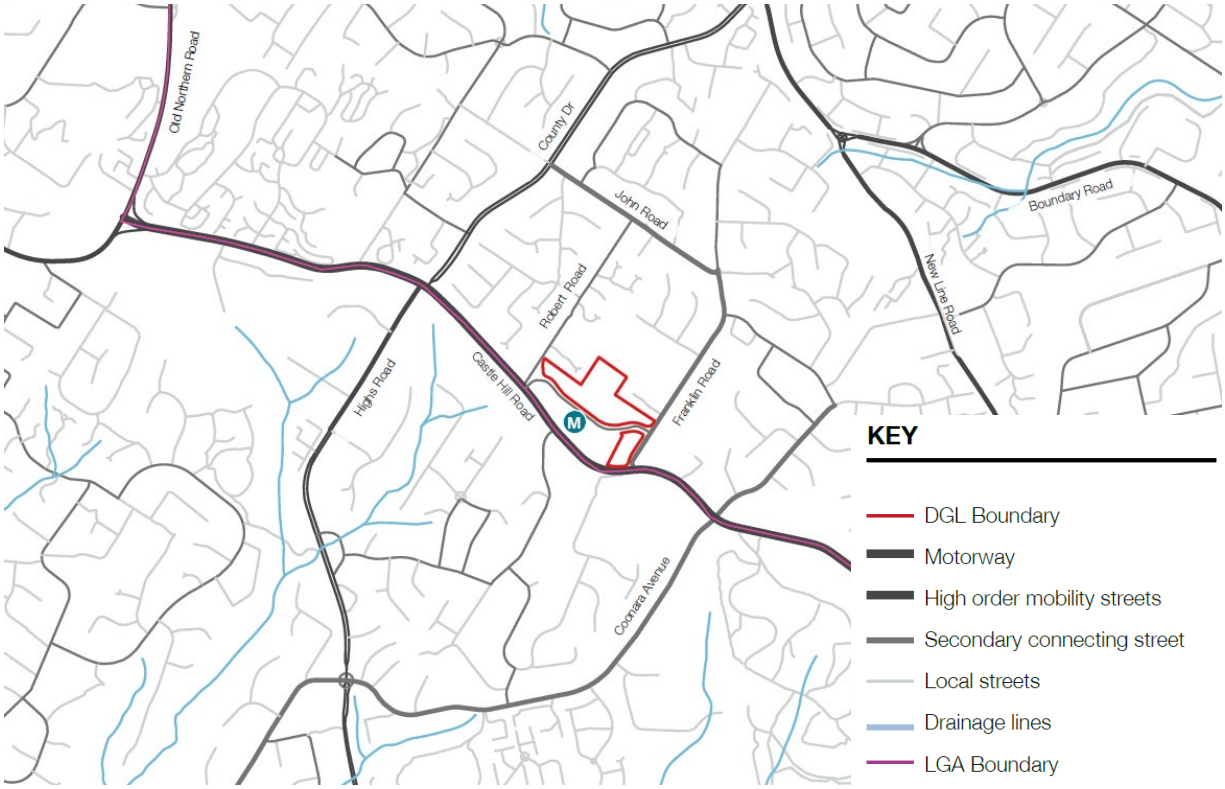

Figure 6 The surrounding road network

Source: SJB

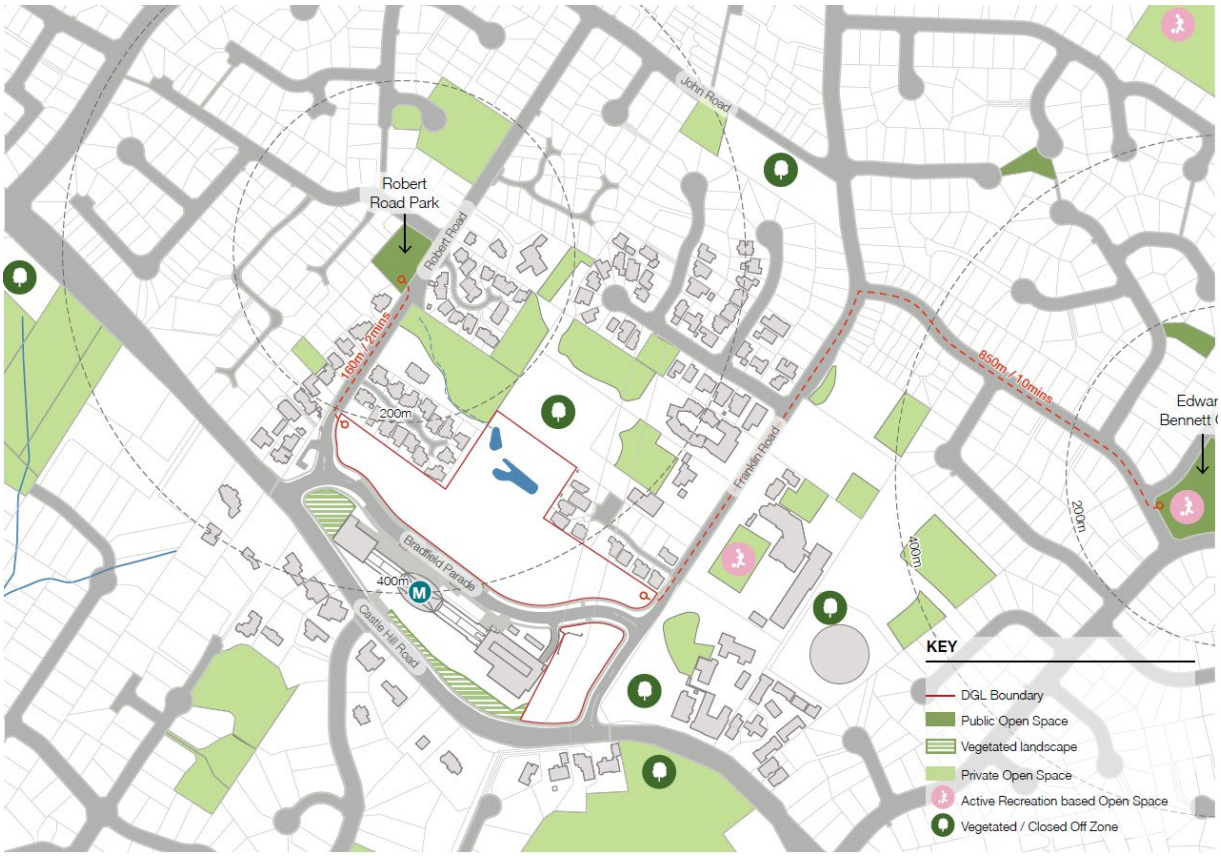

Figure 7 The surrounding open space network

Source: SJB

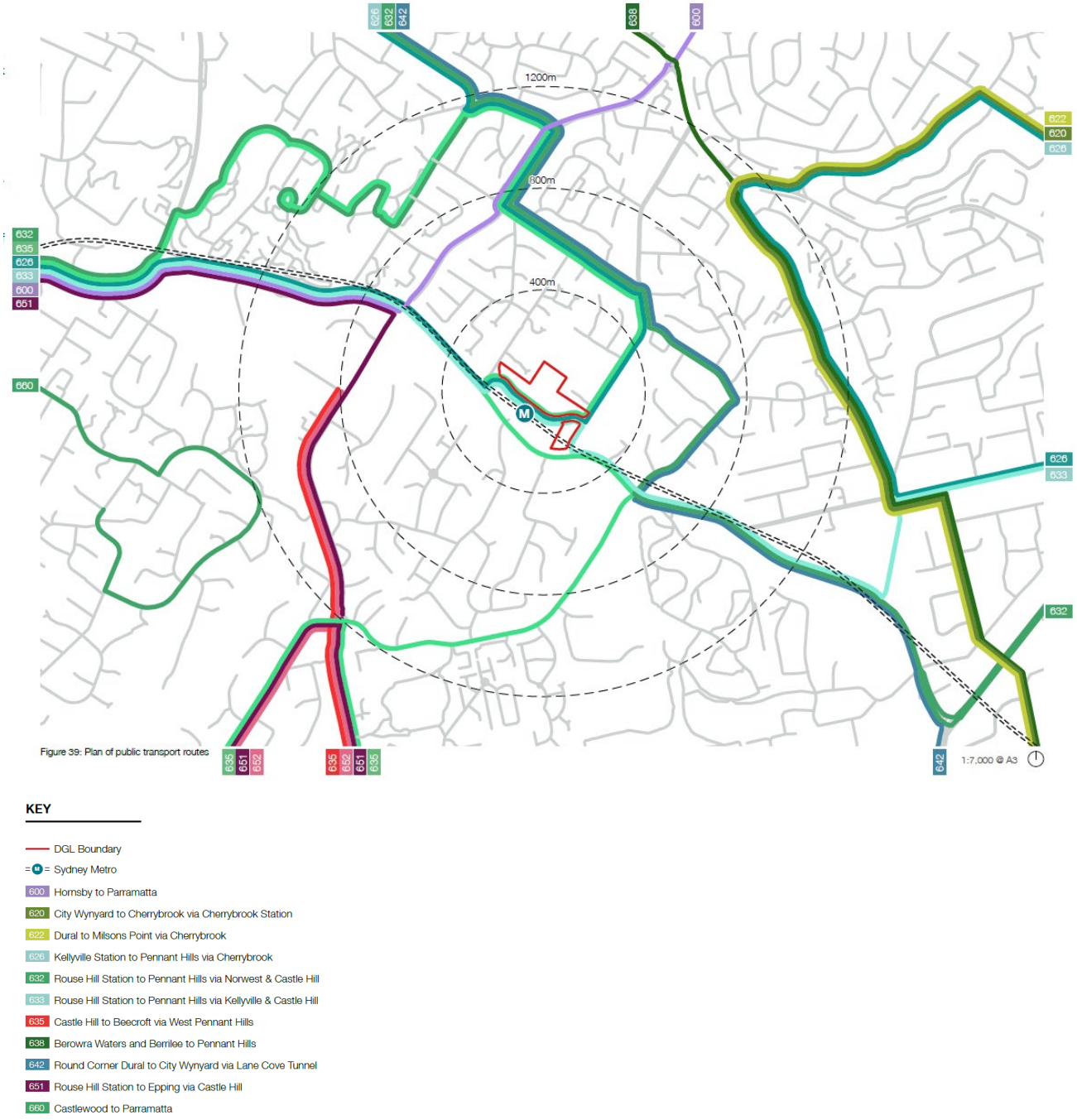

Figure 8 The surrounding public transport network

Source: SJB

3.0 Background

Sydney is growing and changing. According to DPE forecasts (2019), our population will grow to approximately 6.6 million residents in 2036. Our population is also expected to be older and include a greater proportion of lone person households. This pattern is reflected in the Hornsby LGA. DPE forecasts suggest that for the LGA:

- the population will grow from 149,650 in 2016 to 178,100 in 2036
- average household size will decrease from 2.92 in 2016 to 2.72 in 2041
- the greatest percentage increases will be in those aged 45 years and over, with the most substantial percentage increase being in those aged 75 years and over
- the greatest percentage increase in households will be lone person households.

Across Sydney, this translates to a demand for a further 725,000 new homes by 2036, and 14,450 dwellings in the Hornsby LGA. Driven by demographics as well as other matters such as convenience and affordability, a large part of this demand is expected to be for higher density forms of living such as apartments.

3.1 Sydney Metro Network

To manage this growth and change, State and local government have prepared a suite of strategic and statutory plans. These plans seek to direct most growth towards established communities, and in particular in accessible locations serviced by mass transit and within or close to facilities and services within centres. Supporting this growth and change is Sydney Metro. The first stage, Metro North West, commenced operation in May 2019 and services 13 stations stretching from Chatswood to Tallawong, including Cherrybrook Station.

Sydney Metro is Australia's biggest public transport project. From the northwest, metro rail is being extended under Sydney Harbour, through new underground city stations and beyond to the south west. In 2024, Sydney will have 31 metro stations and a 66 kilometre of metro rail system.

The city shaping potential of Metro North West provided the catalyst for State and local government investigations into the future of Cherrybrook.

Construction has also commenced on Sydney Metro West, which will connect the Sydney CBD with Parramatta. Sydney Metro West is a new underground railway between Greater Parramatta and Sydney. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and unlocking housing supply and employment growth between the two CBDs.

Sydney Metro West will service key precincts, with stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and the Sydney CBD.

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. The Australian and NSW governments are jointly delivering this new railway, to open at the same time as the airport.

A map showing the future Sydney Metro network is provided below in **Figure 9**.

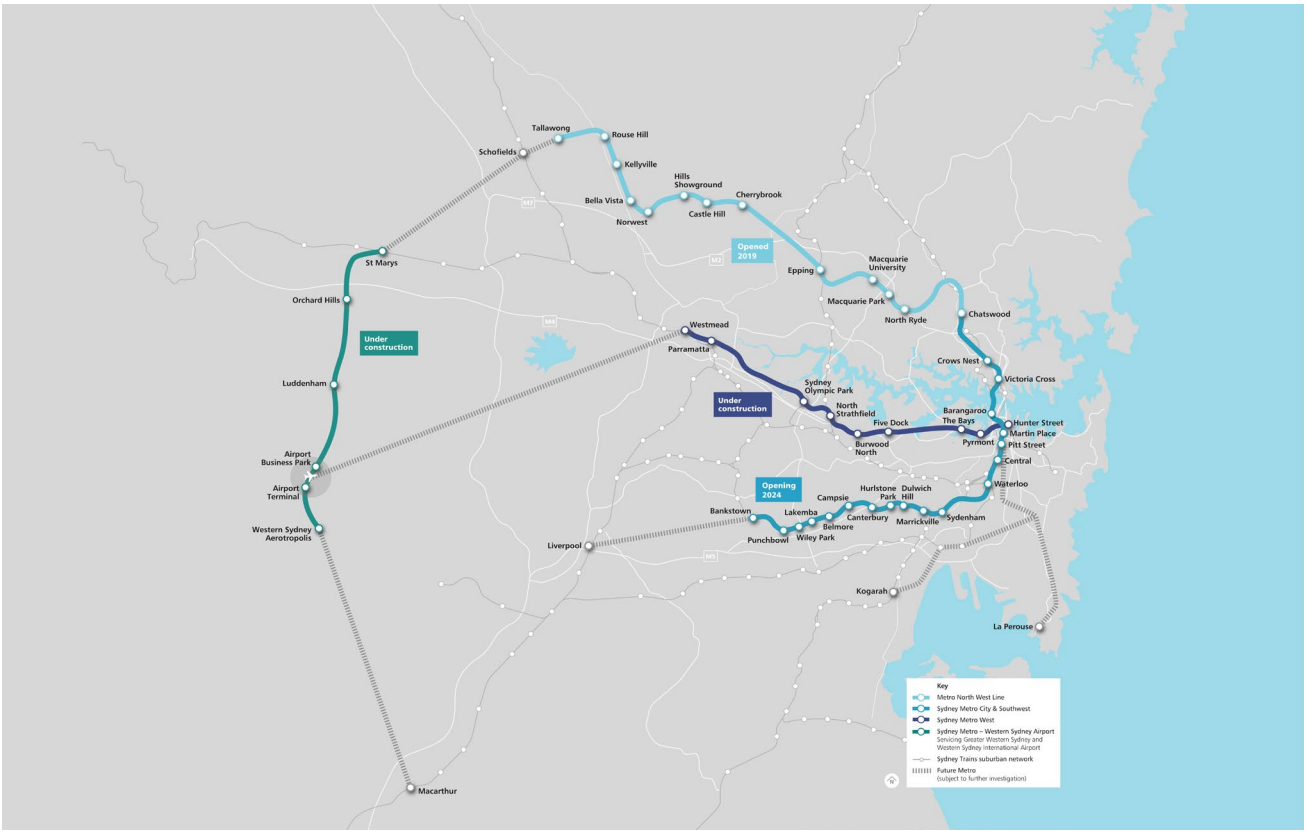

Figure 9 Sydney Metro Network

Source: Sydney Metro

3.2 Previous planning

Planning work has previously been undertaken for Cherrybrook. This included:

- the North West Rail Link Corridor Strategy and the Cherrybrook Structure Plan (DPE & TfNSW, 2013)
- Other investigations and proposals.

These documents confirm a strategic intent to deliver a transit-oriented precinct that promotes land use and public transport integration and a number of other higher order State government strategic planning policy.

3.2.1 North West Rail Link Corridor Strategy 2013

In 2013, the North West Rail Link Corridor Strategy was released to outline a vision for how areas surrounding the Metro North West stations could be developed to integrate this priority infrastructure project with new homes and jobs. The strategy includes a structure plan for each of the eight new train station precincts, including for Cherrybrook. The Cherrybrook Structure Plan seeks to enable the transformation of the Cherrybrook Station SSP in accordance with the principles of transit-oriented development. Under the Structure Plan a number of measures are identified, including:

- mix of local retail and residential uses to provide activation within the station and interchange areas
- complement the character of the local area and carefully designed to integrate into the surrounding streetscape
- gateway or entry demarcation points are proposed at entry points to the Study Area along Castle Hill Road and Highs Road, as well as the intersection of Castle Hill Road and Franklin Road
- graduation of height

- provision of an additional urban plaza, a recreational park and open spaces
- protection of existing green spaces within the Study Area which form part of the Cherrybrook identity, such as the Blue Gum High Forest
- Inala and Tangara schools are identified as significant sites suitable for redevelopment for low-medium residential uses
- upgrading of the streetscapes in and around the proposed station precinct.

Figure 10 shows the Structure Plan, and **Figure 11** provides an indication of the envisaged built form.

It is clear that the North West Rail Link Corridor Strategy seek the transformation of the area, creating a new character of greater intensity and scale. Both the strategy and plan are given a level of statutory effect by the Section 9.1 Directions - 5.9 North West Rail Link Corridor Strategy, increasing the likelihood of their realisation. It is also understood that DPE is seeking to provide further impetus for its realisation through the Cherrybrook Station Precinct Place Strategy (discussed further below).

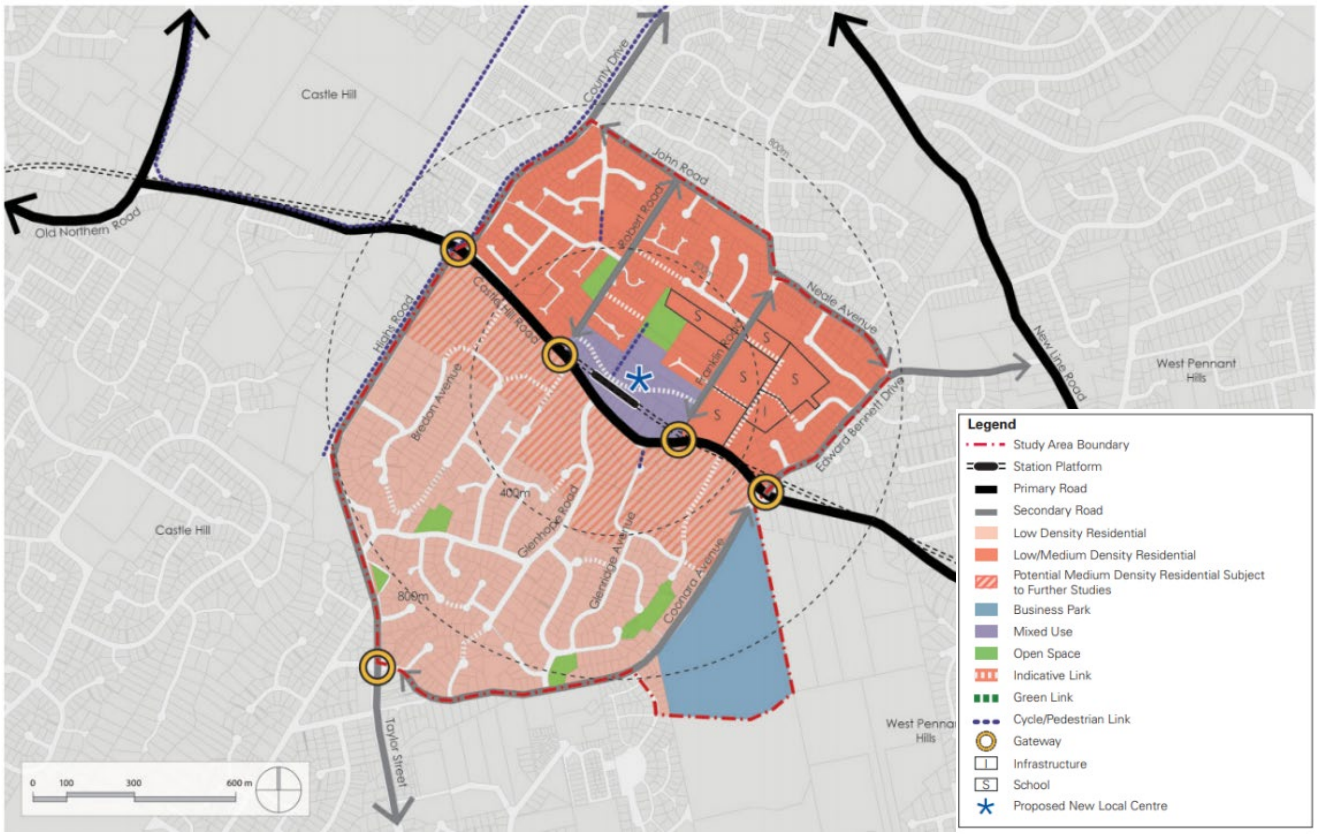

Figure 10 The Cherrybrook Structure Plan

Source: NSW Department of Planning, Industry and Environment

Figure 11 Indicative built scale under the Cherrybrook Structure Plan

Source: NSW Department of Planning, Industry and Environment

Cherrybrook Station Precinct Draft Place Strategy

It is noted that DPE is concurrently preparing a 'draft Place Strategy' for the Cherrybrook Station Precinct (as outlined in the 2013 Cherrybrook Station Structure Plan shown at **Figure 10** . The intent of the Cherrybrook Station Precinct Place Strategy is to provide further detail to guide the planning, infrastructure needs and implementation of the 2013 Cherrybrook Structure Plan.

Critically, unlike for the Cherrybrook Station Government Land State Significant Precinct, the Cherrybrook Station Precinct Place Strategy will not amend the existing planning framework for the Cherrybrook Station Precinct. Rather, the Cherrybrook Station Precinct Place Strategy will inform future rezoning proposals for the land in the broader precinct, whether Council or privately led.

The community will have its say on the draft Place Strategy when it goes on exhibition. Notwithstanding this, any future proposed rezoning of private land in the broader precinct whether privately led or by Council would also require additional and separate consultation with the community.

3.2.2 Other investigations and proposals

Since the release of the Cherrybrook Structure Plan in 2013, a number of proposals have been prepared for the broader Cherrybrook area. This has included:

- the Cherrybrook Village planning proposal which sought that the planning framework in The Hills LGA part of Cherrybrook (south of Castle Hill Road) to be amended to facilitate around 3,800 dwellings in buildings up to 21 storeys in height and FSR up to 5:1
- The Hills Council's Cherrybrook masterplan focused on lands south of Castle Hill Road which supported around 1,230 dwellings in buildings up to 8 storeys in height and a maximum floor space ratio up to 2:1 (refer to **Figure 12**)
- the Coonara Avenue planning proposal for land located 860m to the south-west of the metro station that sought, and has been approved for, an amendment to the planning framework for 600 dwellings in buildings up to 22m in height.

The approval of planning proposal to allow for buildings up to 22m in height Coonara Avenue (a site 860m away from the metro station), further supports the merit of optimising the capacity of the Cherrybrook SSP to deliver transit-oriented development.

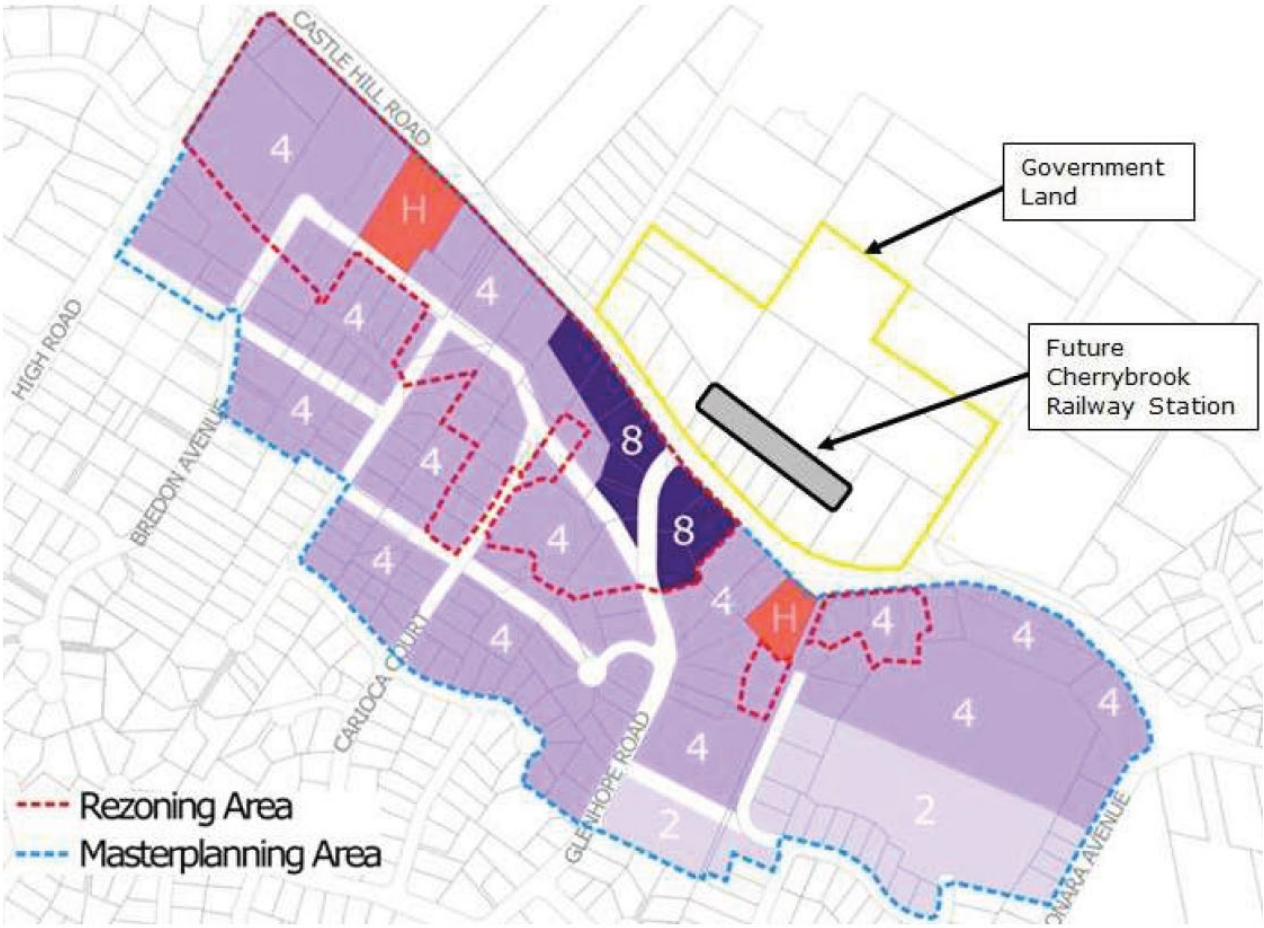

Figure 12 The Hills Shire Council masterplan (2015)

Source: The Hills Shire Council

4.0 Community and stakeholder engagement

Community and stakeholder engagement has been critical in shaping the Reference Scheme and proposed amendments to the planning framework, as part of this SSP Study. Community and stakeholder engagement is also required to address the following Study Requirements which relate to community and stakeholder engagement, provided by DPE in May 2020.

Study Requirement 21.1

Outline the proposed community consultation strategy to undertake an appropriate and justified level of consultation (in addition to the formal public exhibition) on the proposal with an emphasis on consultation in the initial stage/s particularly with the community, landowners, Hornsby Shire Council, The Hills Shire Council, other relevant State and Federal government agencies, local Aboriginal community. Councils should have a high level of involvement throughout the process.

Study Requirement 21.2

Provide a summary of the outcomes of early community and stakeholder consultation, including examples, and how the outcomes including previous consultation have been incorporated into the proposal.

Targeted and opt-in consultation activities were used to gather stakeholder and community feedback from the general Cherrybrook community, Aboriginal community representatives including Aboriginal Land Councils and Government stakeholders at both State and local level.

Community consultation

Targeted activities included approaching a range of stakeholder groups, community census-representative research and the recruitment of a community census-representative group to provide feedback on the proposal.

Opt-in consultation activities have enabled community members to provide their feedback through a survey identical to that completed by targeted community members, and similar engagement activities to those undertaken by the targeted online participant group. These activities were voluntary and allowed anyone who wanted to give feedback on the proposal an opportunity to do so in a variety of ways.

In addition, there has been ongoing communication about the consultation process through the project webpage, electronic direct mail, local community group emails, social media and letter box drop.

Notably, Landcom undertook community and stakeholder engagement between 24 July 2020 and 27 September 2020. This included:

- delivery of flyers to 2,100 properties in Cherrybrook and West Pennant Hills
- posting social media announcements on Facebook, Instagram and LinkedIn
- sending an update to people who have registered interest in the project
- emailing 72 Cherrybrook community groups, service providers and businesses
- sending a media announcement to the Northern District Times
- advising the local Member of Parliament and the Hornsby Shire Council Mayor and General Manager on the community consultation process.

Furthermore, consultation activities were undertaken to draw out ideas and aspirations from the community, including:

- updated information about the project on Landcom's website
- a publicly available online survey between 24 July and 6 September 2020

- that same survey conducted over the telephone by an independent research company, aimed at collecting the opinions of locals within three defined age groups (18-39, 40-59 and 60+ years) with roughly equal representation of each group
- an online feedback form open between 24 July 2020 to 27 September 2020
- meetings with seven Cherrybrook community groups
- an online community 'incubator' workshop held between 27 - 30 August 2020 with a follow up video conference held on 7 September 2020
- an online 'coffee table format' conversation booklet, which closed on 27 September 2020.

A Consultation Outcomes Summary Report has been prepared to present the consultation process undertaken for the proposal (refer to **Appendix U**).

Previous targeted stakeholders include Cherrybrook local residents, Hornsby Shire Council, The Hills Shire Council, businesses and community groups, with identified issues including the retention of natural amenity, impacts on traffic and parking, visual impact of high rise built form and consideration for open space and community areas as part of future development. These have largely been addressed by limiting heights up to 5 storeys when viewed from Bradfield Parade and providing extensive landscaped public domain areas throughout the site and significant increase of tree canopy.

Common themes raised during the consultation period were:

- **Cherrybrook character** - the importance of maintaining the existing green, leafy character of Cherrybrook and community feel was a strong issue
- **Building heights** - most people suggested buildings heights should be limited to between two and six storeys, with a few suggestions that more than eight storeys were preferred
- **Housing supply** - community members provided feedback on the amount of housing proposed, the style of housing and the provision of affordable housing
- **Transport and parking** - community feedback pointed to the importance of including improvements to roads and parking in planning for the SSP
- **Schools** - community members largely spoke positively of schools around Cherrybrook
- **Retail and commercial** - most community members suggested that an improved retail and commercial offer would be beneficial, but differed on the nature of the retail and commercial offer and specific options
- **Environment** - protection of the native Blue Gum High Forest was a key consideration for community, as was preservation of the leafy, green look and feel of the suburb
- **Open space and community space** - community members were supportive of additional open and community space in Cherrybrook.

Aboriginal community consultation

Consultation with Aboriginal community representatives was previously carried out in 2016 by Artefact, as part of the heritage assessment. The following Aboriginal groups were invited to take part in site survey and provide recommendations regarding the cultural heritage values of the wider precinct that includes the Cherrybrook Station SSP:

- Metropolitan Local Aboriginal Land Council (MLALC)
- Deerubbin Local Aboriginal Land Council (DLALC)
- Darug Custodian Aboriginal Corporation (DCAC)
- Darug Aboriginal Cultural Heritage Assessments (DACHA)
- Darug Tribal Aboriginal Corporation (DTAC)
- Bidjigal Reserve Trust (BRT)

- Guringai Tribal Link Aboriginal Corporation (GTLAC)
- Northwest Aboriginal Development Association (NADA).

Representatives from GTLAC and NADA were unable to attend the survey.

Based on this survey carried out in 2016, no areas of Aboriginal cultural heritage significance were noted as the site was already a cleared and graded construction zone by the time survey took place. General feedback was provided that cumulative impacts to the once open cultural landscape were a primary concern and a main source of heritage value loss, and that retention of open space in the development would contribute towards mitigating this loss.

Furthermore, additional consultation was carried out with the Hornsby Aboriginal and Torres Strait Islander Consultative Committee (HATSICC). They identified wider cultural values associated with the SSP area, which triggered a requirement for formal consultation. This was carried out in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), commencing on 25 September 2020 and completed on 23 November 2020. Full consultation details are contained in Section 5 of the Aboriginal Cultural Heritage Assessment Report (ACHAR) (refer to **Appendix V**).

Government stakeholder consultation

Landcom has engaged with a range of government stakeholders, briefing them on the proposal and technical assessments, and addressing their feedback on the Reference Scheme. Stakeholders engaged, as required by the study requirements, include:

- Department of Planning and Environment (DPE)
- Hornsby Shire Council (HSC)
- The Hills Shire Council (THSC)
- Transport for NSW (TfNSW)
- Department of Education (DoE)
- Landcom Design Review Panel (DRP) (former Design Advisory Panel (DAP)).

As part of the SSP Study process, a Project Working Group (PWG) was set up to establish a collaborative working arrangement between DPE, HSC, THSC and TfNSW to guide the planning investigations for the Cherrybrook Station SSP. The role of the PWG is guided by a terms of reference , issued by DPE. As part of their role, the PWG has reviewed and provided comments on materials submitted by Landcom, including deliverables for key stages of the SSP process. The PWG met nine times during the preparation of the SSP Study, including a final presentation of the Reference Scheme and planning framework for feedback.

Detailed responses to the advice received from the community and stakeholders is provided in the Consultation Outcomes Summary Report (refer to **Appendix U**) prepared by Landcom.

5.0 The existing planning framework

This section outlines the existing strategic and statutory planning framework within both State and local contexts which has informed the development of the Reference Scheme for the Cherrybrook SSP.

Study Requirement 1.2
Outline the strategic planning context for the proposal including an assessment of relevant State planning documents, State Environmental Planning Policies and consideration of local planning documents, including Hornsby Local Environmental Plan 2013

5.1 The strategic planning framework

5.1.1 Greater Sydney Region Plan – A Metropolis of Three Cities

The Greater Sydney Region Plan – A Metropolis of Three Cities' (the Region Plan) 'sets a 40-year vision and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters'. The vision for the future of Sydney is 'three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places' (GSC, 2018).

The three cities set by the Region Plan are the Western Parkland City, the Central River City and the Eastern River City (refer **Figure 13**). The Cherrybrook Station SSP, including Cherrybrook, West Pennant Hills and surrounding land, is included in the Central River City. The Region Plan includes a Structure Plan that provides an outline of the desired spatial arrangement of Greater Sydney (refer **Figure 14**), which specifically identifies:

- the Cherrybrook Station SSP is aligned with a committed train link (Metro North West)
- the Cherrybrook Station SSP being designated for transit oriented development.

To give effect to the vision consistent with Greater Sydney, the Region Plan sets 10 directions, 40 objectives and a larger number of strategies and actions in the form of a liveability, productivity and sustainability framework. While most objectives are relevant, of most relevance to the Cherrybrook Station SSP are:

- Objective 10: Greater housing supply
- Objective 11: Housing is more diverse and affordable
- Objective 12: Great places that bring people together
- Objective 14: A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities.

Together, these objectives support an approach of directing most new growth to established communities that are accessible to mass transit, in particular rail, and centres.

The vision for the Central River City under the Region Plan outlines a future of substantial growth and major transformation, in particular facilitated by Metro North West:

- 'The Central River City will grow substantially capitalising on its location close to the geographic centre of Greater Sydney. Unprecedented public and private investment is contributing to new transport and other infrastructure leading to a major transformation of the Central River City'
- 'The Metro North West rail link will improve the growth prospects for the north-west of the city by increasing access to jobs'.

Appendix C provides an assessment of all relevant planning instruments, including strategic plans, environmental planning instruments and development control plans, referenced in "Appendix 1" of the study requirements.

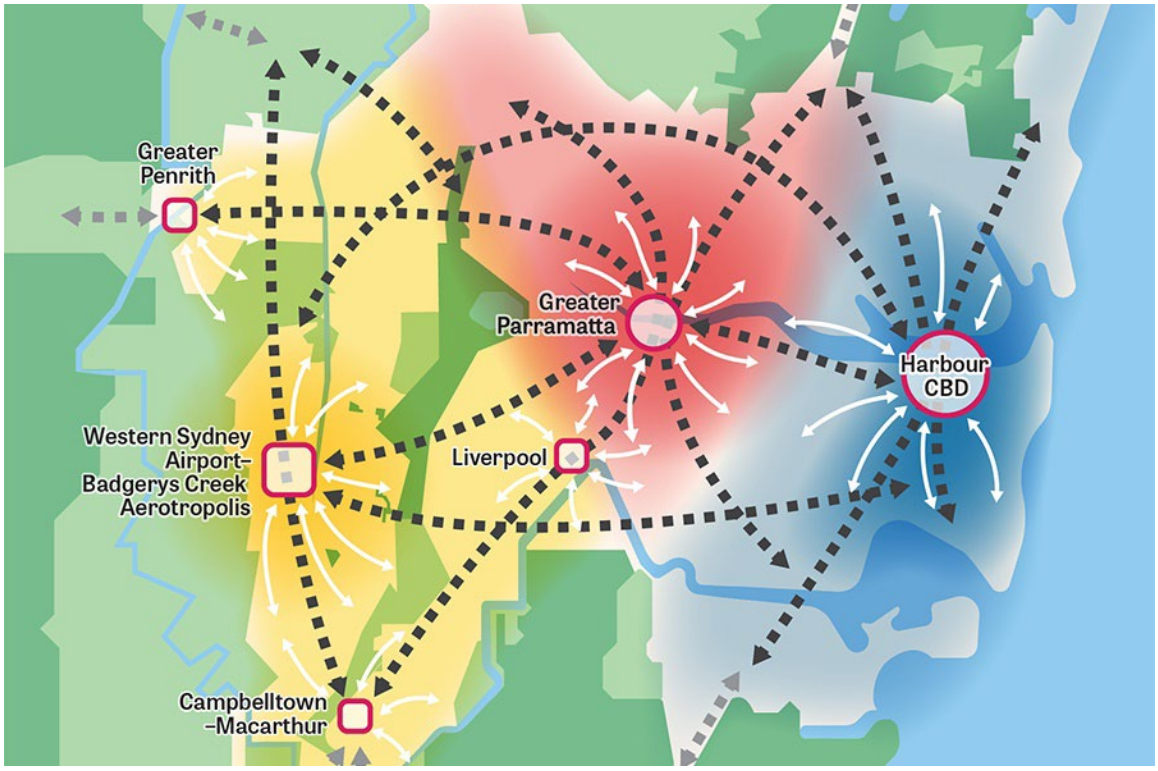

Figure 13 Greater Sydney's Three Cities

Source: Greater Sydney Commission, 2018

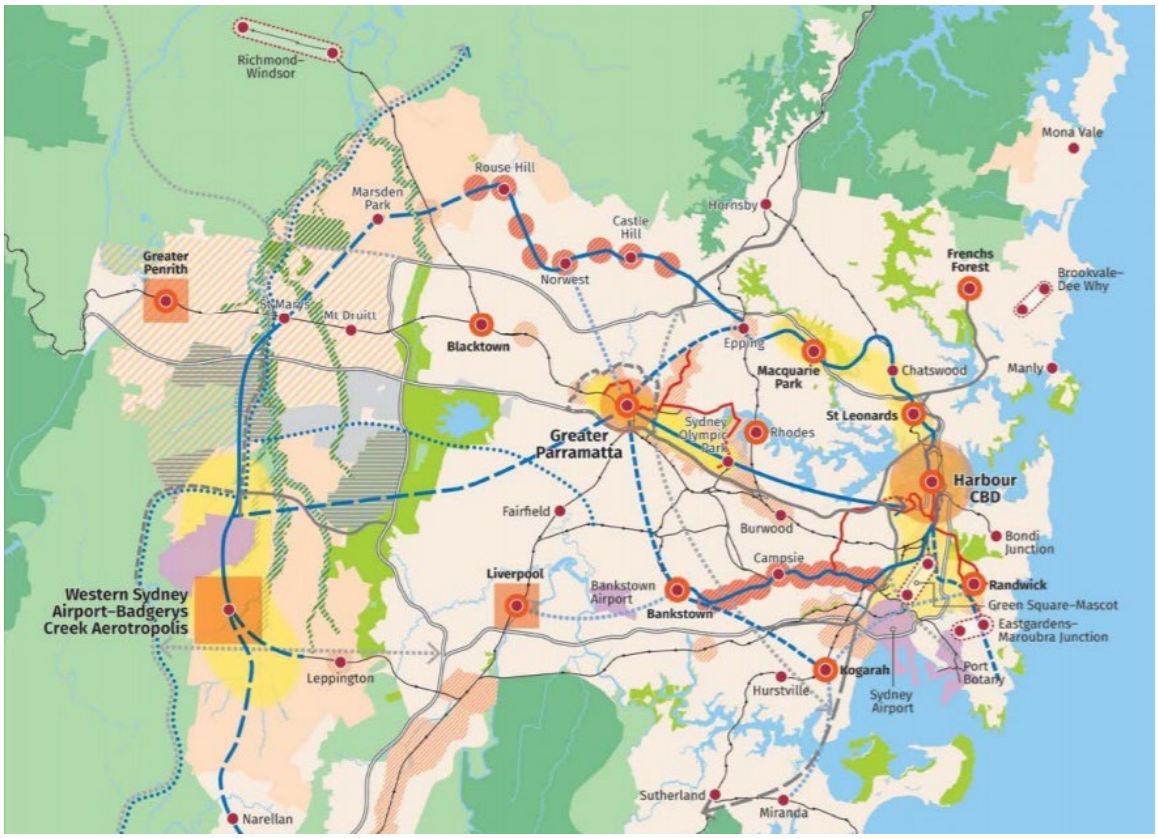

Figure 14 Structure Plan for Greater Sydney

Source: Greater Sydney Commission, 2018

5.1.2 Future Transport Strategy 2056 and Greater Sydney Services and Infrastructure Plan

Coinciding with the release of the Greater Sydney Region Plan and the District Plans, the NSW Government released the Future Transport Strategy 2056. The Future Transport Strategy sets out a 40 year framework and is underpinned by the Regional Services and Infrastructure Plan (which applies to regional NSW) and the Greater Sydney Services and Infrastructure Plan. The Future Transport Strategy sets six state-wide outcomes to guide investment, policy and reform and service provision:

- Transport services will be convenient and responsive to customer needs, with integrated services
- Population and economic growth will support a stronger network of thriving centres across the state. The transport system will support the liveability of places with a road network that supports movement and place functions and walking and cycling facilities around centres
- Connecting people and places in a growing city will enable efficient access for customers to the nearest centre and new industries and jobs growth in Regional NSW and Greater Sydney
- A transport network that provides customers with efficient, safe and secure travel. As the population continues to grow, innovation and technology will allow for improved performance and safety across networks. Major passenger and road corridors will be upgraded with automated mobility and smart networks
- Providing accessible services. The Sydney Metro and Light Rail are among the first projects to deliver fully accessible networks, with the whole transport network developed over time through the delivery of new assets or the repurposing of existing assets
- Providing a sustainable network that will benefit our environment, economy and wellbeing. The transport system will be financially and environmentally sustainable through asset management and a network that is resilient and has a net zero emissions impact.

Cherrybrook Station is a catalyst for renewal and is part of the ‘city shaping’ Sydney Metro project. The Cherrybrook Station SSP seeks to effectively link population and economic growth with the transport network and efficient movement of people around the city.

5.1.3 North District Plan

The North District Plan (the District Plan) sets out the planning priorities and actions for growth and development within the North District over the next 20 years. The District Plan fills the gap between the Region Plan (the Greater Sydney Region Plan) and local planning, giving effect to the Greater Sydney Region Plan at a District scale. The Cherrybrook Station SSP is included in the North District, however it is noted that Castle Hill Road is the boundary between the North District and the Central District.

The District Plan includes a Structure Plan that provides an outline of the desired spatial arrangement of the district (refer **Figure 15**). This Structure Plan is consistent with the Region Plan, showing the Cherrybrook Station SSP is aligned with a committed train link (Metro North West) and being designated for transit-oriented development.

The District Plan sets 24 planning priorities and a larger number of actions in the form of a liveability, productivity and sustainability framework. While most of the planning priorities are relevant, of most relevance to the Cherrybrook Station SSP are:

- Planning Priority N5: Providing housing supply, choice and affordability with access to jobs, services and public transport
- Planning Priority N6: Creating and renewing great places and local centres, and respecting the District’s heritage
- Planning Priority N12: Delivering integrated land use and transport planning and a 30-minute city.

The District Plan also makes specific reference to Cherrybrook in the context of collaboration to maximise land use benefits of the Metro North West (Planning Priority N2 Working through collaboration). Specific mentions, include:

- ‘Cherrybrook Planned Precinct, led by the NSW Department of Planning and Environment, as part of the Metro North West Urban Renewal Corridor, which will bring together Hornsby Shire Council, The Hills Shire Council, Transport for NSW, NSW Roads and Maritime Services and other State agencies to maximise the land use benefits of Metro North West’
- ‘Additional capacity for housing supply is well progressed across much of the District. Current State-led initiatives include: Cherrybrook Station Planned Precinct’
- ‘Local centres such as Mosman and Avalon serve as community hubs with natural and scenic qualities that enhance their character. Turramurra, St Ives and Cherrybrook are emerging as destinations for eateries and cafes offering unique neighbourhood qualities and cultural facilities’.

Figure 15 Structure Plan for the North District

Source: GSC, 2018

5.1.4 North West Rail Link Corridor Strategy

The North West Rail Link Corridor Strategy (NWRLCS) was jointly published by DPE and TfNSW in 2013. The intent of the NWRLCS was to engage with the community, landowners, State and local government agencies to identify a vision for precincts surrounding stations along the Metro North West and establish land use frameworks for managing future land use change’ over a 20-25 year period.

An overarching approach adopted by the strategy was to promote transit oriented development (TOD) around each of the metro stations. This approach was primarily based on the following principles:

- provide a mix of uses in the centre or core to facilitate a vibrant and active place that reduces the need for residents and workers to make additional trips to meet their daily needs
- deliver legible and permeable precincts that promote connectivity and access to the new stations, interchange facilities, and key activities and uses
- ensure a population density within walking distance of each station (generally within 800m) to provide an appropriate threshold to deliver a range of activities and uses
- promote the use of public transport through the implementation of complementary policies such as cycling strategies and parking strategies and that aim to reduce private car use
- facilitate well designed development that adds to the overall quality of existing centres while promoting a sense of place.

The NWRLCS includes a structure plan for each of the eight new train station precincts, including for Cherrybrook. The Cherrybrook Structure Plan seeks to enable the transformation of the Cherrybrook Station SSP in accordance with the principles of transit-oriented development (as shown in **Figure 16**) by establishing a spatial growth pattern of a core of more intensive development close to the rail stations, which is surrounded by a frame of higher or medium density residential development.

For Cherrybrook, the NWRLCS seeks to create a new, mixed use local centre, which together with other, adjoining land will provide for a greater amount, choice and affordability of housing. This will also:

- provide a new focal point for the community centred around the station, including a mix of neighbourhood shops and services to provide for the daily needs of the local community
- provide opportunities to increase residential densities within walking distance of the station, involving a variety of housing types to ensure there is affordable and appropriate housing for all members of the community.

The Structure Plan seeks to deliver a total of 3,200 new dwellings (resulting in a total of 4,300 dwellings) and 50 new jobs (for a total of 2,050 jobs).

In addition to a new, mixed use local centre the proposed future character for Cherrybrook is to include the following aspects:

- retain a residential character
- include a gradation in height
- establish a medium density residential sub-precinct around the station characterised by 3-6 storey apartments
- establish a medium density residential sub-precinct covering land further to the north characterised by 2-3 storey townhouses
- as land south of Castle Hill Road has significant slope, the area is subject to further geotechnical, vegetation and traffic studies
- provide new pedestrian and / or vehicular links to increase connectivity between Edward Bennett Drive, Franklin Road and Robert Road
- provide a green link between Robert Park, an area of Blue Gum High Forest and the Cherrybrook Station SSP
- maintain Castle Hill Road as the primary east-west thoroughfare, supported by Highs Road/County Drive and Coonara Avenue/Edward Bennett Drive link

- create gateway or entry demarcation points in the form of a change in streetscape, a defined built form and/or artworks sculpture along Castle Hill Road and Highs Road and the intersection of Castle Hill Road and Franklin Road
- identify the Coonara Avenue Business Park site and the Inala and Tangara schools as significant sites
- upgrade streetscapes in and around the Cherrybrook Station SSP.

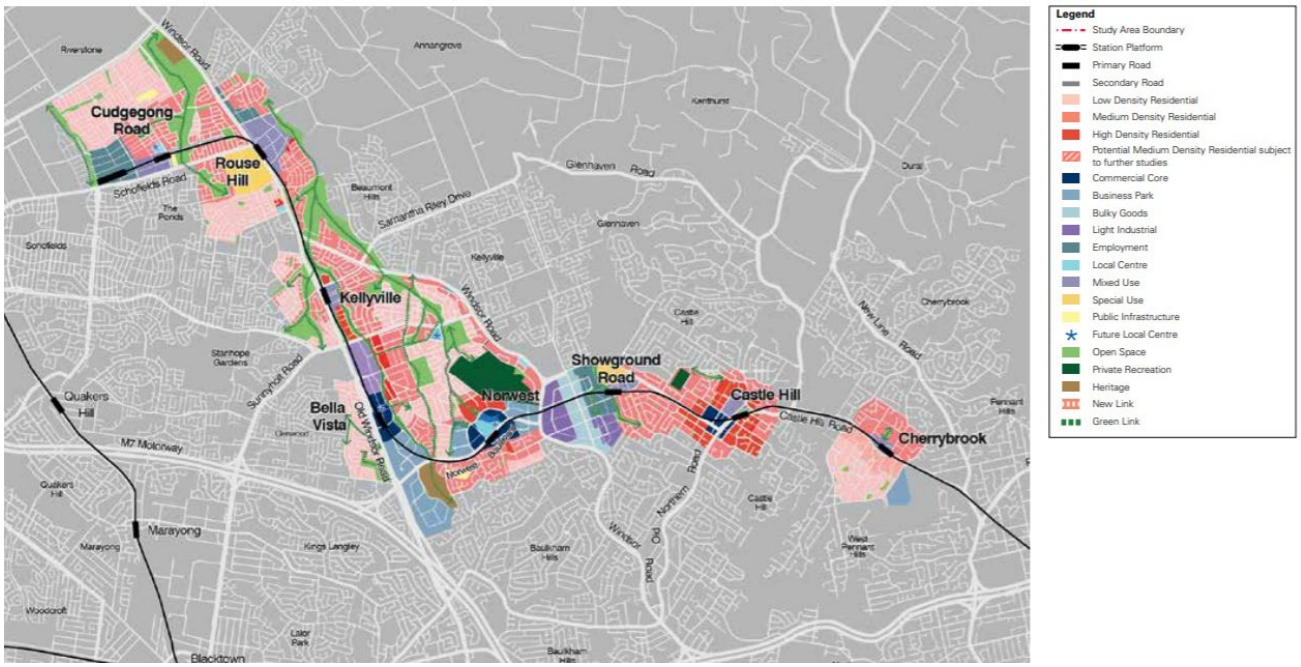

Figure 16 North West Rail Link Corridor Strategy Structure Plan for the North West Rail Corridor

Source: NSW Department of Planning, Industry and Environment

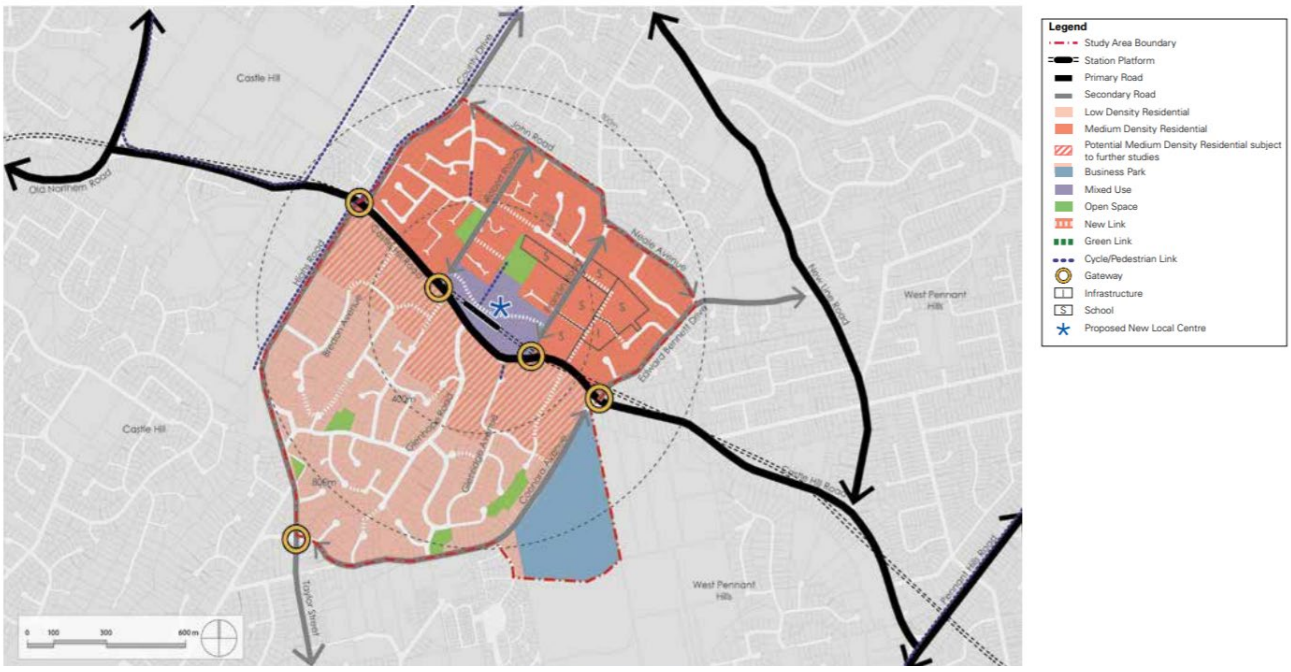

Figure 17 North West Rail Link Corridor Strategy Structure Plan for the 'Cherrybrook Study Area'

Source: NSW Department of Planning, Industry and Environment

5.1.5 The Hornsby Local Strategic Planning Statement

Under the Act, each council is required to prepare a local strategic planning statement (LSPS) for their LGA to give effect to the Region Plan and District Plan. Council published the Hornsby LSPS in March 2020. The LSPS sets a future vision for the Hornsby LGA based on a values statement, action statement and statement of external impacts as follows:

- **Value Statement**: Our Bushland Shire is a place for people. It has impressive places and wonderful environments and offers a great lifestyle for all members of our community
- **Action Statement**: We are committed to collaboratively implementing infrastructure, sustainability, liveability, productivity and affordability initiatives to ensure our Bushland Shire thrives now and into the future
- **External Impacts**: Our Bushland Shire is being shaped by our natural environment, population growth, housing and employment opportunities.

The LSPS identified the following key priorities:

- expanding our tree canopy cover and protecting mature trees to enhance the environmental qualities and character of the bushland shire
- protecting the character of our low density neighbourhoods
- responding to climate change with an active strategy to reduce carbon emissions and manage energy, waste and water efficiently
- improving the quality of architectural design for new development
- enhancing, protecting, conserving and promoting our natural, built and cultural heritage
- revitalising the Hornsby Town Centre
- protecting and enhancing the environmental value and economic productivity of the Metropolitan Rural Lands in the Shire
- supporting sustainable economic growth based on the Shire's built and natural assets, infrastructure and locational advantages
- building our resilience to natural hazards, including bushfire risk, flooding and storms
- promoting the '30-minute City' by improving the walkability, connectivity and accessibility of our centres and neighbourhoods.

The Structure Plan for the LGA is shown at **Figure 18**.

According to the LSPS, development of the Cherrybrook Station SSP makes an important contribution to the LGA meeting its longer term (6 years and greater) housing targets:

> *'With existing capacity within the zoned areas and the potential redevelopment of Government-owned land around Cherrybrook Station, we are also well on our way to meeting longer term housing targets'* (Hornsby Shire Council, 2020).

Despite development of the Cherrybrook Station SSP, while the LGA is forecast to meet its targets, housing choice is likely to continue to remain an issue 'well beyond 2036' (Hornsby Shire Council, 2020). It is noted that in 2016, close to two thirds (72%) of dwellings in the LGA were detached compared to 56.9% in Greater Sydney. According to the Region Plan, lack of housing choice can potentially have a range of implications, including challenging the ability of both younger and older people to remain in appropriate housing in their community.

The LSPS acknowledges that the LGA has a number of city-serving and city-shaping transport corridors, including Metro North West (Cherrybrook Station), that will 'benefit the local community and change the way people and goods move across the Shire'.

Under this topic, the LSPS identified the Cherrybrook Station SSP as a 'Productive Area' (refer **Figure 19**) and outlines Council's position in terms of the Cherrybrook Station SSP:

> *'Council will collaborate with the State Government and Landcom concerning planning for government-owned land adjoining the Metro North West corridor and not support proponent-led planning proposals for any other lands within the Cherrybrook Station Precinct until planning for the government-owned lands is completed with an integrated community facilities, open space, transport and infrastructure strategy incorporating the wider precinct'* (Hornsby Shire Council, 2020).

Furthermore, the LSPS also includes a Collaborative Priority (CP1) around resolving the local and regional infrastructure issues facing Cherrybrook and surrounding areas as a result of the opening of Cherrybrook Station. Specifically, an increase in localised demand for certain community and cultural facilities in the medium and longer term, due to population growth. This SSP Study provides the framework for the delivery of these outcomes to resolve these infrastructure issues identified by Council.

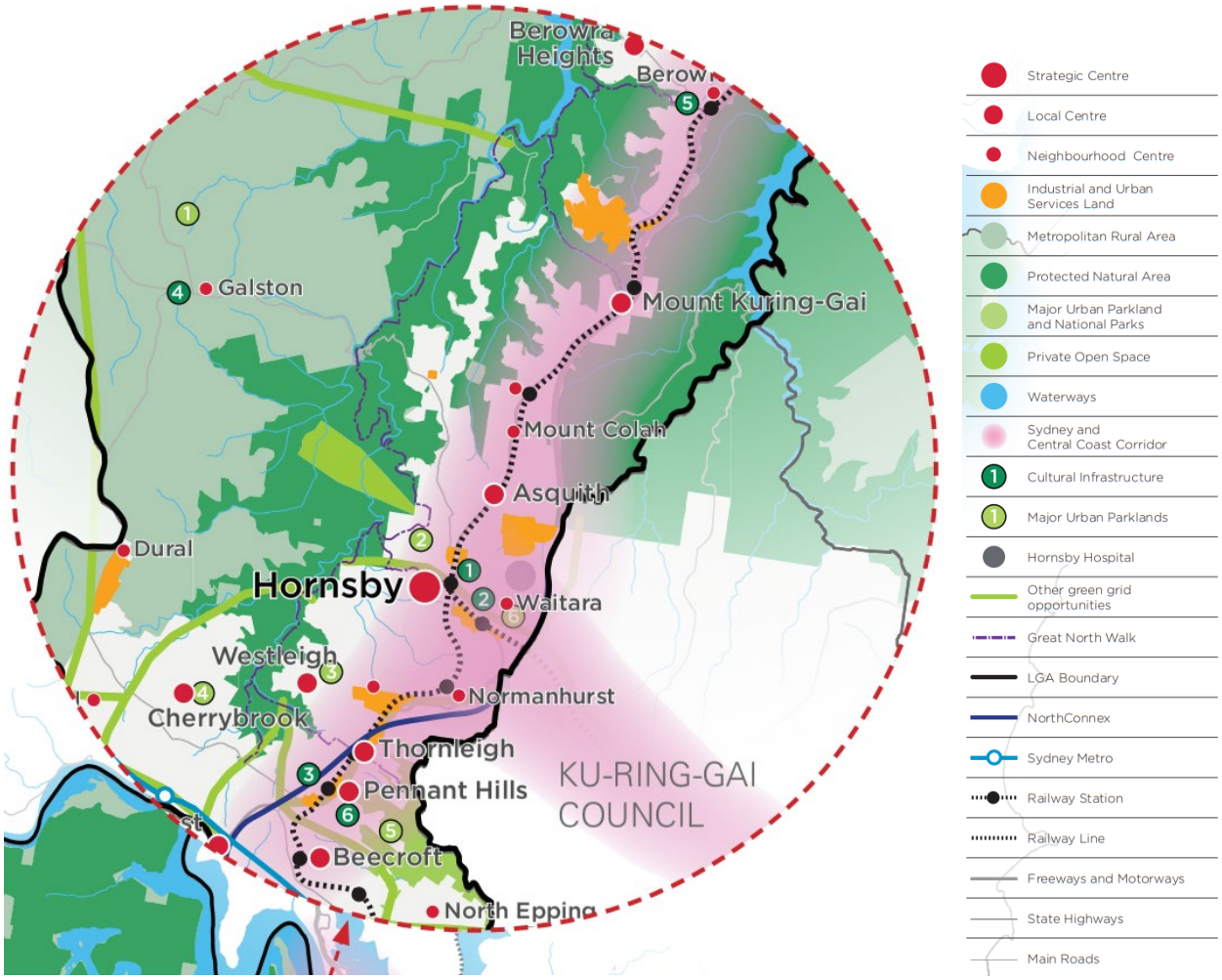

Figure 18 Hornsby Local Strategic Planning Statement Structure Plan

Source: Hornsby Shire Council

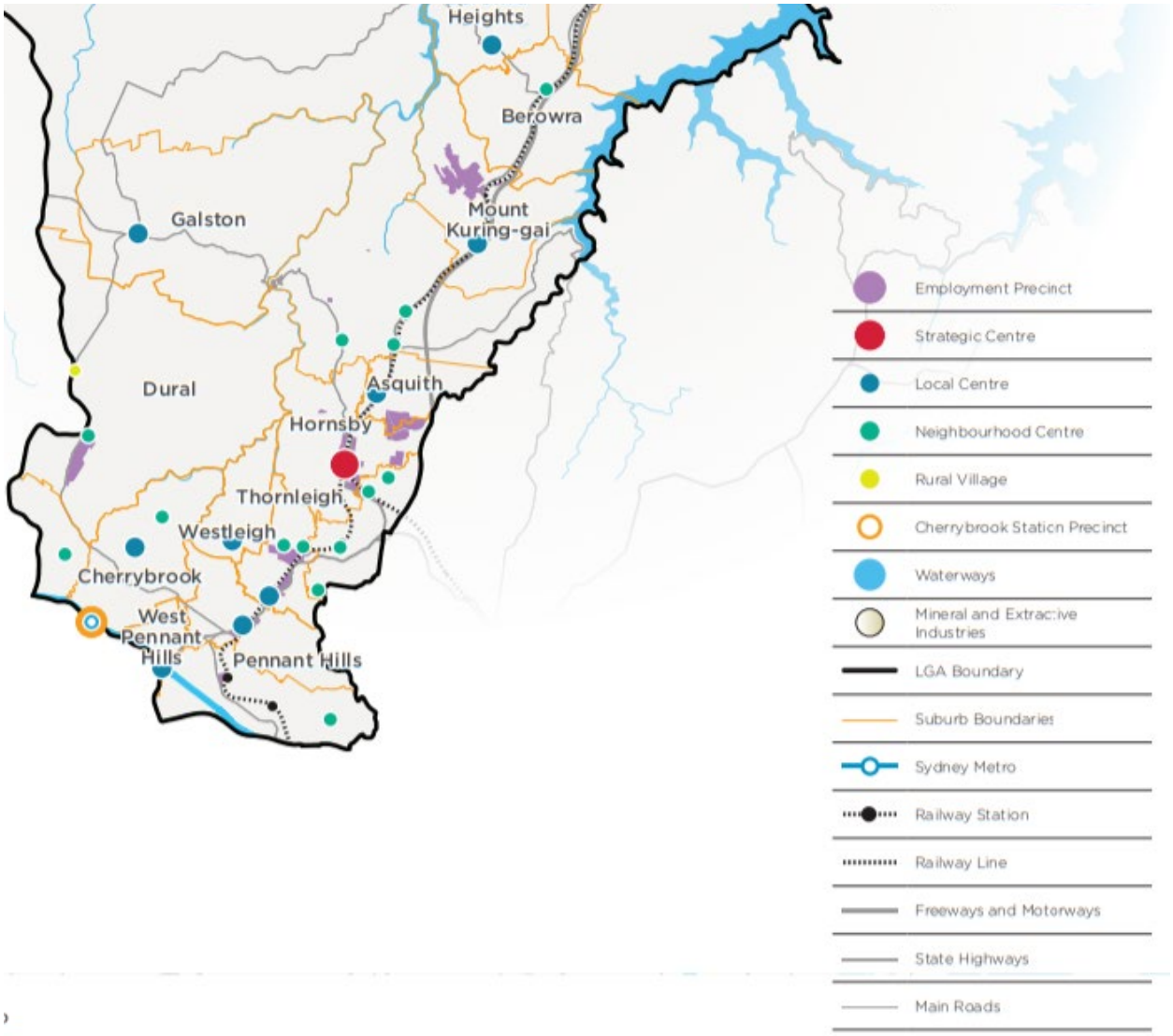

Figure 19 Hornsby LGA 'Productive Areas'

Source: Hornsby Shire Council

5.2 The statutory planning framework

5.2.1 State Environmental Planning Policies

The following SEPPs are relevant to the proposal:

- State Environmental Planning Policy (Biodiversity and Conservation) 2021
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- State Environmental Planning Policy (Precincts—Central River City) 2021
- State Environmental Planning Policy (Housing) 2021
- State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development
- State Environmental Planning Policy (Planning Systems) 2021
- State Environmental Planning Policy (Resilience and Hazards) 2021
- State Environmental Planning Policy (Transport and Infrastructure) 2021.

State Environmental Planning Policy (Biodiversity and Conservation) 2021
This SEPP establishes requirements to protect the natural environment, including the need for prior approval before the clearing of native vegetation in suburban areas and considerations relevant to protecting the Hawkesbury-Nepean River system.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
This SEPP requires residential development to achieve high levels of electricity and water efficiency through measures such as insulation, materials and non-potable water sources.

State Environmental Planning Policy (Precincts—Central River City) 2021
This SEPP identifies and facilitates the development of sites considered to be of State or regional economic, environmental or social significance.

It is supported by the State Significant Precincts Guideline (DPE, 2016) that establishes the process and relevant consideration State significant precincts. Planning for the Cherrybrook Station Government Land SSP has been undertaken in accordance with this guideline.

State Environmental Planning Policy (Housing) 2021
This SEPP seeks to promote development of more diverse and affordable housing through NSW where it achieves a reasonable level of amenity and reflects and enhances its locality. A principle of the SEPP is 'promoting the planning and delivery of housing in locations where it will make good use of existing and planned infrastructure and services.

State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development
This SEPP seeks to improve the design quality of residential apartment development. An aim of the SEPP is 'to contribute to the provision of a variety of dwelling types to meet population growth'. It is supported by the non-statutory Apartment Design Guide (ADG).

State Environmental Planning Policy (Planning Systems) 2021
This SEPP identifies development (including infrastructure) that is of State significance. Alternative, more streamlined planning pathways based on location, type and scale are established for this development in recognition of its strategic benefit to NSW.

Of note for Cherrybrook, the State is the consent authority for development within a rail corridor or associated with railway infrastructure that has a capital investment value of more than $30 million for commercial premises or residential accommodation and public transport interchanges.

While the SSP process typically amends the local planning framework to enable development of the nature envisaged to occur, the SEPP is often amended to establish the State as the consent authority for certain development within Sydney Metro precincts, including North Ryde, Bella Vista, Kellyville and Showground station precincts.

Construction and operation of the Sydney Metro Northwest, including Cherrybrook Station and associated ancillary infrastructure including roads, car parks, bus interchanges and public amenities and inter-modal facilities, is classified by the SEPP as critical State significant infrastructure and may be carried out without development consent under Part 4 of the EP& A Act.

State Environmental Planning Policy (Resilience and Hazards) 2021
This SEPP seeks to increase the resilience and reduce the risk of hazards of development, including ensuring that prior land contamination is adequately considered to ensure it is suitable for its intended use.

State Environmental Planning Policy (Transport and Infrastructure) 2021
This SEPP facilitates the development of land for certain transport and infrastructure projects, including 'allowing for the efficient development, redevelopment or disposal of surplus government owned land'.

5.2.2 Section 9.1 Directions

The Minister for Planning has issued a number of directions under section 9.1 of the Act. Of particular relevance to the Cherrybrook Station SSP is Direction 5.9 North West Rail Link Corridor Strategy. The objectives of this direction are:

- promote transit-oriented development and manage growth around the eight train stations of the North West Rail Link (NWRL)
- ensure development within the NWRL corridor is consistent with the proposals set out in the NWRL Corridor Strategy and precinct Structure Plans.

Direction 5.9 is to be considered by a local council when preparing planning proposals for new Local Environment Plans (LEPs).

5.2.3 Hornsby Local Environmental Plan 2013

Land use zoning

The Cherrybrook Station SSP is included in the R2 Low Density Residential zone (refer **Figure 20**). The objectives of this zone are as follows:

- to provide for the housing needs of the community within a low density residential environment
- to enable other land uses that provide facilities or services to meet the day to day needs of residents.

Table 1 Land use table for R2 Low Density Residential

Level of assessment	Land uses
Permitted without consent	Environmental protection works; Home occupations
Permitted with consent	Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dwelling houses; Educational establishments; Emergency services facilities; Exhibition homes; Flood mitigation works; Group homes; Home-based child care; Home businesses; Information and education facilities; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Respite day care centres; Roads; Tank-based aquaculture; Tourist and visitor accommodation; Veterinary hospitals; Water reticulation systems
Prohibited	Backpackers' accommodation; Farm stay accommodation; Hotel or motel accommodation; Serviced apartments; Any other development not specified above

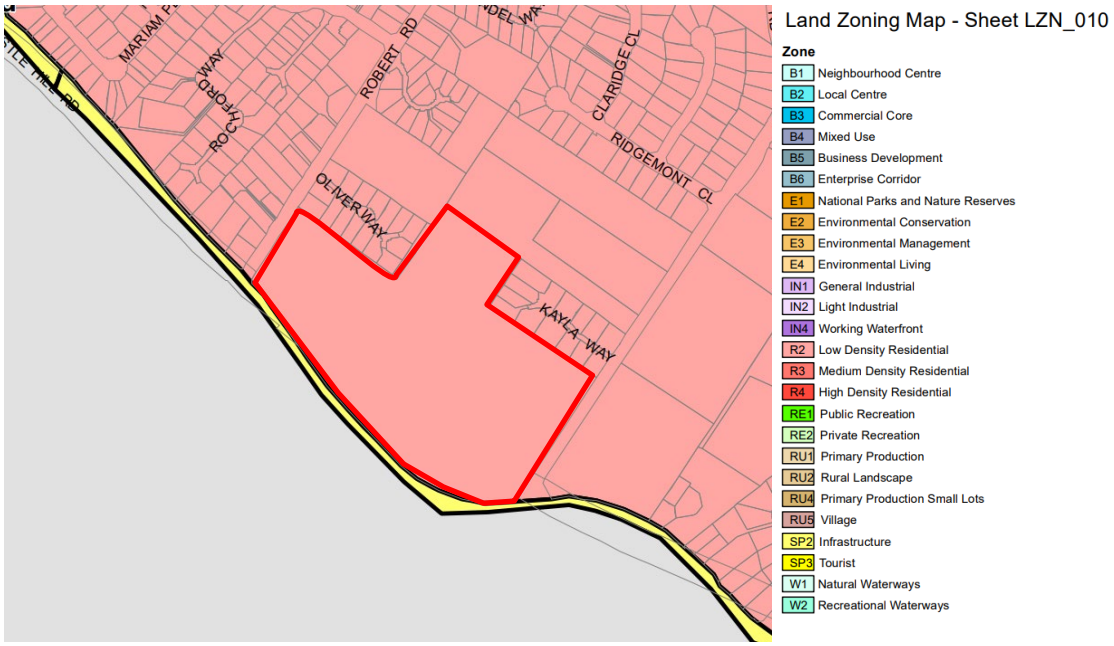

Figure 20 Land use zoning map

Source: Hornsby Shire Council

Height of Buildings

The maximum height of buildings is 8.5m (refer **Figure 21**).

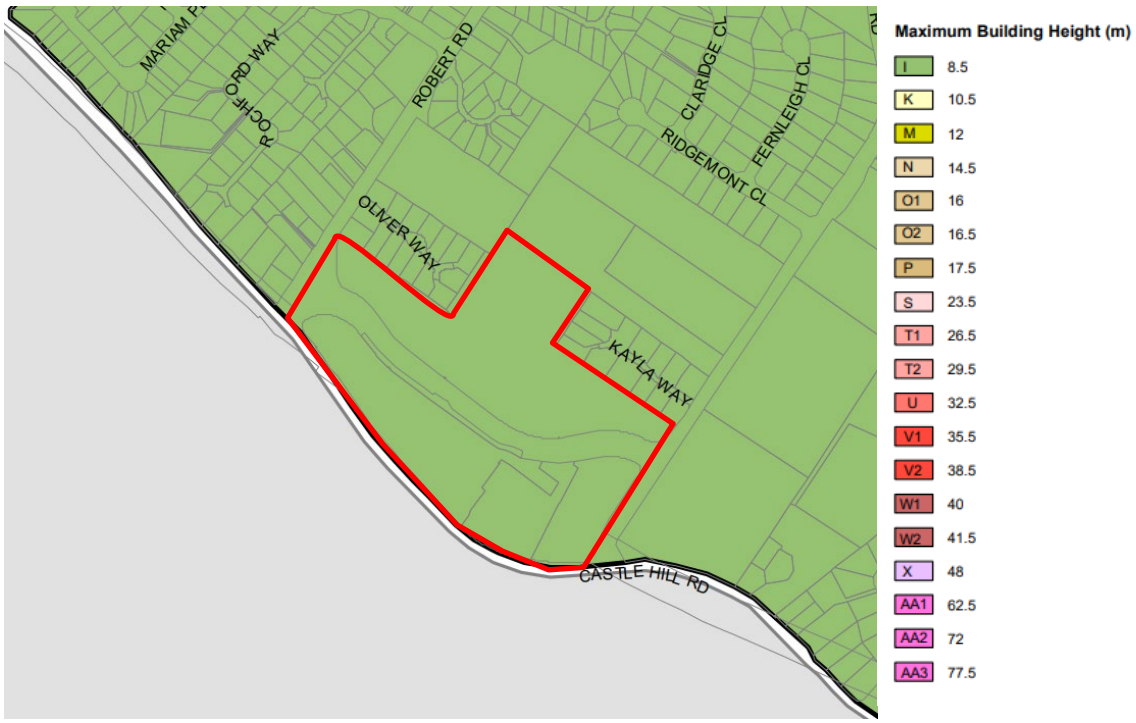

Figure 21 Height of buildings map

Source: Hornsby Shire Council

Floor Space Ratio

The Cherrybrook Station SSP is not subject to a maximum FSR.

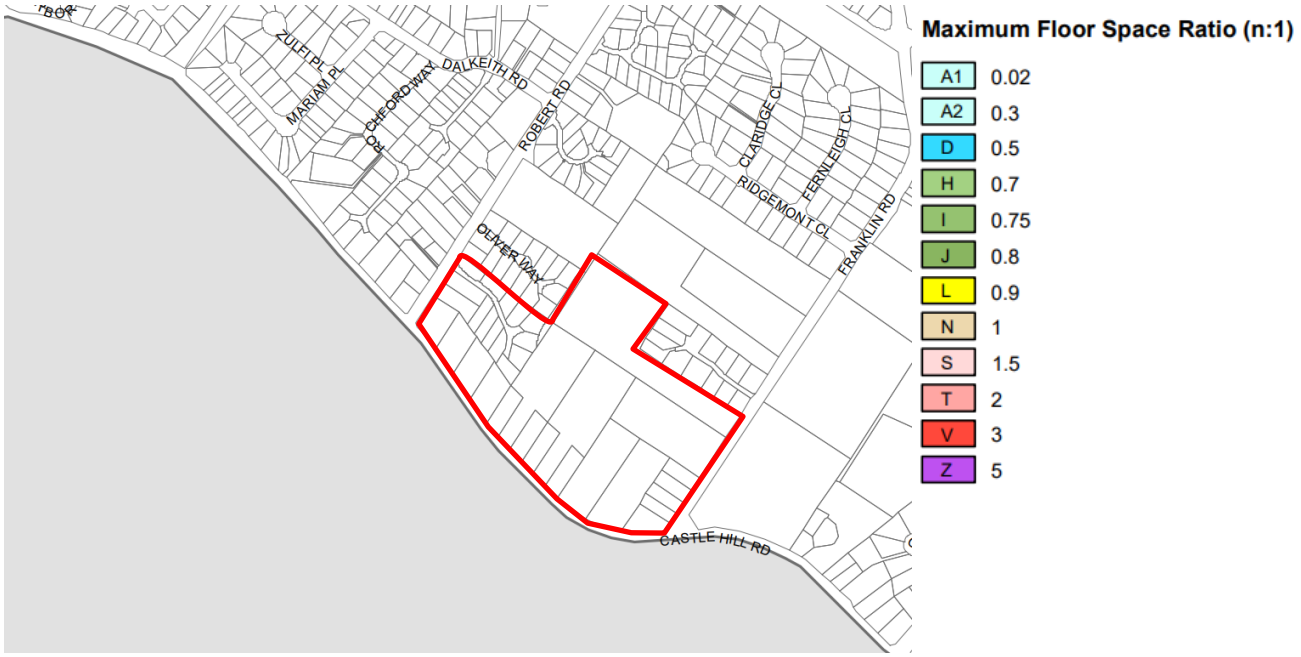

Figure 22 FSR map

Source: Hornsby Shire Council

Minimum Lot Size

The minimum lot size for any future subdivision is 500sqm.

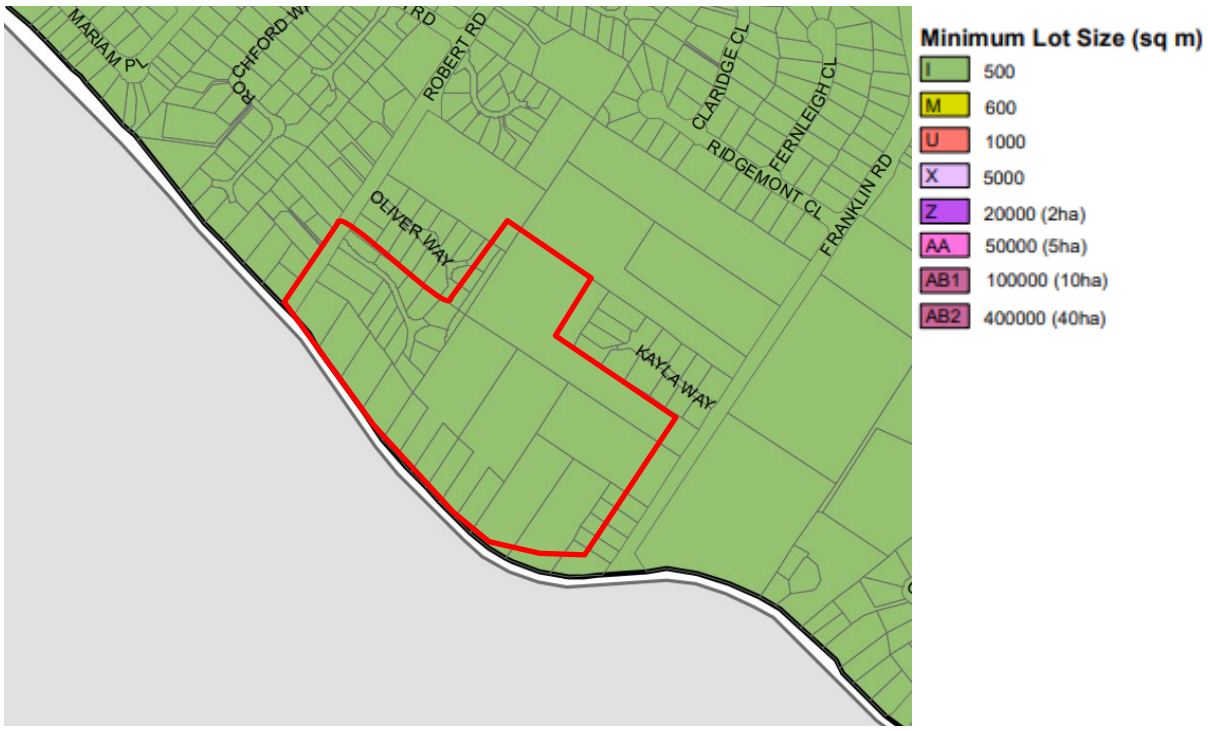

Figure 23 Minimum Lot Size map

Source: Hornsby Shire Council

Terrestrial Biodiversity

A portion of the site is identified on the Terrestrial Biodiversity Map. As such, Clause 6.4 of the HLEP 2013 applies to the affected land.

Figure 24 Terrestrial Biodiversity map

Source: Hornsby Shire Council

Other provisions

The Hornsby LEP 2013 includes a number of other relevant provisions. These include:

- 5.10 'Heritage conservation': establishing development consent requirements for demolition, moving or altering the exterior of a heritage item, an Aboriginal object, a building, work, relic or tree within a heritage conservation area, as well as other requirements such as the submission of a heritage conservation management plan
- 5.21 'Flood planning': requiring detailed assessment against risk to life and property from flooding, including consideration against the Floodplain Development Manual
- 6.8 'Design excellence': requiring that certain types of development, including residential flat buildings or shop top housing, 'exhibits design excellence' having regard to matters such as 'bulk, massing and modulation of buildings' and 'street frontage heights'.

5.2.4 Hornsby Development Control Plan 2013

Under the Act, development control plans (DCPs) provide non-statutory guidance on the following matters:

- giving effect to the aims of any environmental planning instrument that applies to the development
- facilitating development that is permissible under any such instrument
- achieving the objectives of land zones under any such instrument.

The Hornsby DCP 2013 (HDCP) currently applies to the site. The objectives of the HDCP include:

- promote development that is consistent with Council's vision of creating a living environment

- protect and enhance the natural and built environment, and ensure that satisfactory measures are incorporated to ameliorate any impacts arising from development
- encourage high quality development that contributes to the existing or desired future character of the area, with particular emphasis on the integration of buildings with a landscaped setting
- protect and enhance the public domain
- minimise risk to the community
- ensure that development incorporates the principles of Ecologically Sustainable Development (ESD).

The HDCP is broadly structured into provisions covering general matters, specific types of development and specific areas. Of particular relevance to the Cherrybrook Station SSP, the HDCP contains provisions for:

- environmental matters such as watercourses
- residential flat buildings of 6 or more storeys
- provides scope for a precinct specific parts.

The DCP provides performance based provisions in the form of desired outcomes and prescriptive measures that are largely quantifiable.

It is noted that DCPs do not apply to State significant development.

6.0 The Reference Scheme

Planning for Cherrybrook State Significant Precinct has been prepared in accordance with the study requirements issued by DPE and the '*State Significant Precincts Guideline*' (DPE, 2016). This has involved the consideration of three main inputs:

1. technical investigations undertaken by relevant technical experts (refer **to Section 8.0**)
2. community and stakeholder engagement, including from the local community and experts such as a Design Advisory Panel (refer **to Section 4.0**)
3. design work undertaken by experts in this field.

It is noted that the substantial body of existing knowledge derived from previous strategic planning processes was used as a basis for the SSP Study to the extent that it remains valid. This has included specific consideration of economic feasibility matters, the views of the community expressed as part of informal community engagement and design principles such as the concept of a generous, centrally located open space corridor.

In addition to this existing body of knowledge, the technical and engagement work undertaken in satisfaction of the study requirements was used to inform the design work. The role of the design work was to consider and synthesise relevant matters into a Reference Scheme. The Reference Scheme has been prepared to help inform development of the proposed amendments to the planning framework, demonstrate that the proposed planning framework is capable of accommodating a subsequent DA that meets other provisions such as the ADG and to illustrate one way in which the Cherrybrook Station SSP may develop in the future. This has in turn informed the proposed amendments to the planning framework (refer to **Section 7.0**).

The Urban Design Study (refer to **Appendix D**) outlines this process in detail and is consistent with Government Architect Office advisory notes, with the design process evolving through an iterative development, testing and refinement of ideas in a collaborative manner. Furthermore, a review of the Reference Scheme was undertaken by a Project Working Group comprised of representatives from DPE, Hornsby Shire Council, The Hills Shire Council, TfNSW, Sydney Metro and Landcom, as well as a Design Advisory Panel.

The key features of the Reference Scheme are:

- a mix of uses including retail, residential, services and community space
- around 390 new homes in buildings up to five (5) storeys in height when viewed from Bradfield Parade to meet the needs of people with changing lifestyles and different income levels
- 1,300sqm of community facilities
- around 3,200sqm of retail GFA, including the potential for a supermarket providing for the day to day convenience and lifestyle needs of residents
- potential for local office and other employment space
- high-quality open space and recreation areas of high amenity and quality that will establish a visual and physical link between the Cherrybrook Station and the Blue Gum High Forest
- a landscape character which reflects the surrounding area, with 25% tree canopy cover across private property and 30% across public areas (an increase from the existing 10% canopy cover)
- new pedestrian and cycle paths that will integrate with the existing linkages surrounding the site.

The Reference Scheme for Cherrybrook Station SSP is illustrated in Appendix D Urban Design Study and **Figure 25**. The key elements of the Reference Scheme are described further below.

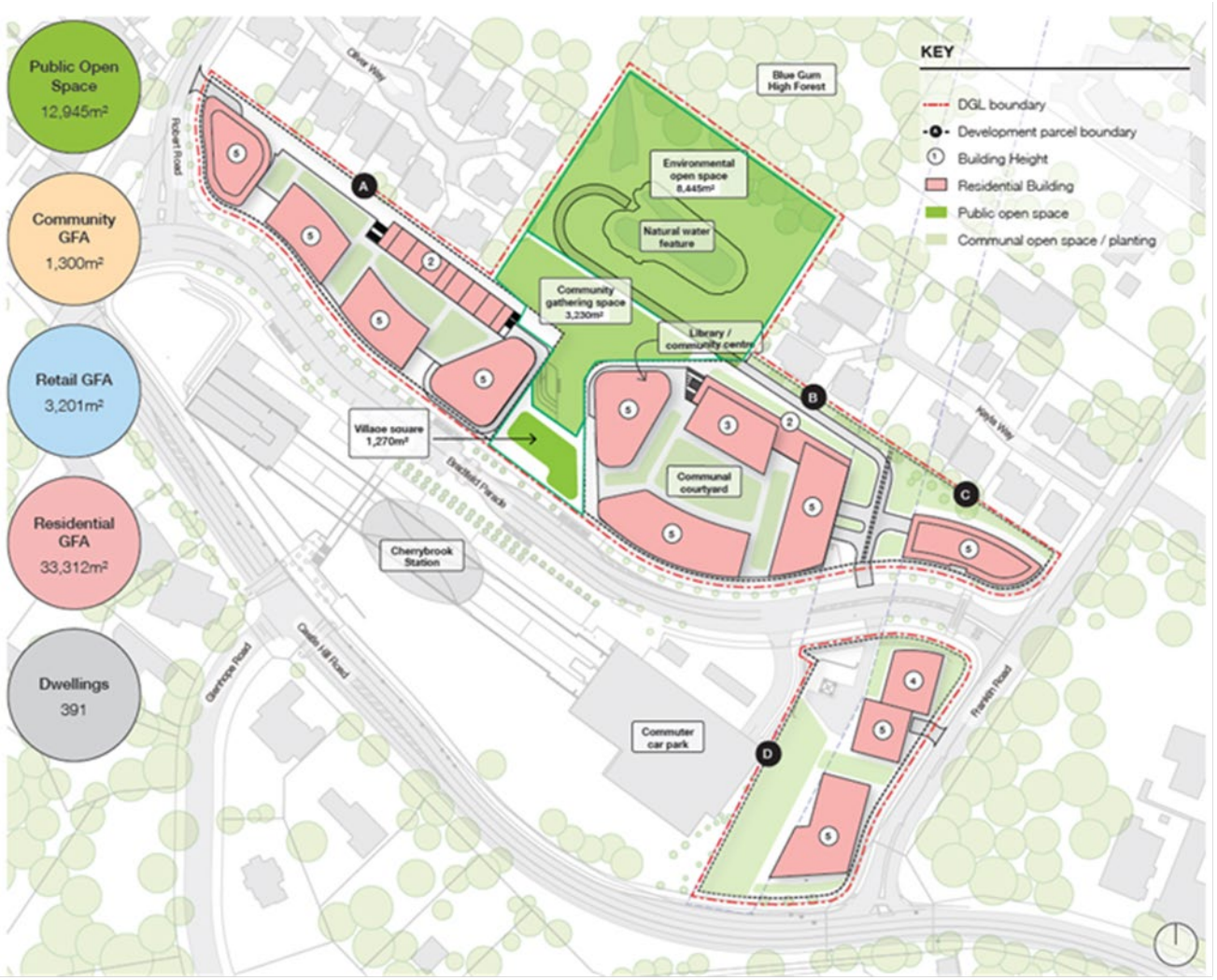

Figure 25 Reference Scheme – site plan

Source: SJB

Figure 26 Artist's impression – view looking south

Source: SJB

6.1 Public domain and landscape

The landscaped concept (as shown on **Figure 27**) for the site aims to support the unique bushland character of Cherrybrook whilst creating useable, dynamic natural amenity for residents and visitors to the precinct.

The 'central spine' running in a north-south axis through the site responds to the fall of the land from south to north and consists of three main elements. The Community Open Space fronting Bradfield Parade and Cherrybrook Station integrates with ground floor retail, cafes and restaurants providing opportunities for activation. Further north, the Community Open Space is integrated with the community facility and functions as an outdoor extension of this space, separating from the retail areas further south. This area overlooks and provides a natural transition to the drainage basin further north. This environmental space maintains a natural identity with minimal built form, but features paths and boardwalks around the basin and endemic Blue Gum High Forest trees located near the northern boundary allowing for an intimate connection to the natural bushland environment.

Pedestrian connections are provided throughout the central spine from the pond, creek and Blue Gum High Forest towards the station via a series of terraced platforms, ramps and stairs. These allow for future connections to the broader precinct and will improve connections to the Metro station, buses and other facilities.

Landscaped areas outside the central spine also comprise of communal open space and 'buffer' zones to the edges of the precinct. Communal open space provided between residential buildings further act as extension of living spaces, providing opportunities for passive and active recreation. These areas also seek to maximise tree planting and canopy cover supporting the landscape vision of the central spine. Buffer zones on the edges of the precinct help reduce the visual dominance of the building on the public domain and provide privacy to key locations within the development. The planting provided responds to the character of the street and maintains a natural extension of the public domain to the building interface.

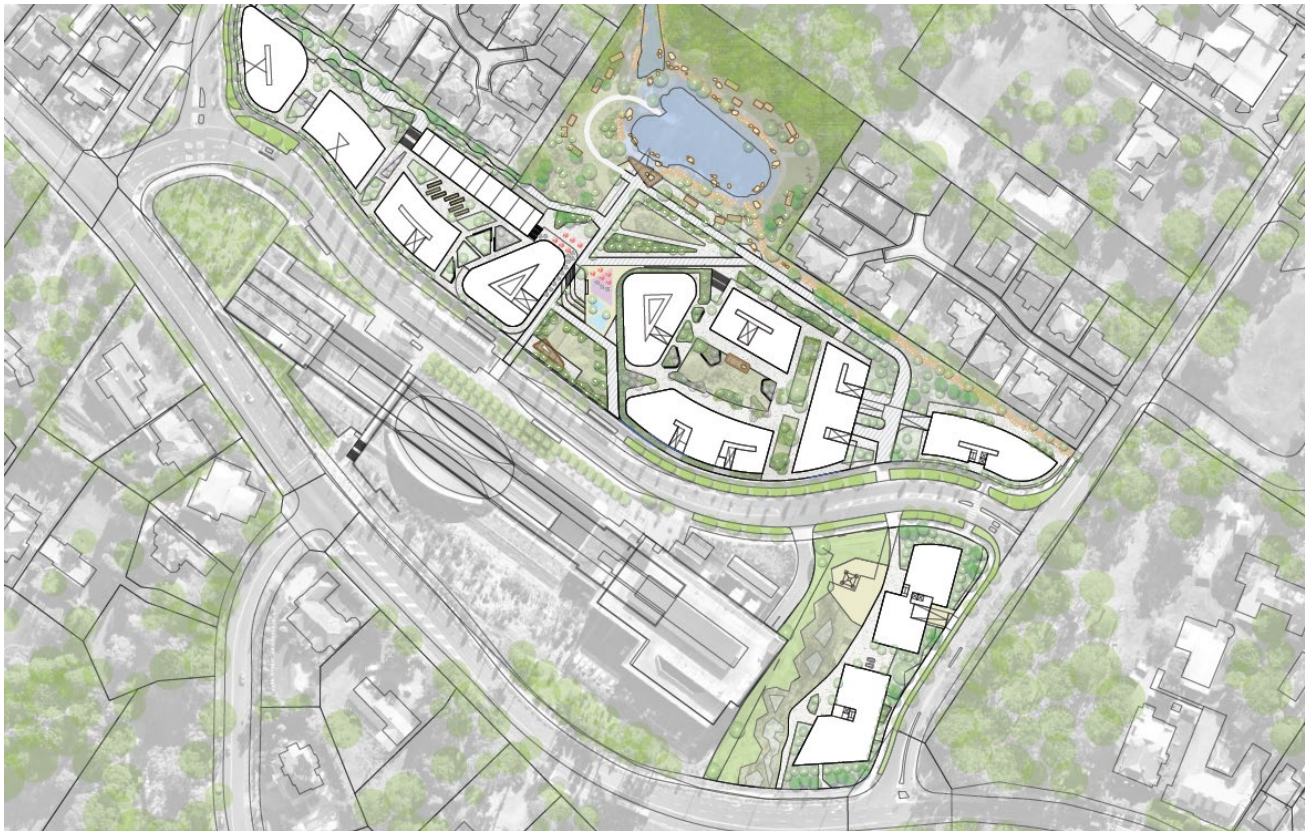

Figure 27 Landscaped concept

Source: SJB

6.2 Built form

The indicative massing proposed for the SSP provide for a mix of buildings up to five (5) storeys in height, when viewed from Bradfield Parade, with potential for an additional storey accommodated at lower ground floor level to the north of the B4 zone (as shown on **Figure 28**). A 2 storey podium is provided to the mixed use development towards the centre of the site, with residential towers of 5 storeys (when viewed from Bradfield Parade) provided above. Apartment buildings in the R4 High Density Residential zone to the east and west of the precinct range from 2-5 storeys in height.

Residential built form has been oriented to provide residents with views to the north over the pond basin and trees and towards the rolling hills to the north. This also ensures the majority of the apartments receive adequate levels of direct sunlight and are spaced to provide privacy in a manner consistent with SEPP 65 and the Apartment Design Guide. The buildings have been deliberately articulated to break up the built form and reduce the visual impact of building mass. This scale of development is consistent with what is envisaged in the Cherrybrook Station Structure Plan and Implementation Framework.

KEY

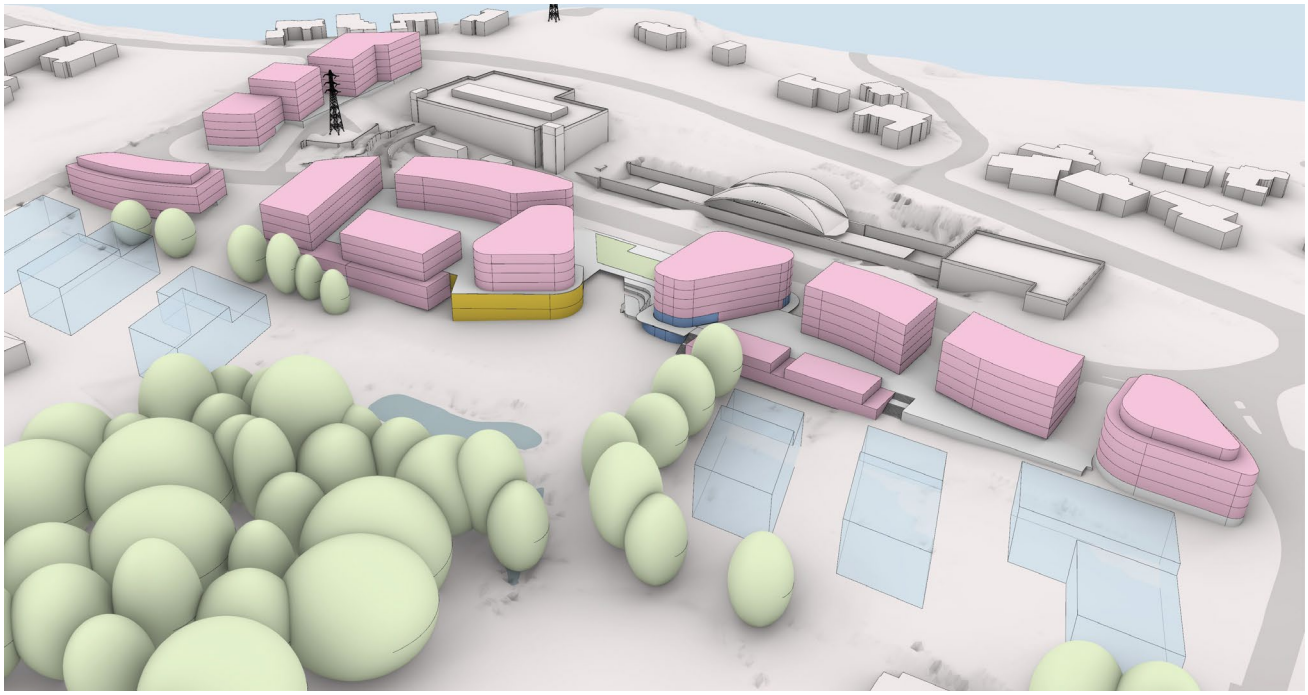

Figure 28 Potential massing of Reference Scheme from the north west

Source: SJB

6.3 Land uses

Retail and Community uses

The ground floor centred on Bradfield Parade is the most publicly accessible level of the development, being located adjacent to the Cherrybrook Station entry and providing community and retail uses (as shown in **Figure 29**). The multi-purpose community facility (which may include a library) is afforded a prominent location at the northern edge of the Community Open Space, with its main entrance clearly visible from the station entrance. Retail uses edge the Community Open Space with a potential for around 3,200sqm of retail GFA (including a retail anchor / supermarket located within a podium that is surrounded with active uses). These retail frontages extend along Bradfield Parade where a high level of pedestrian traffic is anticipated.

The mix of indicative ground floor business uses and tenancy distribution in the Reference Scheme is provided below.

Figure 29 Reference Scheme – indicative station level plan

Source: SJB

Residential uses

Further from the Community Open Space to the western and eastern residential areas of the precinct the street interface has residential units on the ground floor as opposed to retail tenancies. Buildings are setback from the street to create a green interface and afford residents of ground floor units with privacy. Communal entry points and lobbies are deliberately located on the street to ensure that units have an address and activate the street.

Figure 30 Artist's impression – view north from Bradfield Parade of ground floor retail and community uses and residential above

Source: SJB

6.4 Gross floor area and development yields

As described within the Urban Design Report (**Appendix D**), the Reference Scheme will accommodate approximately 37,813 square metres of GFA. This will yield approximately 390 dwellings, including a 5% target of the residential GFA as affordable rental housing for a minimum of 10 years. The urban design report provides a breakdown of GFA for each block.

7.0 The proposed planning framework

The current planning framework is inadequate to deliver upon the vision and intended outcome for the Cherrybrook Station SSP. On this basis, it is appropriate to consider a new planning framework that:

- facilitates high levels of land use and public transport integration
- reflects the transformative impact that proposal will have on the locality while respecting the heritage and cultural values that the local community attributes to their area
- includes a clear strategic intent
- is well integrated
- provides certainty and clarity of development outcomes, while facilitating innovation and site specific responses when detailed design is undertaken
- is consistent with the Reference Scheme, and in particular is derived from and aligned with key assumptions and yields
- provides for community participation in the decision making process.

The new planning framework that will guide the renewal of the Cherrybrook Station SSP considers its heritage, environmental values and physical constraints. The proposed framework includes:

- **Amending Hornsby Local Environmental Plan 2013** – This will include a new set of zoning and key development standards applied to the Cherrybrook SSP.

- **A site-specific development control plan (design guide)** – This will include detailed controls to inform future development of the precinct.

An overview of proposed amendments to the planning framework is at **Appendix A**. The draft site-specific design guide is at **Appendix B**.

7.1 Amendments to Hornsby Local Environmental Plan 2013

The following amendments to Hornsby Local Environmental Plan 2013 are proposed:

- amend the "Land Zoning Map" to exclude the land from the R2 Low Density Residential zone and include it in part B4 Mixed Use zone, part R4 High Density Residential zone and part RE1 Public Recreation zone
- amend the "Height of Buildings Map" to increase the maximum height of buildings from 8.5m to part 18.5m and part 20.5m and remove the 8.5m maximum height of buildings control from the land containing the station and commuter car park
- amend the "Floor Space Ratio Map" to insert a maximum floor space ratio of part 1:1 and part 1.25:1
- amend the "Additional Permitted Uses Map" to include the Cherrybrook Station Government Land State Significant Precinct, including allowing Residential Flat Buildings in the B4 Mixed Use Zone
- insert a new "Key Sites Map" and show the Cherrybrook Station Government Land State Significant Precinct to trigger Additional Local Provisions
- insert a new clause 6.10 "Development in the Cherrybrook Station Government Land State Significant Precinct" outlining additional local provisions
- insert a new clause 6.11 "Site area of proposed development includes dedicated land" to ensure the site area of any new dedicated public land is included for the purpose of calculating FSR

This section provides a summary of the proposed land use zoning, FSR and building height, with the proposed maps shown on **Figure 33** to **Figure 37**.

Table 2 Proposed amendment to the planning framework – key information

Matter	Existing	Proposed
Zone	R2 Low Density Residential	Part B4 Mixed Use, part R4 High Density Residential and part RE1 Public Recreation
FSR (max.)	Nil	Part 1:1 and part 1.25:1
Height (max.)	8.5m	Part 18.5m and part 20.5m 8.5m removed from land containing station and commuter car park

7.1.1 Land use zoning

A range of land uses will be accommodated within the Cherrybrook Station SSP. The proposed amendments to the land use zoning for the Cherrybrook Station SSP and site-specific design guide have been prepared to guide the allocation of land uses and interface with the public domain.

Zone B4 Mixed Use is proposed for the central part of the Cherrybrook Station SSP.

Consistent with the objectives of this zone, this will:

- enable a range of compatible, population-serving employment uses such as commercial premises and community facilities that can provide for the day to day convenience and lifestyle needs of the new community

- enable appropriate local employment opportunities, including in office environments
- focus activity along the central public domain spine, providing for vibrant 'main street' environments with an activated public domain adjoining by spaces for outdoor dining and similar activities
- enable residential uses at upper levels to provide 'reciprocal amenity', where the residential uses benefit from the high levels of amenity provided by the public domain and the public domain benefits from engagement and passive casual surveillance provided by the residential uses.

It will also accommodate existing infrastructure associated with Cherrybrook Station.

The R4 High Density Residential zone is proposed for the frame areas of the Cherrybrook Station SSP. This zone will primarily support residential land uses, in particular residential flat buildings.

The RE1 Public Recreation zone is proposed for the Environmental Space to the north of the precinct as public open space. The zone objectives relate principally to the use of land for public open space or recreational purposes.

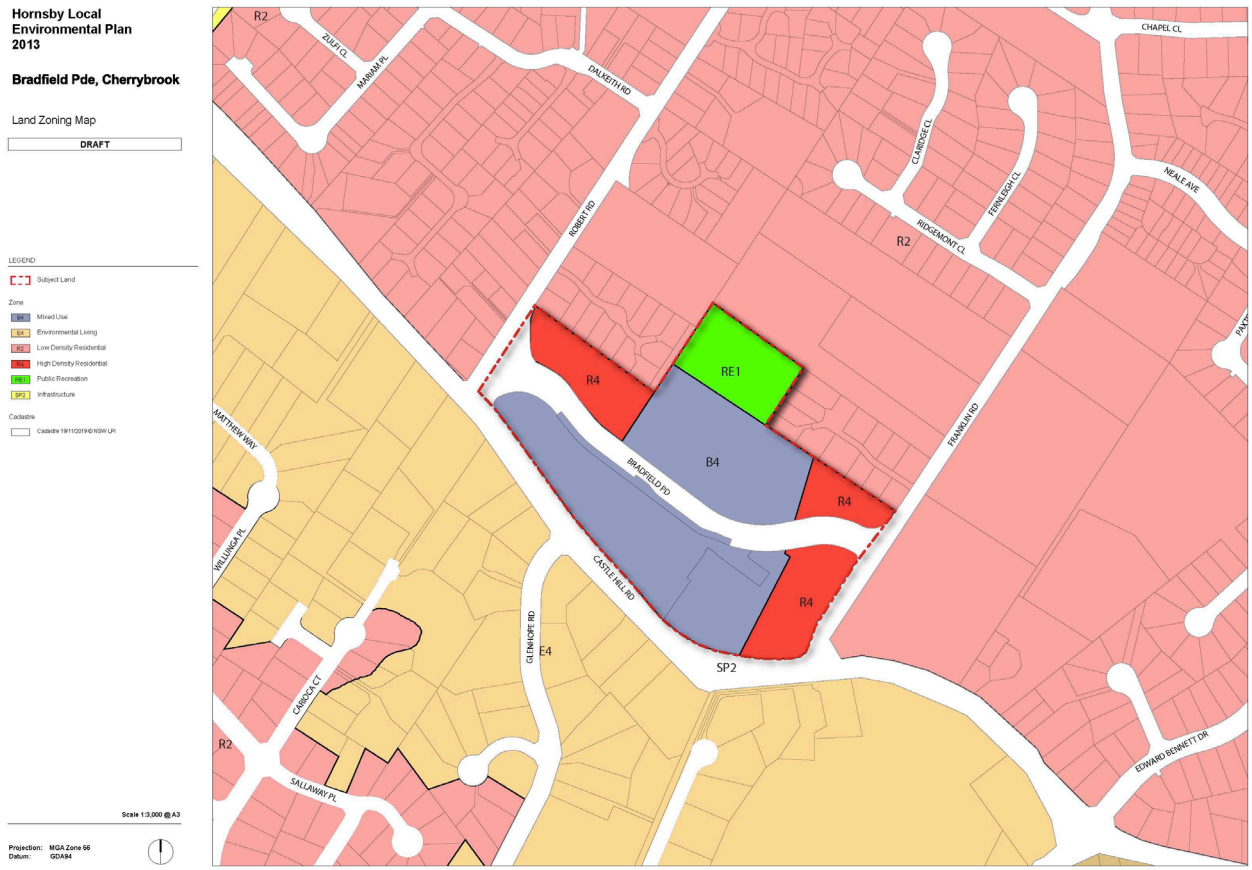

Figure 31 Proposed Land Use Zoning

Source: Ethos Urban

Schedule 1 - Additional permitted uses

It is noted that excluding shop top housing, residential accommodation is prohibited in the B4 Mixed Use zone. Due to the nature of the proposal, including the need to mediate significant gradient change and provide for large floorplates to accommodate a supermarket, it is possible that some residential uses will not be fully located above non-residential uses. Although such a built form outcome is appropriate, as such it may not constitute shop top housing under land use interpretations that have in the past been applied by the NSW Land and Environment Court. Rather, it may be defined as a residential flat building which is prohibited in

Zone B4 Mixed Use in the HLEP2013. To overcome this, it is proposed to amend the HLEP2013 to include residential flat buildings as an 'additional permitted land use' where in Zone B4 Mixed Use in the Cherrybrook Station SSP. The design guide will include provisions to ensure any residential flat buildings adjoining the central open space spine ensure a high level of activation of this space.

This clause would be supported by an amended Additional Permitted Uses Map to identify the Cherrybrook Station SSP, as shown in **Figure 32** below.

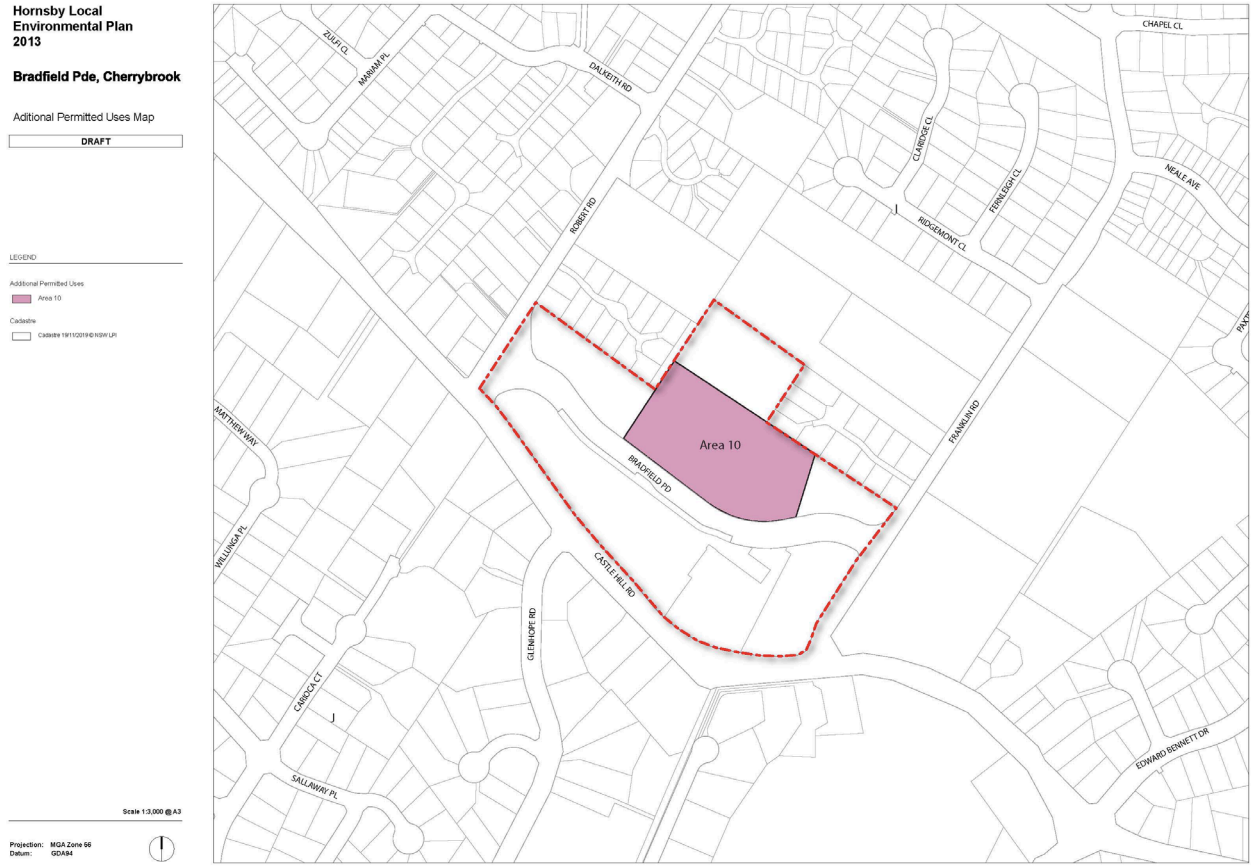

Figure 32 Proposed Additional Permitted Uses Map

Source: Ethos Urban

7.1.2 Maximum height of buildings

Amendments to the maximum building height under the Hornsby LEP 2013 are required to facilitate the proposed redevelopment of the Cherrybrook Station SSP. These amendments are focused on areas intended to accommodate future buildings, with the tallest height at 20.5 metres in the central portion of the Cherrybrook Station SSP, where a B4 Mixed Use zone is proposed to apply. The maximum buildings heights come down to 18.5 metres along the frame areas to allow for a transition in scale to the surrounding lower scale areas surrounding the Cherrybrook Station SSP. The 8.5 metre maximum building height that currently applies to the land containing station and commuter car park has been removed so that no control applies to these parcels.

An amended Height of Buildings Map is proposed as shown in **Figure 33** below.

It is noted that the proposed maximum heights are greater than which is provided for in the Hornsby LEP 2013 for development of up to 5 storeys in height.

The urban design study outlines how these heights have been determined. As can be seen, a greater floor to floor height has been allowed for the ground level of land in Zone B4 Mixed Use to provide for commercial uses such as shops, restaurants and cafes. This approach has been adopted by many other mixed use renewal precincts that seek to create 'main street' environments where the public and private domain interface. Similarly, a greater height has also been provided for the lower levels to accommodate office uses to provide for local employment opportunities. Residential floor levels are consistent with conventional heights.

An additional allowance has been made to navigate the challenges associated with the steep slope of the site and the large floorplates needed to accommodate commercial and community uses, as well as for any lift overruns to cater for the multi-storey nature of the proposal.

To ensure buildings are read consistent with the intent of the precinct, in addition to a height limit in metres, the design guide requires development to also comply with a storey limit. The design guide also includes a provision that seeks to prevent the use of space within a floor to be provided for greater than envisaged yield through self-contained mezzanines or lofts.

Figure 33 Proposed Height of Buildings Map

Source: DPE

Height of buildings has been subject to considerable discussion as part of the SSP Study process. Prior to Test of Adequacy, Landcom and Sydney Metro proposed a maximum height of 22m (refer **Figure 34**). However, as part of ToA, DPE requested that the 22m height be reduced to 20.5m (a height Landcom have previously suggested) to better reflect the mixed-use section of a 5 storey scheme. Consequent to this, Landcom and DPE have agreed to work on refining the Reference Scheme and supporting studies following public exhibition to ensure consistency with the proposed height control. As such, any reference in a supporting document to 22m, in particular the material appended to this SSP Study, should be read as 20.5m. It is noted that the inconsistency between the Reference Scheme and DPE's height control is minor and relates to a relatively small portion of the built form.

If future development at the detailed DA stage results in any breach to the height control due to building elements like lift overruns, this can be addressed through clause 4.6 of the HLEP 2013 provisions.

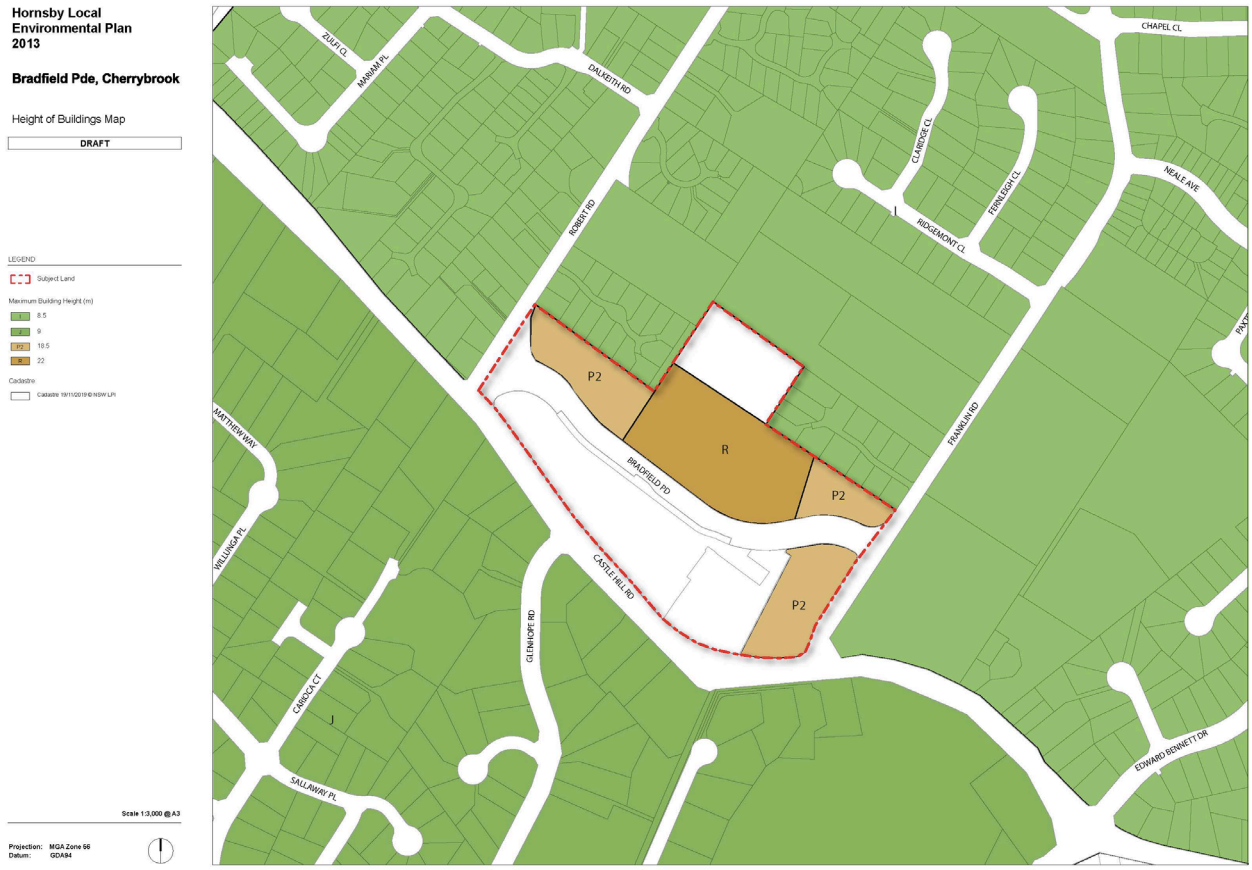

Figure 34 Originally proposed Height of Buildings Map

Source: Ethos Urban

7.1.3 Maximum floor space ratio

Currently no maximum floor space ratio (FSR) applies to Cherrybrook Station SSP under the Hornsby LEP 2013. Despite this, FSRs under the Hornsby LEP 2013 have typically applied to land located within the LGA's strategic and local centres (e.g. Hornsby, Pennant Hills and Thornleigh), seeking to manage the bulk and scale of future higher density buildings in these localities. With Cherrybrook's future role as a local centre (as identified within Council's LSPS) and the proposal seeking an increase in density in the Cherrybrook Station SSP, it was considered appropriate to include maximum FSRs as part of the proposed amendments to the Hornsby LEP 2013.

Amendments to the maximum floor space ratio (FSR) of the Hornsby LEP 2013 are proposed to facilitate the proposed renewal of Cherrybrook Station SSP. The proposed FSR has been informed by the yield achieved by the Reference Scheme. The intent of the maximum FSR control, working in combination with the maximum Height of Buildings control, is to provide some flexibility in the design of street blocks and public domain, with the gross floor area permitted by the maximum FSR able to be distributed across the block to suit the best design outcome.

Notwithstanding this, a maximum floor space ratio of 1.25:1 has been applied to the developable government land north of Bradfield Parade and 1:1 to the developable government land south of Bradfield Parade. This is compatible with the proposed new FSR for the broader surrounding Cherrybrook Station Precinct.

It is noted that FSR is relatively low compared to building heights. However, when factoring in land included within the site area however will not be occupied by buildings such as the publicly accessible open space, the 'effective' FSR available for development will be considerably greater. This is reflected in proposed amendments to the Hornsby LEP 2012 discussed later in this planning report.

An amended Floor Space Ratio Map is proposed as shown in **Figure 35** below.

It is noted that the suite of form based controls in the design guide and the ADG, including for landscaped open space and setbacks, will work in conjunction with FSR to help shape appropriate built form outcomes.

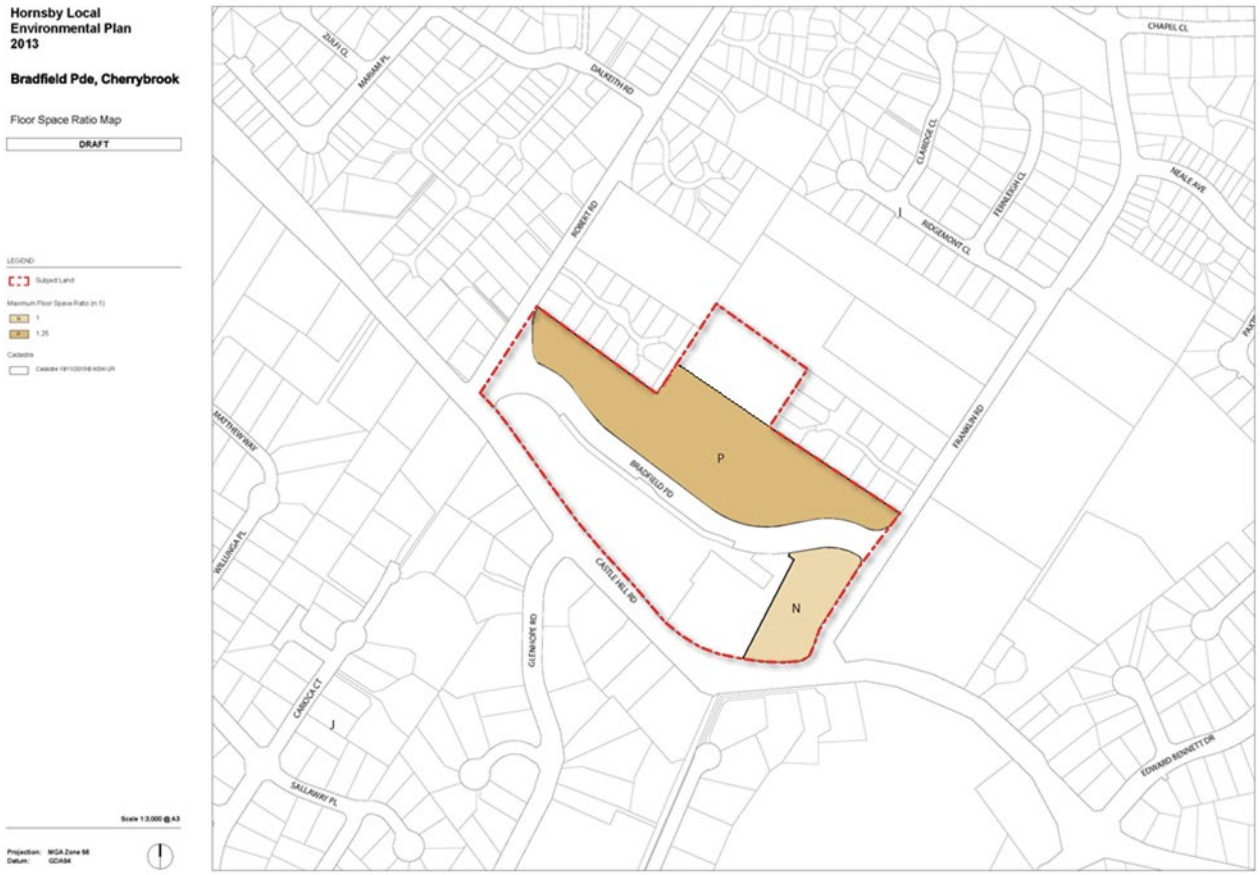

Figure 35 Proposed Floor Space Ratio map

Source: Ethos Urban

7.1.4 Additional local provisions for Cherrybrook Station Government Land SSP

A new clause is proposed to be inserted into the Hornsby LEP 2013 to outline certain local provisions for Cherrybrook Station SSP. The objective of this clause is to ensure that development within the Cherrybrook Station Government Land State Significant Precinct:

- has considered the DCP
- provides for an adequate area of publicly accessible open space to cater for the needs of the precinct
- provides for an adequate amount of affordable housing.

The specific provisions under this clause are described below.

Minimum area for publicly accessible open space

The objective of this provision is to ensure that development provides for an adequate area of publicly accessible open space to cater for the needs of the precinct. This provision will outline the requirements for the relevant consent authority to be satisfied that development will be consistent with the objective to deliver at least 3,000 square metres of publicly accessible open space within the B4 Mixed Use zone.

Requirement for affordable housing

A clause is proposed to be included in the Hornsby LEP 2013 that ensure at least 5% of the gross floor area used for the purpose of residential accommodation will be used for the purposes of affordable housing for a minimum of 10 years.

This clause would be supported by a Key Site Map to identify the Cherrybrook Station SSP, as shown in **Figure 36** below.

Figure 36 Proposed Key Sites map

Source: Ethos Urban

7.2 Site-specific development control plan (design guide)

Provisions for the Cherrybrook Station SSP are also contained within the draft site-specific development control plan (design guide) (refer to **Appendix B**). The design guide is intended to provide detailed planning and design guidelines to support the planning controls in the Hornsby LEP 2013.

The principles underpinning this document include:

- providing further detail on important matters for consideration derived from the Reference Scheme
- general consistency with the Hornsby DCP 2013, including for key content and structure and language (adoption of the Desired Outcome and Prescriptive Measures approach).

7.3 Planning agreement

As part of the preparation of the SSP Study, Landcom and Council staff discussed the Section 7.11 developer contributions that would apply to the future development on the Cherrybrook Station SSP. Council officers advised that:

- while the current Section 7.11 Contributions Plan 2020-2030 applies to the land comprising the Cherrybrook Station SSP, the infrastructure in it has not accounted for the additional population anticipated from development on the Cherrybrook Station SSP or the Cherrybrook Station Precinct
- Council will not be in a position to prepare a contributions plan that addresses the extra infrastructure demands arising from Cherrybrook Station SSP and Cherrybrook Station Precinct development until DPE completes its Place Strategy for the Cherrybrook Station Precinct. The Place Strategy is intended to be publicly exhibited concurrently with the Cherrybrook Station SSP study and is likely to contain infrastructure actions and strategies for the broader Cherrybrook Station Precinct.

The timeline for a contributions plan that addresses the Cherrybrook Station SSP is difficult to forecast with any accuracy as:

- Council's views on the infrastructure in DPE's forthcoming Place Strategy, particularly the infrastructure to be funded by contributions, are unknown
- the contributions plan will require selection and costing of works and will need to be publicly exhibited
- depending on the residential contribution rates, the contributions plan may need to be referred to IPART for review (plans that require contributions greater than $20,000 per dwelling require IPART review).

Clarity and certainty in local infrastructure contributions should be locked in prior to commencement of any divestment program for the land, as this also is likely to affect development feasibility. In discussions, Council staff expressed interest in negotiating an agreement prior to the formulation of a Section 7.11 contributions, but only if the infrastructure offer represented value over and above what would be received through standard Section 7.11 contributions.

Sydney Metro and Landcom plan to recommence discussions with Council during the assessment of the SSP rezoning proposal, with the intention of negotiating and ultimately entering into a planning agreement. It is anticipated that the planning agreement will relate to the two key public benefits that will be delivered through the development of the SSP; the proposed public open space and the community facility.

Should the 390 dwellings proposed in the Reference Scheme be subject to Council's current Section 7.11 contributions plan, approximately $7.53 million in local contributions would be levied from the development (refer to **Table 3** below). However, the combined cost of land and works associated with the delivery and dedication of the proposed public open space and the community facility will significantly exceed the estimated development contributions of development in the precinct, with an estimated combined cost of $8.1 million for land and $16.8 million (**Table 4** below and section 3.4 of **Appendix X**).

Landcom intends to have further discussions with Council in relation to the following matters:

- specific details of a possible planning agreement, including land, works and development contributions offsets
- cost recovery for the portion of the community facility that caters for the demands of the broader Cherrybrook Station Precinct (noting that future development in the SSP will generate the demand for approximately 20% of the 1,300sqm GFA)
- preference for the transfer of land and infrastructure to Council ownership
- works specifications
- responsibilities for maintenance and defects liability periods
- timing of delivery and handover.

Table 3 Estimated development contributions

	Amount*	Contribution rate**	Adjusted rate***	Contribution
1 bedroom dwelling	78	$12,863.70	$12,863.70	$1,003,368.60
2 bedroom dwelling	234	$21,382.73	$20,000.00	$4,680,000.00
3 bedroom dwelling	78	$25,738.82	$20,000.00	$1,560,000.00
Retail per 100sqm GFA	3,200sqm	$8,802.24	$8,802.24	$281,671.68
Total				**$7,525,040.28**

Source: Landcom

** hypothetical dwelling mix for 390 dwellings based on Reference Scheme (20% x 1 bedroom, 60% x 2 bedroom, 20% x 3 bedroom) and estimated retail GFA based on Reference Scheme*

*** Contribution rates applying to RFBs and Shop Top Housing in south sub-catchment as per Hornsby Shire Council's Section 7.11 Development Contributions Plan 2020-2030*

**** Adjusted rates based on Ministerial Direction relating to contribution threshold cap of $20,000 per dwelling*

Table 4 Infrastructure costs schedule*

Land			
Description	**Approximate Area (m2)**	**Rate ($/m^2)**	**Estimated cost ($)**
Multi-purpose community hub	1,300 m2	$4,000/m^2	$5,200,000
Central open space (village square plus community gathering space)	4,500 m2	$425/m^2	$1,912,500
Environmental space around pond	6,700 m2	$150/m^2	$1,005,000
		Total (land)	**$8,117,500**
Works			
Description	**Approximate Area (m2)**	**Rate ($/m^2)**	**Estimated cost ($)**
Multi-purpose community hub (cold-shell)	1,300 m2	$3,326/m^2	$4,323,800
Central open space (station plaza plus community gathering space)	4,500 m2	$911/m^2	$4,099,500
Environmental space around pond	6,700 m2	$1,246/m^2	$8,438,200
		Total (works)	**$16,771,500**
Total (land and works)			**$24,889,000**

Source: GLN 2022

** Rates and costs are based on 2020 values / estimates. If Landcom seeks to enter into a planning agreement, the value of any offsets against local infrastructure contributions would need to be adjusted (indexed) for inflation. A clause to this effect could be included in the planning agreement.*

8.0 Address of Study Requirements

This section of the planning report addresses the study requirements issued by the DPE. The study requirements set out what must be considered as part of the SSP Study for the Cherrybrook Station Government Land SSP.

Note that some of these study requirements relating to urban design, public domain, planning, strategic context and justification have been discussed in **Section 5, 6 and 7** of this planning report. These study requirements are addressed by referencing back to these earlier parts.

8.1 Vision, strategic context and justification

Study Requirement 1.1
Informed by the vision for the Cherrybrook Station SSP as set out in the 2013 North West Rail Link Corridor Strategy, prepare a draft vision, principles and master plan options for the SSP site, including consideration of adjacent sites, for review through the project governance structure and/or DPE

As noted in the Urban Design Study prepared by SJB (refer to **Appendix D**), the North West Rail Link Corridor Strategy and the Cherrybrook Structure Plan have been key informants of the proposal. Key to both documents is the promotion of transit-oriented development. In particular, through a range of measures such as providing for density next to a metro station and providing for residential uses co-located with retail, recreational and community uses featuring a highly walkable and connected public domain with good environmental amenity. This has guided the SSP Study planning and design process.

While not setting a draft vision, Part 8 of the Urban Design Study outlines key considerations that led to the final vision (refer to study requirement 1.4 below), including the landscape narrative and site qualities and assets. This informed the overarching development principles for the Reference Scheme such as “create a vibrant high to medium density precinct” as well as design parameters and directions such as “deliver pedestrian focussed public domain”.

These principles, parameters and directions were used to inform a number of initial concept options (refer to Part 9.2 of the Urban Design Study at **Appendix D**), which were subject to review and feedback from the Design Review Panel (RDAP) and Project Working Group (PWG). Consistent with the project’s focus on an iterative design process, this feedback was considered and reflected in a smaller number of masterplan options (refer to Part 9 of the Urban Design Study).

The consideration of adjoining, adjacent and nearby sites is evident in the concept options and were fundamental in structuring design responses such as the central open space corridor that connects Cherrybrook Station SSP with the Blue Gum High Forest and metro station, and the siting and orientation of the building envelopes that reduce visual impact on land to the north through measures such as large building setbacks and separation.

Study Requirement 1.2
Outline the strategic planning context for the proposal including an assessment of relevant State planning documents, State Environmental Planning Policies and consideration of local planning documents, including Hornsby Local Environmental Plan 2013

An outline of relevant planning documents, including strategic plans, environmental planning instruments and development control plans, is provided at **Section 5** of this report. A detailed assessment against relevant planning documents is also provided at **Appendix C**.

Study Requirement 1.3
Consider what is required to achieve the desired outcomes, considering for example: built form typologies, density, layout and connectivity of different land uses including the open space Green Grid

Consistent with Landcom's planning vision, the desired outcome for the future of the Cherrybrook Station SSP is a vibrant, mixed use and transit oriented local centre.

Due to its size and complexity, future development is forecast to be a longer term proposition. Bearing this in mind, to deliver the desired outcome the planning framework has been prepared to provide an appropriate balance between certainty for Council and the community with flexibility for Landcom and Sydney Metro to better respond to any future changes and enable innovation over time.

Certainty is provided by including key controls for land use (land use zoning), density (FSR) and scale (height), public open space and requiring consideration of key matters such as built form as part of proposed amendments to the Hornsby LEP 2013. This means that should variation from these provisions be sought in the future, a planning proposal would need to be made and approved, which would require the support of Council.

Flexibility is provided through inclusion of more detailed provisions in the proposed site-specific design guide. This covers layout and design of the public domain and built form, including matters such as setbacks, vehicular access points and deep soil. The merit based nature of these provisions enables responsiveness to any future changes in context, and facilitates innovative design responses.

Study Requirement 1.4
Prepare final place-based vision, principles and master plan for the SSP site following feedback through the project governance structure and/or DPE

Informed by the work as outlined in the address of Study Requirement 1.1, Landcom's vision for the Cherrybrook SSP is for:

> *"an inviting, welcoming place that provides a range of housing choices, open spaces for community activity, spaces for businesses and community facilities, and easy access to new metro services"*

This has been translated into the following planning vision:

> *"Cherrybrook Station Government Land State Significant Precinct is a liveable, transit oriented and mixed use local centre that has a strong sense of place, is compatible with the bushland character of the Hornsby Shire and is a destination of choice for the surrounding Cherrybrook and West Pennant Hills community."*

As can be seen, consistent with the North West Rail Link Corridor Strategy and the Cherrybrook Structure Plan, this embeds transit-oriented development as a key desired outcome.

The technical, engagement and design work was synthesised to create a number of key principles supporting this vision. These principles are included in proposed site-specific design guide in the form of a statement of desired future character. They include:

- the prevailing land use is higher density residential uses providing for greater housing choice
- non-residential uses support the metro station as an 'origin station', and include retail uses such as shops, restaurants and cafes that cater for the everyday needs of the local community and activate the public domain
- the public domain comprises an integrated network of open spaces, streets and pedestrian and cyclist paths and accommodates an urban forest that integrates buildings within a bushland setting

- a continuous corridor of publicly accessible open space connects the metro station pedestrian through the Cherrybrook Station SSP to adjoining land to the north
- an Environmental Space protects, enhances and celebrates the Blue Gum High Forest
- Bradfield Parade is the Cherrybrook Station SSP's main street, and is a vibrant place that accommodates a high quality public transport interchange, connecting metro, bus, taxis and commuter carpark users
- the public domain, including the open space and movement networks
- a multi-purpose community facility occupies a prominent part of the Cherrybrook Station SSP and facilitates community gathering, interaction and learning
- development manages the steep landform to ensure seamless public domain connections and a high level of engagement between the public and private domain
- the Cherrybrook Station SSP supports built form of scale, including up to 5 storeys in height (when viewed from Bradfield Parade)
- building siting, layout and design reinforces the character of the Cherrybrook Station SSP, engages with the public domain, provides for a high level of residential amenity, facilitates the urban forest and achieves architectural excellence.

8.2 Urban design

Study Requirement 2.1
Prepare a detailed site and context analysis with opportunities and constraints mapping for the SSP site, and at a broader level of detail for land within 200 metres of the SSP site boundaries

A number of previous studies have undertaken site and context analysis. This has led to a substantial body of knowledge on this matter.

The Urban Design Study prepared by SJB (refer to **Appendix D**) builds on this body of knowledge, and addresses this study requirement as follows:

- Part 5 - contextual analysis
- Part 6 - site analysis
- Part 7 - synthesis (opportunities and constraints).

This study considered a range of relevant physical, planning and social and economic matters, including landform, land use zoning and demographics. It has also considered nearby land to the extent relevant to address key study requirements such as interfaces and future movement network connectivity.

Figure 39 shows the key constraints affecting future planning for the Cherrybrook Station SSP. These include:

- sloping landform, and in particular the steep downslope in the north-west part of the Cherrybrook Station SSP
- the relatively narrow width of the site north of Bradfield Parade
- infrastructure such as the metro tunnel, metro station stormwater easement and high voltage power lines and their easement
- vegetation, in particular the Blue Gum High Forest
- nearby local heritage items
- noise impacts from Castle Hill Road.

Figure 38 shows the key opportunities affecting future planning for the Cherrybrook Station SSP. A key spatial opportunity was the creation of a central open space corridor. Acknowledging the overarching opportunity to deliver improved land use and transport integration, this was considered to have benefit of

effectively moving people from the broader Cherrybrook precinct to the metro station through convenient, safe and attractive pedestrian connections. In addition, it has the added benefit of ensuring a public domain focus for the Cherrybrook Station SSP. Other key opportunities include:

- protection and integration of the Blue Gum High Forest
- creation of a sequence of spaces that transition from an urban condition associated to the metro station to a more natural condition around the water body and Blue Gum High Forest
- establishment of local landmarks or gateway buildings at key corners.

These key constraints and opportunities were used to:

- identify key matters for investigation by technical specialists and consideration by the design team
- ensure aspirations and proposed solutions are responsive to place
- inform development of a vision and set of design options to deliver this vision.

SJB has identified the landscape narrative, in which the Cherrybrook Station SSP has a heritage of clearing and revegetation, as a key driver of place responsiveness. As noted by SJB, the proposal provides an opportunity for revegetation to better integrate the Cherrybrook Station SSP into the broader Cherrybrook and West Pennant Hills communities. It also makes a contribution to promoting a number of State and local strategic planning policy outcomes such as the increase in urban tree canopy cover (Region Plan Objective 30).

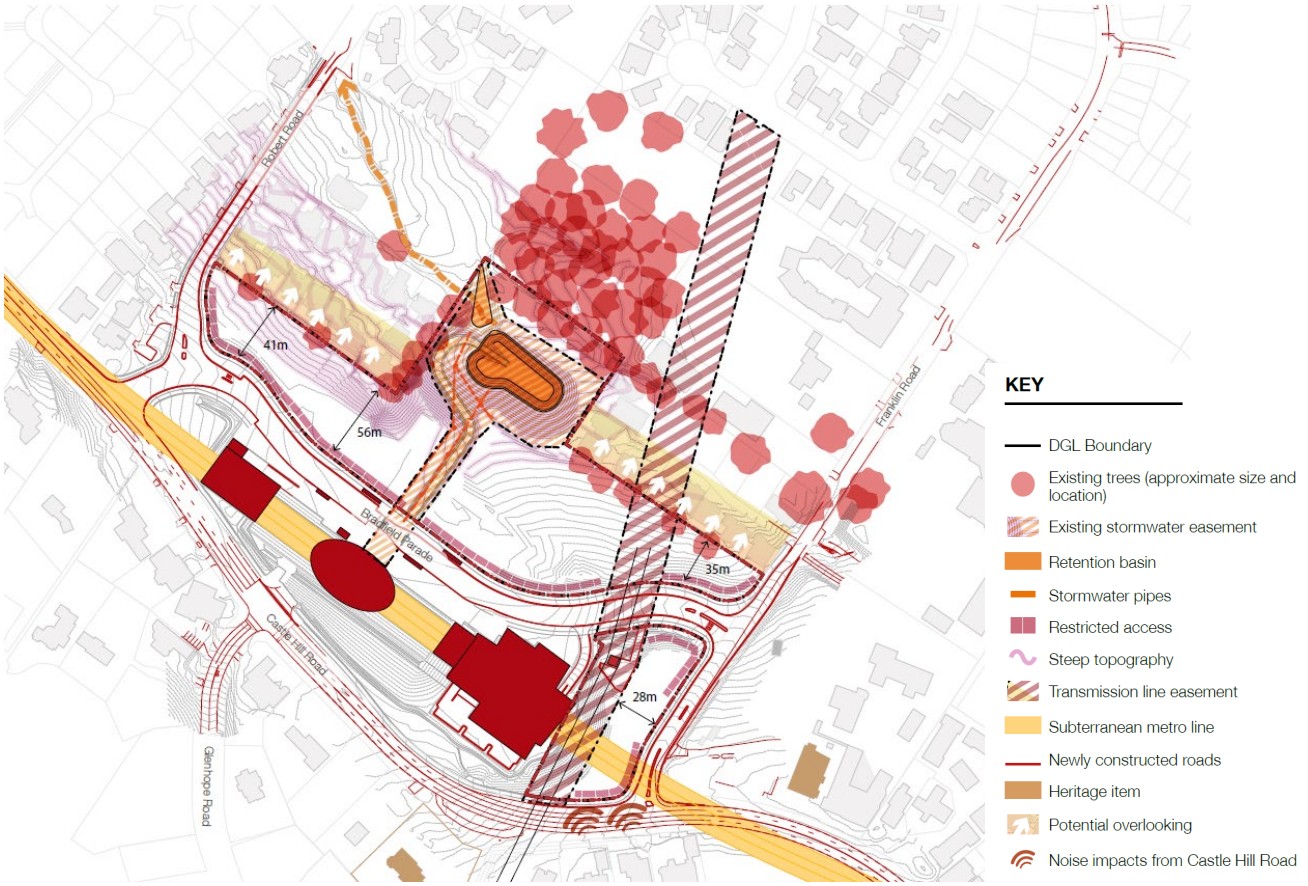

Figure 37 Key constraints of Cherrybrook Station SSP

Source: SJB

Figure 38 Key opportunities of Cherrybrook SSP
Source: SJB

Study Requirement 2.2
Prepare a set of urban design principles that underpin future development of the SSP site that address the items outlined in the 'Purpose of the SSP study' and including ecological sustainable design and best practice and to achieve net zero emissions by 2050 (as outlined in item 11.1)

Consistent with the logical and iterative development of the proposal, the Urban Design Study distils the constraints and opportunities into a succinct number of place qualities to help guide development of the vision and supporting principles. These are:

- **green**: enhancing the natural qualities of the site - the trees and water systems, the undulating topography and long distant views of tree canopy
- **connected**: improving access to and through the site for residents and the broader community, recognising the site's historic connections with movement and its new role today as a public transport gateway to the broader Sydney region
- **convenient**: ensuring that the Cherrybrook Station SSP fulfils everyday needs, providing residents and the broader community with access to services that make the Cherrybrook Station Precinct a local destination
- **liveable**: improving the offering that Cherrybrook provides by providing new community facilities, open space, diverse housing options and more sustainable development.

Figure 39 conceptually illustrates these place qualities.

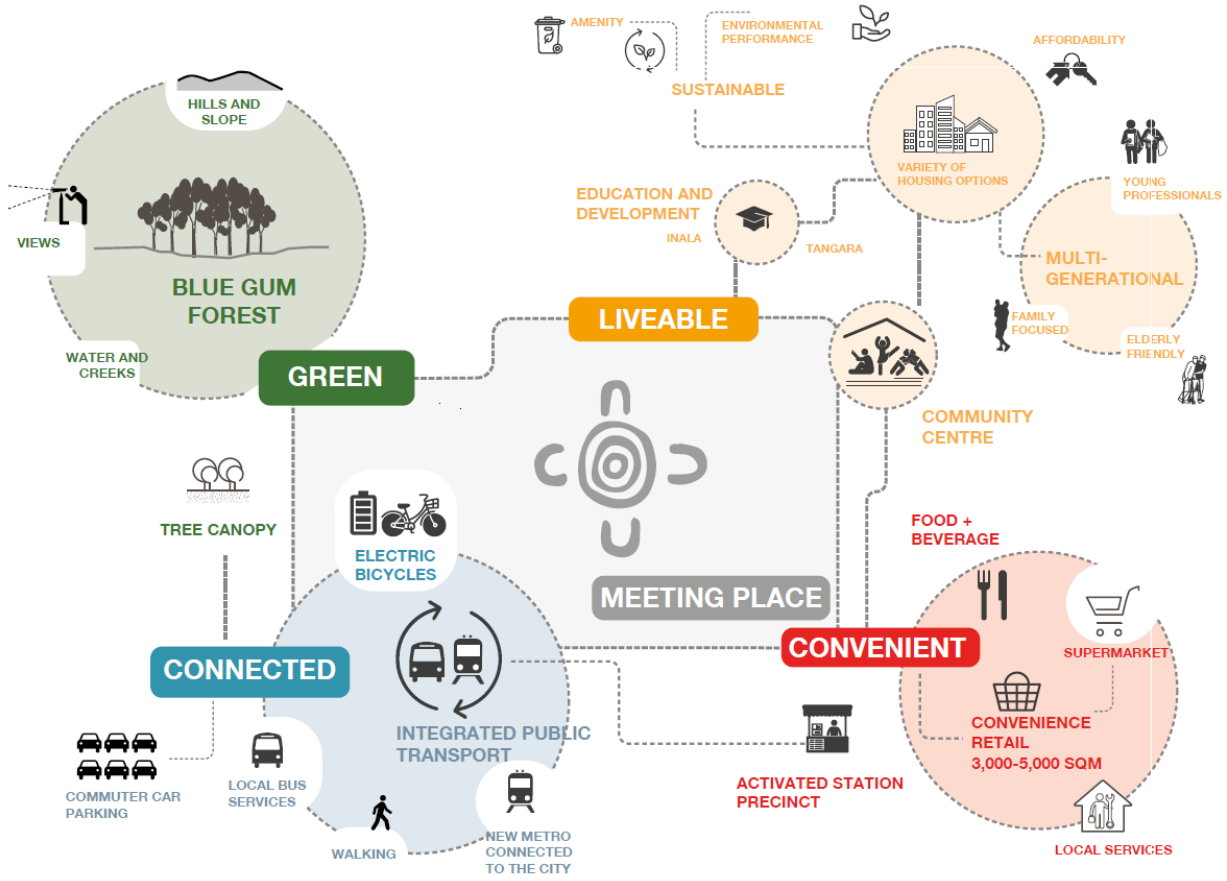

Figure 39 Place qualities of Cherrybrook Station SSP

Source: SJB

From this preceding work, eight (8) development principles were developed to address this study requirement.

1. Retain and integrate natural features and systems
2. Work creatively with the existing landform and celebrate water systems
3. Create a local destination and community gathering space
4. Provide structure for the future development by embedding the pedestrian network
5. Create a vibrant high to medium density precinct
6. Activate the ground plain and harness the energy generated by the metro station
7. Optimise views from the site and frame key views from within the site
8. To set a benchmark for the future development of the Cherrybrook Station Precinct and demonstrate design excellence through designs that are resilient and sustainable.

These were translated into a number of spatial planning directions, including a direct physical and visual connection through the site between the metro station and the Blue Gum High Forest (refer Part 8.4 of the Urban Design Study at **Appendix D**).

Table 5 shows how the principles address the items outlined in the Study Requirements 'Purpose of the SSP study'.

Table 5 Alignment between purpose of SSP Study and principles

Purpose of SSP Study	Principle/s
Facilitate a mixed-use local centre at Cherrybrook Station that supports the function of the station and the needs of the local community	• Create a local destination and community gathering space • Create a vibrant high to medium density precinct
Deliver public benefit through a mixed use local centre including: • high quality new open spaces, public domain, community facilities and local retail that supports the needs of the future community • a range of housing types (including affordable housing) within the town centre that will be highly accessible to the metro station, social infrastructure and retail facilities • to facilitate transit orientated development enabling people to live and work close to public transport and to activate and leverage on the city shaping Sydney Metro project • investigate the movement, access and transport infrastructure requirements from the broader precinct to and from the Cherrybrook Station • a place-based planning outcome that reinforces the local character	• Activate the ground plain and harness the energy generated by the metro station • Optimise views from the site and frame key views from within the site
Deliver transport and movement initiatives and benefits including: • to integrate land use change and mobility • to promote the use of public transport and reduce car dependency • to promote a shift in travel behaviours that makes the network more sustainable, efficient, and resilient • to agree on the appropriate function and performance metrics of roads in the study area • to ensure the transport network operates to appropriate performance levels in the future • to plan for access for special customer needs (e.g. emergency access, disabled customers) • to plan proactively for technology changes and opportunities in the transport system • to ensure that proposed transport investments are a good use of public funds	• Provide structure for the future development by embedding the pedestrian network
Demonstrate the suitability of the site for the proposed land uses	• Retain and integrate natural features and systems • Work creatively with the existing landform and celebrate water systems
Integrate the plans for the mixed use local centre for the government land with the surrounding precinct	

Purpose of SSP Study	Principle/s
Prepare a new planning framework for the site to achieve the above objectives	• Set a benchmark for the future development of the Cherrybrook Station Precinct and demonstrate design excellence through designs that are resilient and sustainable

By integrating land use and transport, the proposal fundamentally promotes ecological sustainable development consistent with the objects of the Act and the strategic intent of the Region Plan, the District Plan and the Local Strategic Planning Statement.

Objective 33 of the Region Plan seeks to deliver "A low-carbon city [that] contributes to net-zero emissions by 2050 and mitigates climate change". Compared to other mechanisms, the planning framework has a smaller number of options to help achieve this outcome. The principles that underpin the Cherrybrook Station SSP look to give effect to this Objective 33 by promoting the integration of land use and transport by providing new homes near public transport, walkways and cycling paths. This will help shape a precinct that will contribute to achieving net zero emissions by 2050.

Further initiatives which seek to contribute toward ecologically sustainable development are detailed in the ESD Plan prepared by Edge Environment (refer to **Appendix Q**) and described in **Section 8.11** of this report.

Study Requirement 2.3
Investigate development options for the site and use these to demonstrate the process for selecting the preferred option. Each option needs to identify the development statistics that are produced from them to understand the development capacity that is being achieved so the outcomes in relation to yield, GFA, population, etc can be clearly understood

Study Requirement 2.4
Preferred option selected considering feedback through the project governance structure and/or DPE

SJB undertook a comprehensive process of developing, testing and refining options for the Cherrybrook Station SSP. This included:

1. concept options
2. master plan options
3. interim master plan
4. five storey investigations
5. Reference Scheme.

This is outlined in the Urban Design Study (refer to **Appendix D**).

All options were developed with an intent to implement the strategic directions established for Cherrybrook under the 2013 Vision and Structure Plan. Testing and refinement was shaped by technical and stakeholder inputs, including:

- benchmarking against other precincts
- consideration of the emerging directions for the broader, surrounding Cherrybrook Station Precinct
- considering the findings of the technical studies, in particular for social infrastructure, retail and commercial demand and housing demand
- design review and advice (the Design Advisory Panel)

- community and stakeholder (in particular the PWG) engagement undertaken in 2020.

The concept options represented the initial exploratory design phase. Feedback encouraged more place responsive refinement.

Responding to this, the master plan options synthesised what were considered to be the best aspects of the concept options and applied them based on further place investigation of place constraints and opportunities. The options were:

1. Hilltop Village
2. Inhabited Forest
3. Green Fingers.

These options are described in section 9 of the Urban Design Study and shown in **Figure 40**.

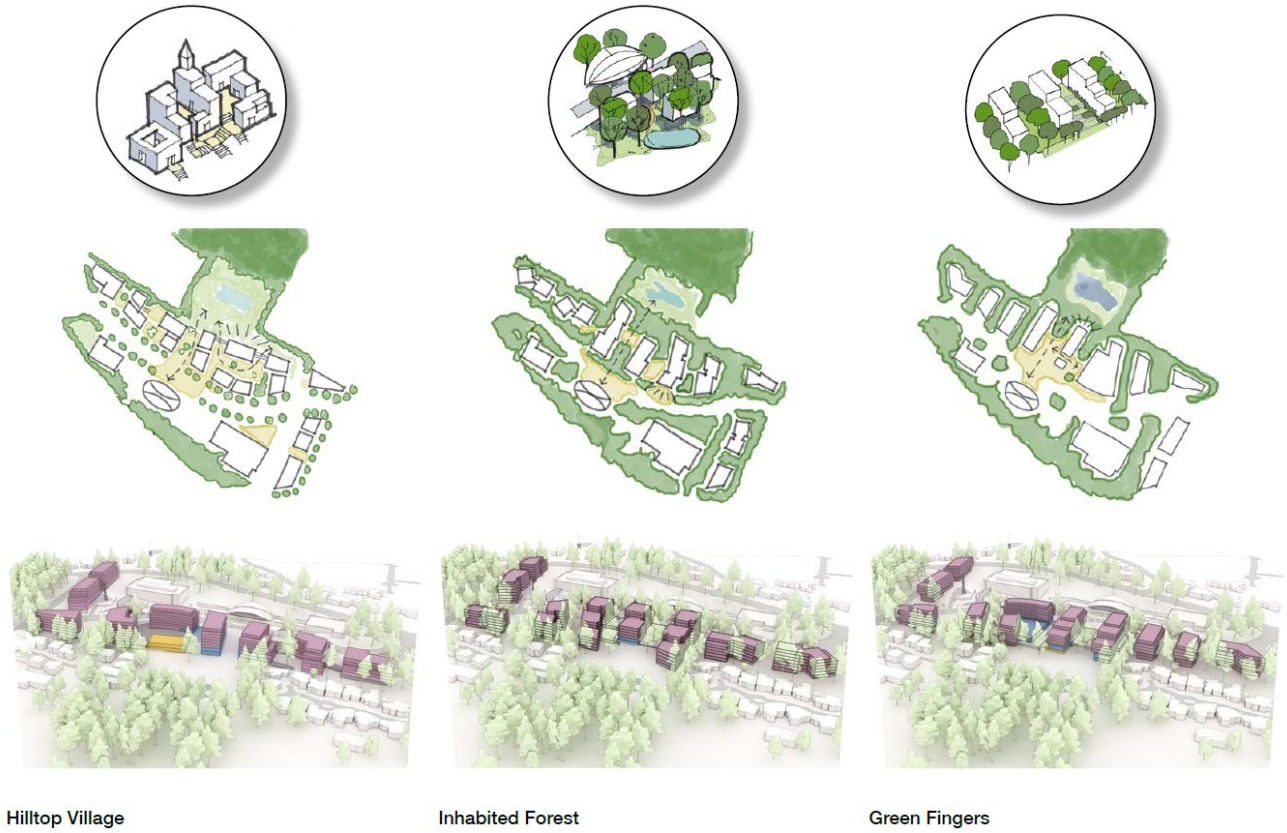

Figure 40 Detailed options

Source: SJB

Feedback was that all options were found to be sound and based on good urban design principles, with no clear preference for any one of the options as each had their own particular merits. Preference was given for the consolidation of open space and the address of tree canopy and deep soil, basements and carparking and optimising for amenity including sunlight and views.

Following this, further analysis and synthesis led to the creation of an interim master plan (refer **Figure 41**).

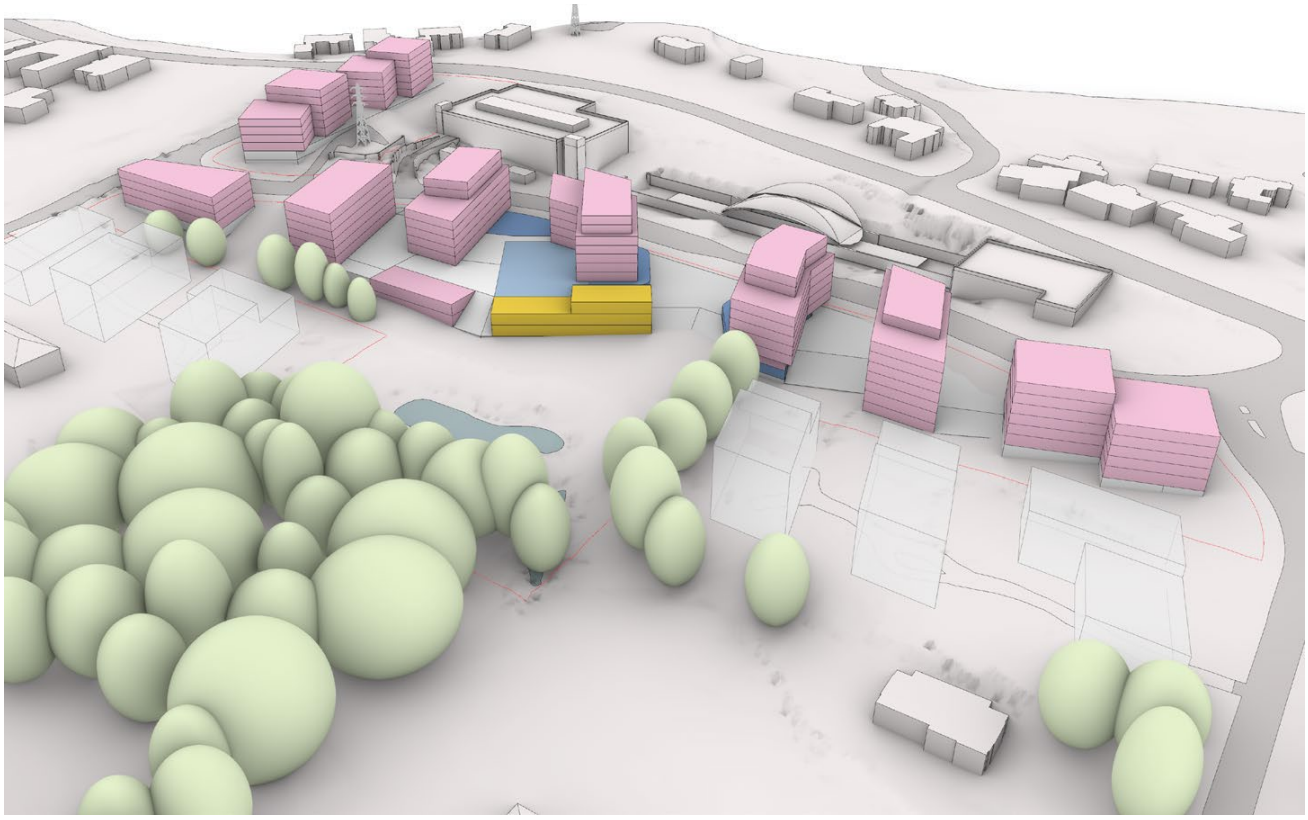

Figure 41 Interim master plan

Source: SJB

This master plan was subject to community and stakeholder engagement. While there were varying views on development of the precinct, there was general community support for the 'green' nature of the proposal, including new open space and retention of the pond, and the provision of cafés and restaurants.

DAP advice was that the interim master plan 'represents a significant improvement on the previous options', and PWG advice was that there is 'general support for the concept which is based on sound urban design and planning principles'.

Both the community and stakeholders encouraged further exploration of building heights, with a request for consideration of lower building heights while still achieving delivery of community benefit such as open space and the community facility. In response, 4 options were prepared and assessed. These are shown in the figure below.

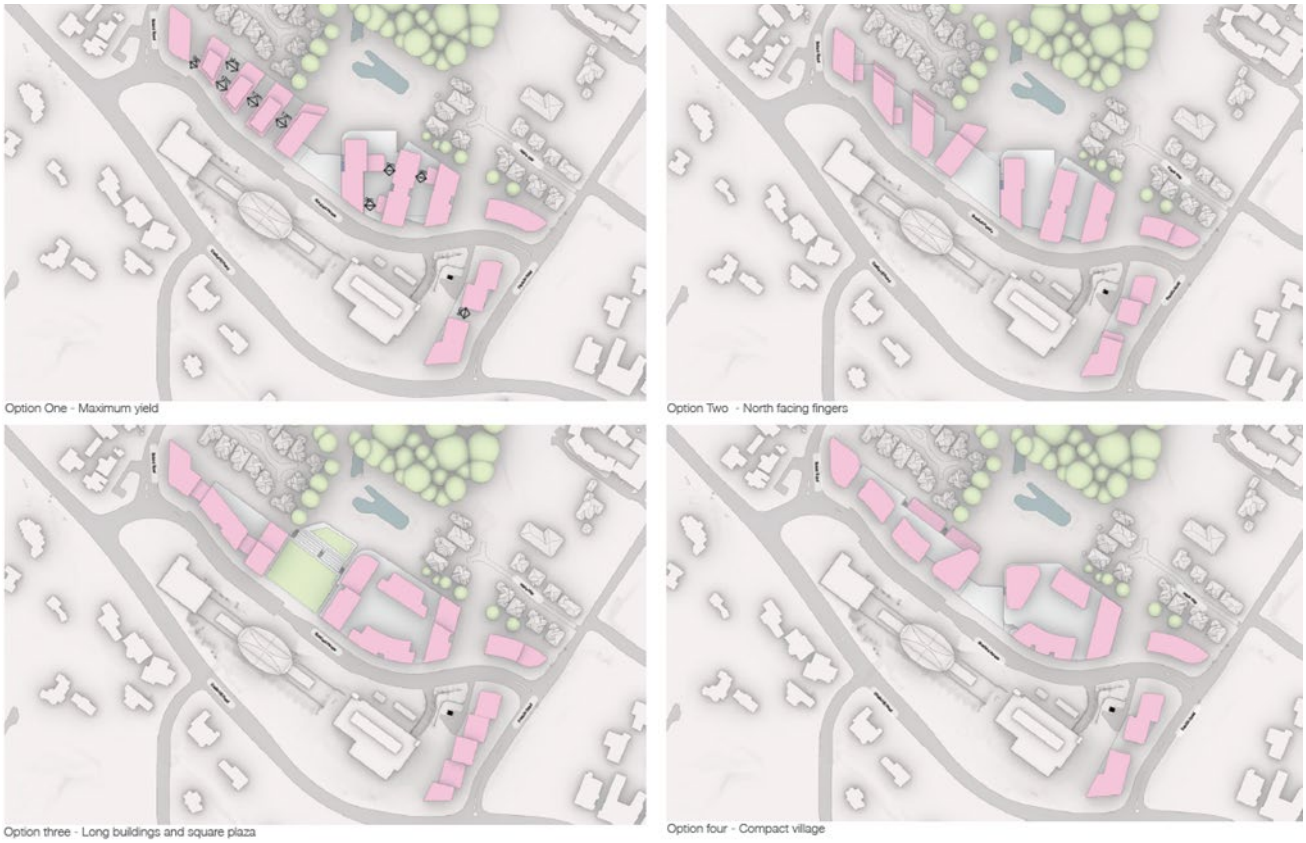

Figure 42 Five storey investigations

Source: SJB

Further testing and refinement considering all feedback received since development of the concept options led to preparation of the Reference Scheme which forms the basis of this planning proposal.

In response to key aspects of feedback, the Reference Scheme:

- confirms development of the precinct for a vibrant, liveable and place responsive local centre that is based on the principles of transit oriented development and encourages the use of public transport, walking and cycling to move around
- maintains the consolidated centrally located open space corridor, with delineation into three distinct but integrated spaces
- providing cafes, restaurants and other active uses adjoining key parts of the open space corridor to activate and enliven it
- embraces the green, bushland character of Cherrybrook, West Pennant Hills and Hornsby Shire overall through substantial deep soil areas to support urban forest and tree canopy coverage outcomes.

Study Requirement 2.5

Prepare a series of plans, including site plans, massing diagrams, shadow analysis and sections, showing the proposed development of the site, including land use, building heights and footprints, public domain, infrastructure and community facilities

Part 11 of the Urban Design Study prepared by SJB addresses this study requirement. This includes plans for key matters such as land use, open space and vehicular access and servicing. The intent and key aspects of these plans have been incorporated in the proposed amendments to the Hornsby LEP 2013 and the proposed site-specific design guide.

Part 12 provides additional plans that illustrate how the Cherrybrook Station SSP may be developed in the future under the proposed amended planning framework in the form of the Reference Scheme.

With reference to specific matters noted in this study requirement:

- Part 11.1 of the Urban Design Study provides a site plan showing principle spatial structuring elements. These have been reflected the proposed site-specific design guide
- Part 11.1 shows the preferred location of the proposed community facility, which is intended to be a multi-functional community facility with a strong relationship to the adjoining public domain
- Part 11.3 shows land use. This has been reflected in the proposed land use zoning amendments to the Hornsby LEP 2013 supported by finer grain detail in the proposed design guide that seeks to in particular focus active frontages along the Community Open Space and parts of Bradfield Parade
- Parts 11.5 and 11.6 show open space and public domain, with Part 12.3 providing further detail. Noting the intent of the Cherrybrook Station SSP to provide for high quality open space of benefit for the broader Cherrybrook and West Pennant Hills communities, the proposed amendment to the Hornsby LEP 2013 will ensure a minimum 3,000sqm of open space within the Cherrybrook Station SSP, and the proposed site-specific design guide provides for further detail around the intent, function, dimensions and landscape strategy for the Cherrybrook Station SSP
- As the Cherrybrook Station SSP is presently serviced by all necessary urban infrastructure such as electricity, figures focus on open space infrastructure (eg, Part 11.5) movement infrastructure (eg, Part 11.1) and water and drainage infrastructure (eg, Part 12.2)
- Part 11.14 addresses maximum building height
- Part 12.16 provides a shadow study for 21 June (winter solstice), with its finding that the proposal will not result in overshadowing of other properties. A provision has been included in the proposed site-specific design guide requiring the layout and design of the Cherrybrook Station SSP, which will in particular shape the location, height and massing of built form, to ensure adequate solar access to the Community Open Space
- massing diagrams are distributed throughout the Urban Design Study.

Study Requirement 2.6

Provide an analysis of the proposed distribution of gross floor area, development yields, building typologies, building envelopes and heights across the site, and population. This information should be used to demonstrate that the proposed rezoning and planning controls have the capability to enable future development applications to comply with the Apartment Design Guide

Establishing a planning framework for the Cherrybrook Station SSP that enables a future DA to comply with the ADG has been a key aim of the design aspects of the SSP Study. The primary mechanism to ensure this outcome has been through development of the Reference Scheme. Through the design process, the Reference Scheme has been used as the benchmark to test, further develop and refine planning provisions. Once compliance with the ADG through the Reference Scheme has been determined, key provisions enabling this such as the location of open space has been reflected in the proposed site-specific design guide. Key

measures in the Reference Scheme include the alignment of buildings to optimise north, east and west elevations where not required to create a street wall to Bradfield Parade and the separation of building segments.

The Urban Design Study provides a number of references to consideration of ADG matters, including:

- Part 2.3 where ADG compliance is noted as a key process consideration, and feedback from the DRP
- Part 11.4 that provides an analysis of the GFA distribution across the Cherrybrook Station SSP on a finer grain, per lot basis
- Part 12.16 that shows the Reference Scheme's compliance with ADG solar access provisions
- Part 12.18 that includes a table summarising compliance with the ADG.

It is to be noted that as it is called up under SEPP65, the ADG will continue to apply to the Cherrybrook Station SSP. This is referenced by adoption of the standard Hornsby DCP 2013 provision relating to the ADG into the proposed site specific design guide for the Cherrybrook Station SSP.

It is considered that the level of detail in testing is appropriate for the rezoning stage. It is not appropriate to subject a rezoning process to the same level of detail as would be appropriate as part of the subsequent, detailed DA stage. For example, detailed architectural floor plans demonstrating compliance with part 4B "Natural ventilation", part 4D "Apartment size and layout" and similar parts of the ADG can be considered as part of this next stage.

Study Requirement 2.7
Provide a view and visual assessment, with particular focus on significant view lines (e.g. local and district views looking up and down the valley from and towards West Pennant Hills), as well as visual impacts and mitigation measures of the proposal on surrounding areas, such as adjoining residential areas, heritage items (eg. Inala and Glenhope), public open space, and existing tree canopy/character. Use eye level views from public parks, street footpaths, station entries and compare to existing views. Identify any mitigation measures. Provide a map identifying all recommended view corridors and agree on any additional view corridors with the Department

Ethos Urban was engaged to prepare a visual impact assessment (VIA) to assess the visual impact of the Reference Scheme and outline potential mitigation measures (refer to **Appendix T**).

The VIA concluded that while of a greater scale than existing development, visual bulk and height associated with this greater scale will be adequately mitigated and the proposal has an acceptable visual impact. It was noted that:

- there are no viewpoints in the public domain that are associated with particular significance such as a through association with a particular vista
- height is derived from SJB's considered analysis of the matters listed in clause 4.3 Height of the Hornsby LEP 2013, in particular site constraints
- the proposal is consistent with the intent of key strategic plans, including the 2013 Cherrybrook Structure Plan, will result in a visual character, including scale, that is appropriate to that of a local centre adjacent to a metro station in a context of a growing and changing Greater Sydney, North West Corridor and Hornsby LGA
- surrounding land, in particular land to the immediate north such as Oliver Way and Kayla Way, is subject to current future planning that is considering greater scale including heights
- consistent with future intent for the Cherrybrook Station SSP reflected in the Reference Scheme and translated into the proposed amendments to the planning framework, the Cherrybrook Station SSP is intended to develop as a series of buildings in a heavily landscaped setting, bringing surrounding vegetation such as the Blue Gum High Forest visually into the Cherrybrook Station SSP

- the planning framework incorporates a range of measures that are likely to collectively reduce the significance of visual impact to at least moderate when viewed from the selected locations in the nearby public domain, including:
  - avoiding a single height 'wall' of development facing to the north through the central open space corridor and providing variation of building heights
  - segmenting and articulating built form
  - incorporating substantial setbacks provided with extensive deep soil planting
  - the proposal has the potential to deliver a number of positive visual outcomes flagged in the Cherrybrook Structure Plan, including through high quality public domain such as the Community Open Space.

In addition to above, the existing landform which slopes down toward the centre of the Cherrybrook Station SSP further reduces the perception of visual bulk and scale of proposed buildings (as shown in **Figure 43** and **Figure 44**).

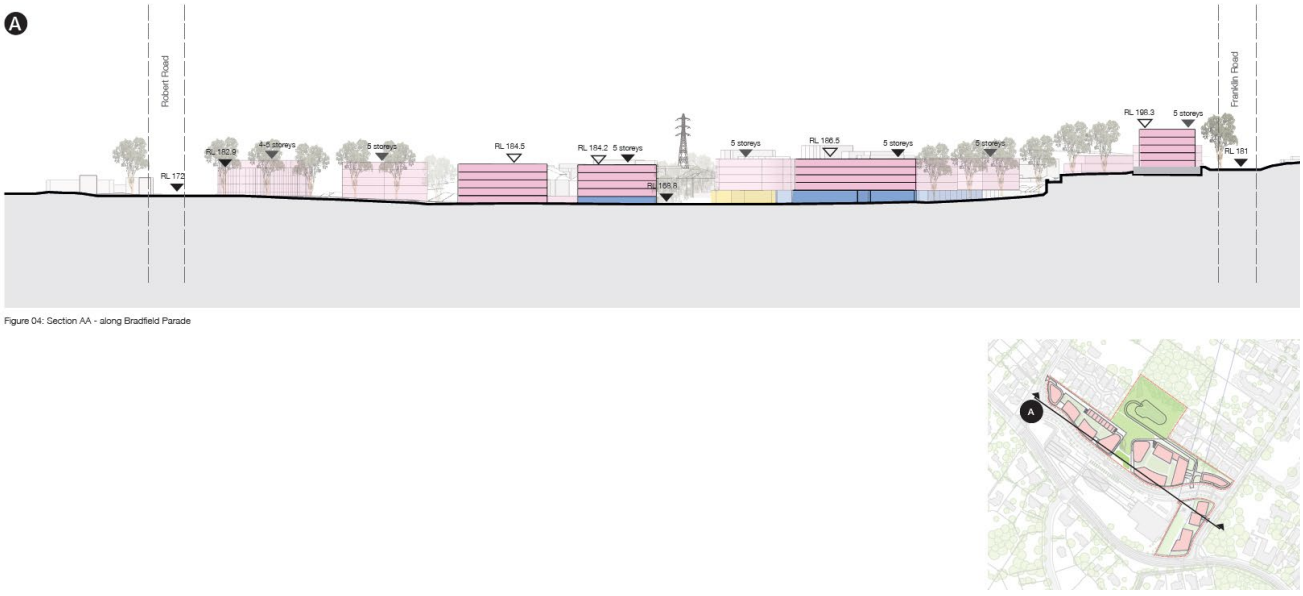

Figure 04: Section AA - along Bradfield Parade

Figure 43 Long section facing north of Cherrybrook Station SSP along Bradfield Parade

Source: SJB

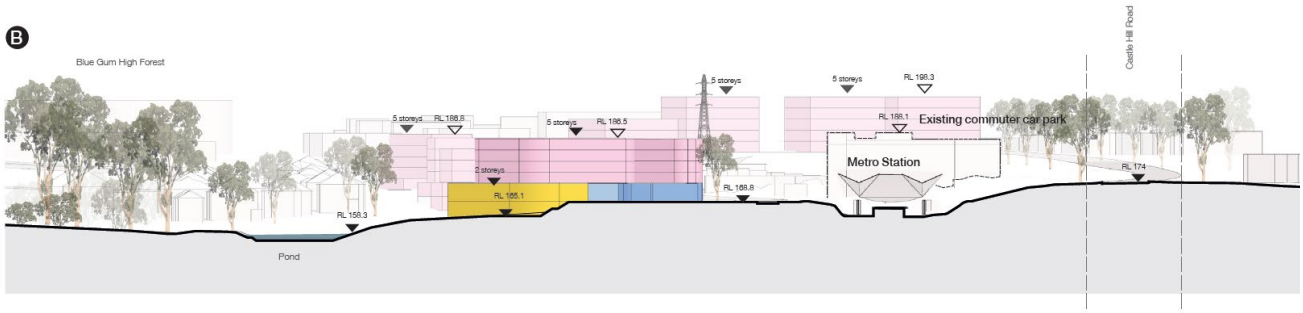

Figure 03: Section BB through the metro Station to the pond

Figure 44 Long section facing east of Cherrybrook Station SSP through the metro station and pond
Source: SJB

Study Requirement 2.8
Provide a shadow and sun access (at the winter solstice) analysis both within the site, addressing open space/public domain and dwellings, and on adjoining land based on an indicative conceptual scheme for the SSP site. This analysis must consider open space/public domain and existing adjoining private and public open space

Part 12.16 of the Urban Design Study prepared by SJB (refer to **Appendix D**) provides a shadow study for 21 June (winter solstice), finding that the proposal will not result in overshadowing of other properties. A provision has been included in the site-specific design guide (refer to **Appendix B**) requiring the layout and design of the Cherrybrook Station SSP, which will in particular shape the location, height and massing of built form, to ensure adequate solar access to the Community Open Space as follows:

- **Desired outcome**: The Community Open Space receives a high level of sunlight at all times of year consistent with its planned high intensity of use in order to create a high amenity, comfortable and attractive urban space
- **Prescriptive measure**: Buildings are sited, designed and have a height that provides for at least of 50% of the ground level of the Community Open Space receiving a minimum of 3 hours of direct sunlight between 9am-3pm during the winter solstice (21 June).

Study Requirement 2.9
Provide an analysis of proposed distribution of gross floor area, development yields, building typologies, building envelopes and heights. The use of a development statistics spreadsheet is required

Refer to Section 6 of this report and Chapters 11.4, 11.14 and 12 of the Urban Design Study prepared by SJB (refer to **Appendix D**) for further detail on the proposed distribution of gross floor area, development yields, building typologies, building envelopes and heights, including a development statistics spreadsheet.

Study Requirement 2.10

Provide sufficient detail of the building types to demonstrate future compliance with amenity standards including the Apartment Design Guide and to support any calculations that convert building envelopes to gross floor area and development yields

Refer to Chapters 12.12 and 12.16 the Urban Design Study prepared by SJB (refer to **Appendix D**) for further detail on compliance with amenity standards including the Apartment Design Guide and how these have informed the calculations used to convert building envelopes to gross floor area and development yields.

Study Requirement 2.11

Provide a 3D massing model in Revit, Sketch Up or similar, a fly through and photomontages of key parts of the proposal from eye level positions in the open space/public domain. The raw files need to be supplied to DPE for ongoing use

This material has been prepared and will be available online for the community to view.

Study Requirement 2.12

Outline draft controls, supported by an indicative building envelope concept approach for the site, to support the recommended height and FSR (including residential and non-residential split) with schedules/ calculations. This must include controls to ensure appropriate floor plate sizes for each building

The proposed amendment to the Hornsby LEP 2013 and the site-specific design guide are outlined in the address of study requirement are detailed in Section 7 of this report and provided at **Appendix A** and **Appendix B**. These draft controls represent a synthesis of the technical, engagement and design work undertaken as part of this SSP Study. They have also considered other existing controls that will continue to apply to the Cherrybrook Station SSP. Of note, this includes SEPP65 and the ADG.

While informed by a Reference Scheme developed to indicate building envelope detail, as has been discussed in this Planning Report, it is Landcom's clear intent to not 'lock in' key parameters such as FSR or height on a building envelope basis. Rather, this will be done largely on a block basis, with further refinement provided by reference to the design guide and other requirements such as the ADG.

While potentially appropriate to highly constrained urban infill contexts such as inner Sydney, locking in FSR and height at a finer grain level such as through building footprints is not appropriate for the SSP given its parameters, in particular its large size and 'island' site nature. It also does not achieve an appropriate balance between certainty and flexibility, unreasonably constraining ability to respond to changes in context or facilitate innovative design solutions. Rather, such detail is best delivered as part of the subsequent, separate DA process.

In terms of specific matters referenced in the study requirement:

- the draft design guide provides for commercial premises, including a supermarket
- appropriate floor plates will be determined by reference to provisions in the ADG such as 4B Natural ventilation (maximum apartment depth, 4D Apartment size and layout and 4F Common circulation and spaces (maximum number of apartments off a circulation core).

Study Requirement 2.13

Demonstrate how other elements of this study have shaped the urban design layout, building typologies, bulk and height and the public domain and open space eg. response to ecologically sustainable development, wind, flooding, transport, traffic and pedestrian accessibility, noise, and air pollution issues

The planning framework is the outcome of an iterative process of development, testing and refinement that synthesised technical, engagement and design work (refer part 2.3 of the Urban Design Study at **Appendix D**). As is noted in section 7.3 of the Urban Design Study, the findings of the Social Infrastructure Needs Assessment (CRED Consulting), the Economic and Land Use Assessment (AEC) and the Housing Needs Study (Ethos Urban) were particular informants of the proposal. This included:

- the types and size of open space
- the type and size of community facilities
- the type and size of retail premises, adjusted for the local centre role of the Cherrybrook Station SSP and traffic constraints
- the type of housing, including scope for larger size dwellings at ground level to cater for families.

In terms of specific matters referenced in the study requirement:

- consideration of the purpose of the SSP Study has guided the overall design response
- the intent of the North West Rail Corridor Strategy, the Cherrybrook Structure Plan and key strategic plans such as the Region Plan and District Plan have shaped the nature of the Cherrybrook Station SSP as a compact, walkable, transit oriented development
- the desire to deliver a public domain focussed precinct has resulted in a large area of centrally located open space with a variety of different spaces, including the vibrant, Community Open Space and the Environmental Space to protect the Blue Gum High Forest (a recommendation of the BDAR)
- alignment of building mass perpendicular to prevailing cooler winter winds from the south-west
- not enabling development proximate to the pond, and including requirements for consideration of flood immunity for basements
- inclusion of water quality and quantity strategies in the proposed site specific design guide
- as is noted above, substantially reducing the amount of retail floor space in response to traffic limitations
- setting development back from Castle Hill Road, which is both a source of noise and emissions pollution
- incorporation of provisions responding to the metro tunnel and high voltage power infrastructure.

Study Requirement 2.14

Demonstrate how the proposal's urban design layout, building heights, building typologies, street blocks, public domain and open space of the SSP site responds to the overarching vision for the Cherrybrook Station SSP as set out in the 2013 North West Rail Link Corridor Strategy. This should also consider the community feedback from previous community consultation including Cherrybrook Station Town Centre Community Workshops Report, KJA (2018), Placescore, NSW Planning & Environment Cherrybrook Priority Precinct, Community Insights (207 7) and Cherrybrook Station Precinct Consultation Update (2017).

The vision for the Cherrybrook Station Precinct, which includes the Cherrybrook Station SSP, under the Cherrybrook Structure Plan is as follows:

> *The introduction of the NWRL has the potential to transform the Cherrybrook Study Area by providing a new focal point for the community centred around the station. This is proposed to include a mix of neighbourhood shops and services to provide for the daily needs of the local community.*
>
> *The NWRL will also provide opportunities to increase residential densities within walking distance of the station, involving a variety of housing types to ensure there is affordable and appropriate housing for all members of the community.*

To the north of Castle Hill Road, opportunities have been identified which will benefit from good accessibility to the new station. It is envisaged that the future character of this area will comprise, over the long term, low to medium density residential dwellings, ranging in height from two storey townhouses to six storey apartments, with higher density developments located closest to the station.

The area immediately adjoining the southern side of Castle Hill Road is conveniently located within walking distance of the station and is appropriate for medium density 3-6 storey apartments, subject to geotechnical, vegetation and traffic studies.

Underpinning this vision will be the final Place Strategy, formulated on the principles of Transit Oriented Development (TOD). TODs are generally mixed use communities within walking distance of a transit node that provide a range of residential, commercial, open space and public facilities in a way that makes it convenient and attractive to walk, cycle or use public transport for the majority of trips (DPE and TfNSW, 2013).

The following table provides an overview of how the proposal responds to the key aspects of this vision.

Table 6 Alignment between the proposal and key aspects of the Cherrybrook Structure Plan vision

Cherrybrook Structure Plan vision	The proposal	Consistent
New focal point for the community centred around the station	The proposal provides new focal point in the form of a local centre including retail supported by a large, centrally located public domain	Yes
Mix of neighbourhood shops and services to provide for the daily needs of the local community	The proposal includes a mix of retail with a cap on floorspace to ensure it focusses on the daily needs of the Cherrybrook Station SSP, local community and users of the metro station	Yes
Increase residential densities within walking distance of the station, involving a variety of housing types to ensure there is affordable and appropriate housing for all members of the community	The proposal provides for higher density residential housing in the form of apartments, and is capable of providing for a range of types, tenures and sizes. All residential areas are within easy walking distance (300m) of Cherrybrook Station. The proposed amendments to the Hornsby LEP 2013 will require a minimum of 5% of residential GFA to be provided as affordable housing for a minimum of 10 years	Yes
Higher density developments located closest to the station	Being located closest to the metro station, the Cherrybrook Station SSP incorporates higher densities compared to existing, surrounding development	Yes
Mixed use communities within walking distance of a transit node that provide a range of residential, commercial, open space and public facilities in a way that makes it convenient and attractive to walk, cycle or use public transport for the majority of trips	The proposal is for a mixed use precinct adjacent to the metro station. The Cherrybrook Station SSP is planned to accommodate residential, commercial, open space and community facilities in a compact, walkable layout that provides convenient, safe and attractive pedestrian paths integrated with the public domain	Yes

Previous targeted stakeholders include Cherrybrook local residents, Hornsby Shire Council, The Hills Shire Council, businesses and community groups. These stakeholders identified issues including retention of natural amenity, impacts on traffic and parking, visual impact of high rise built form and consideration for open

space and community areas as part of future development. These have largely been addressed by limiting heights up to 5 storeys when viewed from Bradfield Parade and providing extensive landscaped public domain areas throughout the site and significant increase of tree canopy.

Study Requirement 2.15

Demonstrate how the proposal will integrate and transition with adjacent land and the surrounding precinct regarding existing and intended urban form and character for the SSP site. This includes but is not limited to ensuring the effective integration and transition of the SSP site, based on the proposed built form/indicative building envelopes, height, scale, spatial layout, building typology, public domain and road connections, open space and pedestrian/ cycle linkages

The intent and key structuring elements of the Cherrybrook Station SSP is consistent with that of the Cherrybrook Structure Plan. This includes:

- a mixed use local centre role
- Bradfield Parade providing the key east-west public domain connection
- the central open space corridor providing for the key north-south public domain connection.

It is noted that under the Cherrybrook Structure Plan, which is understood to be the basis of DPE's 'Place Strategy', provides for a general core and frame development concept. Under this concept, the Cherrybrook Station SSP is intended to provide the focus for a surrounding higher density residential community. Heights compatible with that of the Cherrybrook Station SSP are envisaged for this surrounding land.

Given this, it is considered reasonable that the Cherrybrook Station SSP not be required to incorporate built form transitions, and in particular height, as would otherwise be appropriate where adjoining land is to be retained in its existing single and double storey, established low density residential form.

On this basis, the focus of the design process has been on interfaces, which are distinct from transitions. In terms of specific matters referenced in the study requirement:

- built form is consistent with that of a large precinct co-located with a metro station
- the proposed site specific design guide includes provisions for the distribution of building mass to mitigate the visual impact of scale on adjoining land to the north
- the Structure Plan seeks to designate land to the immediate north of the Environmental Space containing the Blue Gum High Forest as a new local park. The layout of the Cherrybrook Station SSP provides for direct physical and visual connectivity to this potential future park, drawing the surrounding landscape into the Cherrybrook Station SSP and providing for a new view corridor between the metro station and the Blue Gum High Forest
- incorporation of substantial setbacks providing deep soil provides opportunities for further mitigation of visual impact
- given the Cherrybrook Station SSP is located to the south of adjoining land and is otherwise an island site in other directions, solar access impact to surrounding areas due to built form is limited to within the SSP
- building typology is intended to incorporate dwellings to the Cherrybrook Station SSP's northern boundary, providing opportunities for greater articulation of elevations to recue visual impact
- the open space and movement network is capable of integrating with any future development to the north.

8.3 Public domain and open space

Study Requirement 3.1

Provide a Public Domain Plan identifying proposed public spaces, open space (passive and active), cycle/pedestrian walkways and streets, including an accurate CAD set-out showing the boundaries of any streets, walkways, linkages and other public spaces and servicing considerations to the public domain

While a single public domain plan is not provided, the Urban Design Study (refer to **Appendix D**) includes sections that address the public domain, including the proposed movement and open space network, at both the strategic and more detailed level. Part 11.1 “Principle structuring elements” and Part 12.3 “Conceptual landscape plan” are of particular relevance.

Study Requirement 3.2

Provide a framework for long-term provision of public domain open space, streets and public access. The framework must demonstrate how the following considerations can be addressed in the future:

- *How accessibility to any new open space and public domain is maximised by surrounding street interfaces, pedestrian/cycle access, connectivity with existing streets and cul-de-sacs and location in relation to slope/accessibility*
- *How the flexibility and extent of use is maximised by locating away from busy roads, noise and pollution*
- *How the size is suitable for the expected number of residents for the SSP site and for the Cherrybrook Station SSP growth (with precinct numbers for the purposes of this study to be confirmed by the Department) and workers and type of users*
- *How the location in relation to existing parks optimises use for the surrounding community*
- *How the public domain, open space and streetscape in association with the urban design framework and ground floor activation contribute to the placemaking opportunities for the local centre*
- *How the public domain and open space network contribute to a green grid and green infrastructure network*

The public domain and open space strategy for Cherrybrook Station SSP has been guided by a series of principles (as shown on **Figure 45**), which aims to support the delivery of high quality open spaces within Cherrybrook Station SSP. Based on these principles, Cherrybrook Station SSP has largely been undertaken on a public domain led basis as illustrated by the proposed open space network of the draft design guide and illustrative landscape plan (refer to **Figure 46** and **Figure 47**), in particular, the central open space corridor is a key spatial structuring element to which built form responds to. The consequent layout of the open space network and how this network comprises a number of distinct but integrated spaces is described in **Table 7**.

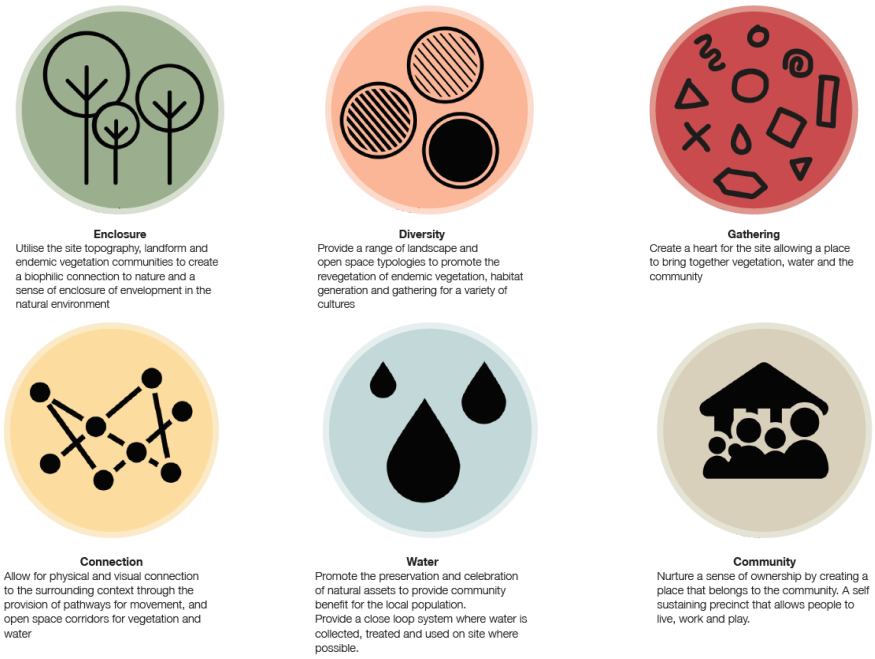

Figure 45 Public domain and open space principles

Source: SJB

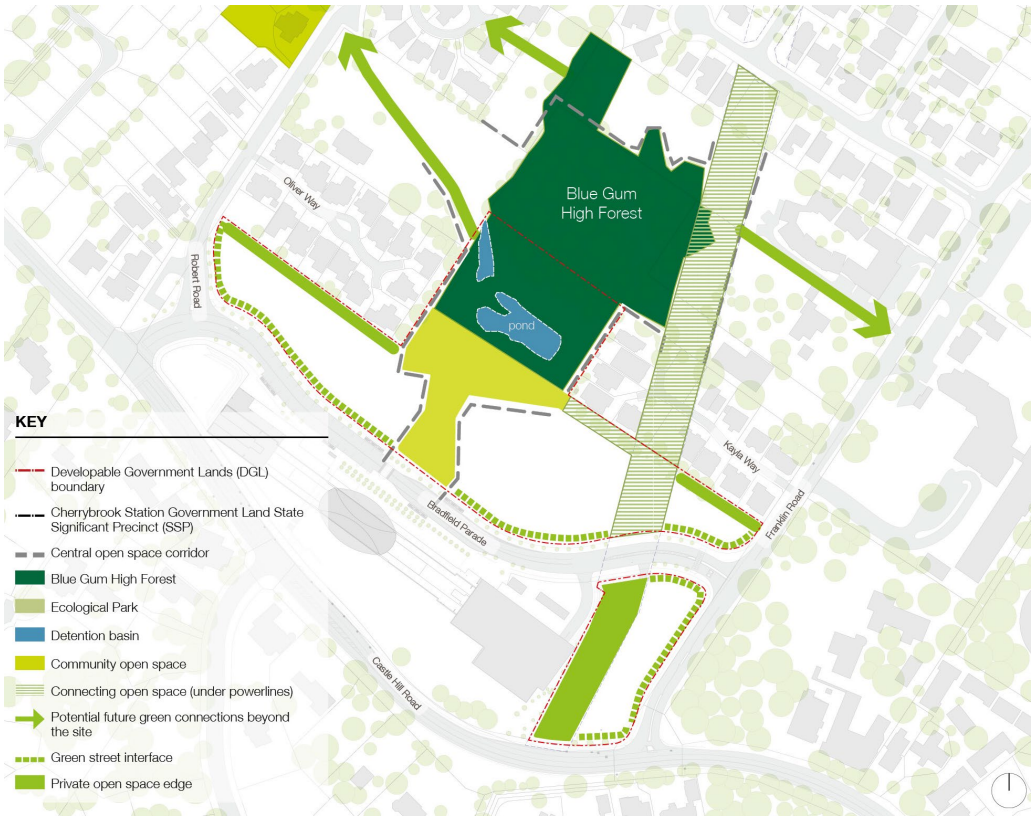

Figure 46 Open space typologies of the draft design guide

Source: SJB

Table 7 Proposed open space typologies and characteristics

Type	Characteristics
Community Open Space (Local park)	• Minimum area of 3,000sqm • Minimum width of 20m with minimum frontage width of 50m to Bradfield Parade • Frontage to Bradfield Parade to the south and the pond and Blue Gum High Forest to the north • Hardstand plaza at the southern portion of the Community Open Space • Green landscaped space at the northern portion of the Community Open Space • Incorporates tree planting to provide canopy shade • Bordered by active frontages from adjacent buildings • Physically and visually linked with the community facility • Incorporates facilities catering for youth, including play space for children
Environmental Space (Local park)	• Minimum area of 8,450sqm (including area of pond) • Protects, enhances and celebrates the Blue Gum High Forest • Incorporates a pond which functions to support stormwater detention and water quality treatment • Integrates sustainable urban drainage and existing water systems • Provides for deep soil planting • Is primarily used for passive recreation • Incorporates a variety of seating and gathering zones • Provides a formalised pedestrian pathway to the Blue Gum High Forest
Connecting Open Space (Through-site link)	• Provides for through-precinct pedestrian permeability • Located beneath the powerline easement • Provides a safe pedestrian and cycle connection between Bradfield Parade and the Environmental Space • Allows private vehicular entry to buildings • Through-site link is designed to ensure landscaping is maximised while considering the need to provide vehicular access to buildings north of Bradfield Parade

Consistent with the desired outcome of integrating with the surrounding landscape and providing a community within a bushland setting, the Urban Design Study demonstrates how urban forest outcomes are promoted by extensive areas of the ground plane dedicated to deep soil areas and how the open space network may be planted in the future. In particular, with an emphasis on planting to support the Blue Gum High Forest. The design guide seeks to support this outcome with a minimum 25% target for tree canopy cover in the public domain and 30% in the private domain (subject to bushfire risk considerations) which will contribute to the green infrastructure network.

In terms of specific matters referenced in the study requirement:

- accessibility is provided through a range of measures, including:
  - locating the central open space corridor at the core of the Cherrybrook Station SSP aligned with a natural view corridor from the northern pedestrian entry to the metro station to the Blue Gum High Forest
  - its location on that part of the Cherrybrook Station SSP that has a reduced steepness of slope
  - substantial frontage to Bradfield Parade
  - maximising its edges to adjoining land focussed on Oliver Way and Kayla Way, providing scope for reciprocal amenity as part of redevelopment where dwellings benefit from physical and visual access to public open space and the public open space benefits from activation from the dwellings

  - activating its edges by retail uses and the community facility at the ground level, and providing opportunities for passive casual surveillance at upper levels by the location and orientation of dwellings

- flexibility and extent of use is maximised by locating the central open space corridor in the northern part of the site away from the heavily trafficked Castle Hill Road and the busy through traffic routes of Franklin Road and Robert Road
- the size of the proposed open space is consistent with that recommended by CRED Consulting in their Social Infrastructure Needs Assessment (refer **Appendix F**). This size will be required as part of future development of the Cherrybrook Station SSP through the proposed amendments to the Hornsby LEP 2013. This will be supported by finer grain provisions of the draft site specific design guide (refer to **Appendix B**) addressing useability matters, including dimensions, function and landscaping
- it is noted that Council has expressed concern that the Cherrybrook Station SSP will not accommodate district level facilities, nor contribute to active recreation in the form of sports and recreation facilities. In response, it is not considered that such open space is best located on land adjoining the metro station that has the greater potential to deliver transit oriented development outcomes, including new homes and jobs. It is further not considered appropriate that this type of open space is suited to the Cherrybrook Station SSP due to its steeply sloping land which would likely necessitate substantial cut and fill, leading to potential adverse hydrology outcomes and impacts on adjoining land to the north
- the Cherrybrook Station SSP is located in a rare position that is located further than 400m from an existing public open space (as shown on **Figure 48**). The provision of open space in the Cherrybrook Station SSP fills this gap
- the layout and design of the public domain and built form, including interfaces, has been intentionally designed to contribute to the role of the Cherrybrook Station SSP as a vibrant local centre (eg, through active frontages adjoining Community Open Space) and a community within a bushland setting by providing substantial opportunities for deep soil planting (e.g. basement carparking may not intrude under the central public open space corridor)
- as noted, the public domain integrates the movement and open space networks and provides significant opportunity for urban forest outcomes as demonstrated by the illustrative landscape plan on **Figure 47**). This is considered to help enhance the local green grid and green infrastructure network.

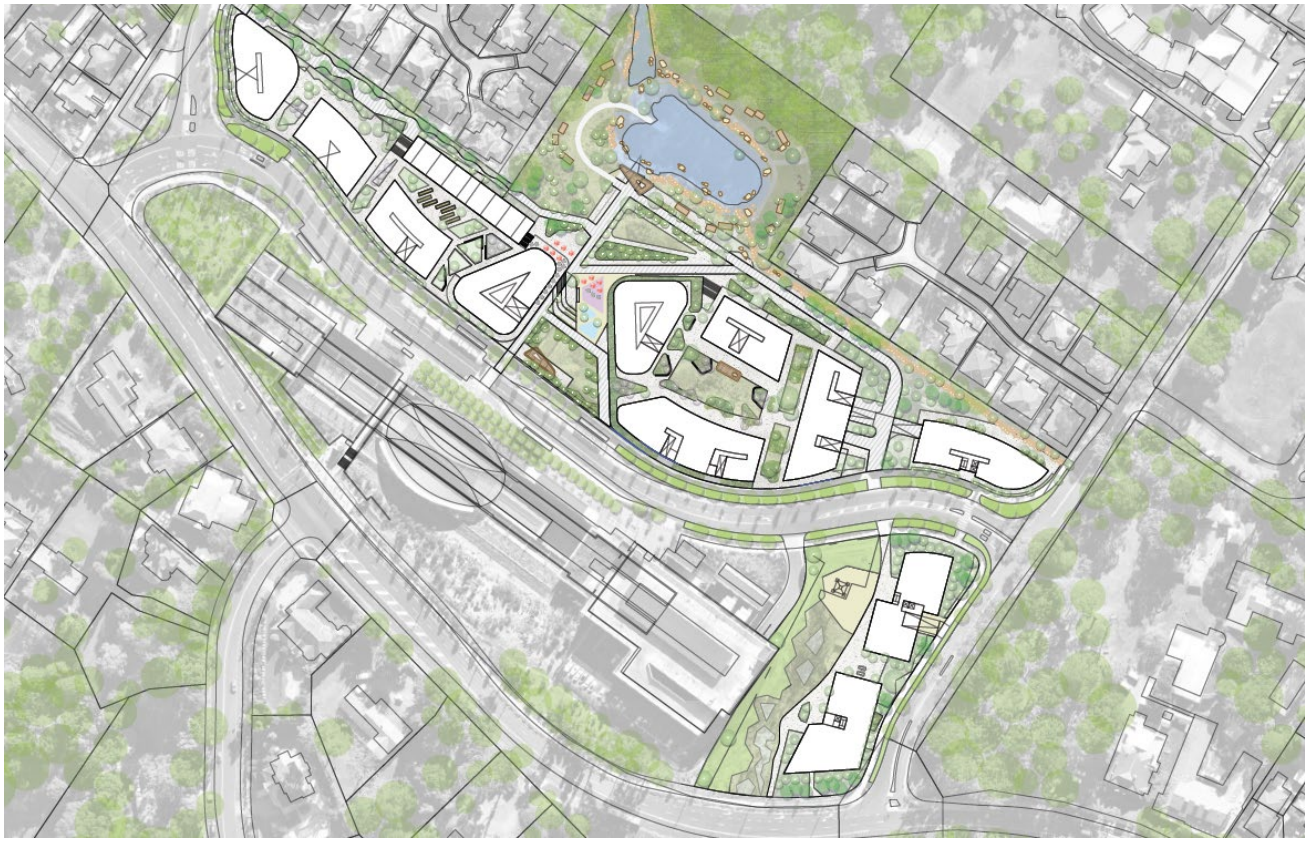

Figure 47 Illustrative landscape plan

Source: SJB

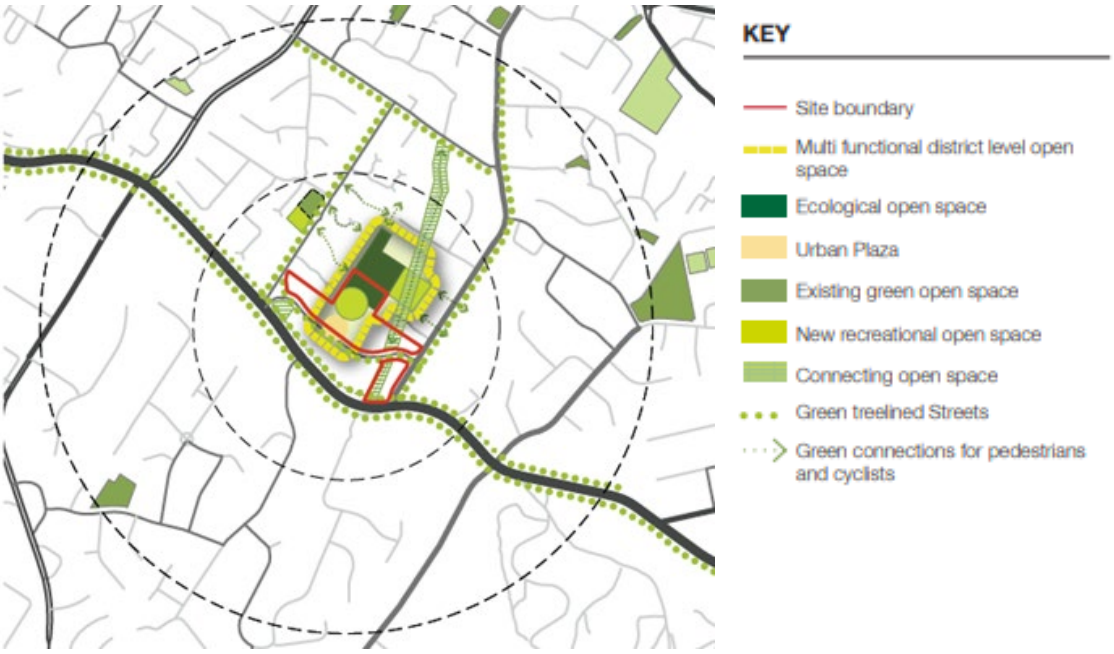

Figure 48 Potential connection to the surrounding open space network

Source: SJB

Study Requirement 3.3
Provide a Water Sensitive Urban Design (WSUD) strategy (refer also Item 17) that integrates with the flood study, the public domain, public open space and private open spaces, and show any measures on plans and sections

Parts 11.7 and 12.4 of the Urban Design Study prepared by SJB (refer to **Appendix D**) address WSUD, which has been informed by technical input from the Stormwater Management and Flood Risk Assessment prepared by Royal Haskoning (refer to **Appendix N**). **Figure 49** shows the proposed water management strategy.

As is noted in the Urban Design Study (refer to **Appendix D**), the landscape proposal seeks to utilise landscape elements for drainage to minimise the need for excessive services and to leverage the benefit water can have for this site. All water is to be captured and treated on site.

Key moves outlined within the stormwater concept and reflected in the landscape proposal includes:

- consolidating stormwater retention and quality management in the centre of the site through the redesign of the existing detention basin
- increase the volume of the detention basin to accommodate increased run off from the Cherrybrook Station SSP
- formalise drainage lines on northern boundaries as swales or rain gardens
- maximise permeable surfaces on deep soil areas to encourage infiltration
- any additional capacity for stormwater to utilise in ground tanks located within the electrical easement zone
- utilise existing drainage line to north and west of the site for overflow
- any additional capacity for stormwater to utilise in ground tanks located within the electrical easement zone.

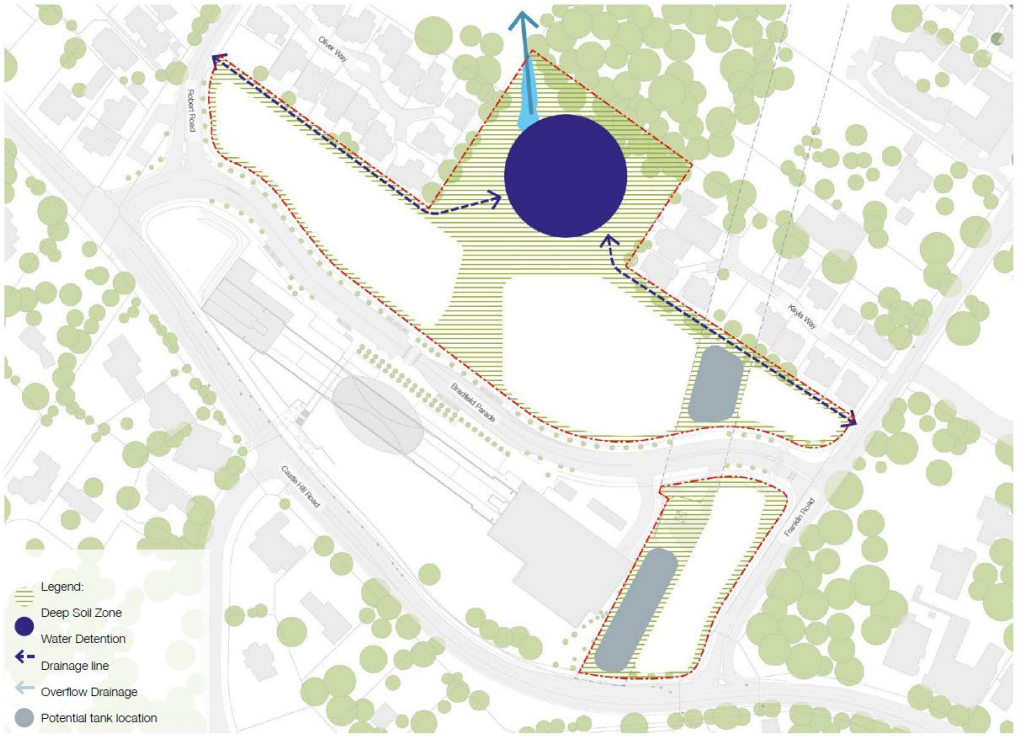

Figure 49 Water strategy
Source: SJB

Study Requirement 3.4

Demonstrate how the public domain and open space will be designed to be legible, connected and safe for pedestrians and cyclists at all times of the day and night, incorporating Crime Prevention through Environmental Design (CPTED) principles

Data from the NSW Bureau of Crime Statistics and Research shows that on most indicators, Cherrybrook has high standards of personal and property safety compared to average rates in NSW. Nonetheless, the Cherrybrook Station SSP has been designed in accordance with CPTED principles. According to the NSW Police Force, CPTED is based on four key strategies:

1. territorial re-enforcement
2. surveillance
3. access control
4. space/activity management.

The Cherrybrook Station SSP incorporates a number of measures under these strategies, including:

- a clear, legible movement and open space network
- having a human scale size and dimensions for the central open space corridor, ensuring that people will always be close to a built edge
- using edges to provide clear delineation between the public and private domains through buildings being built to the edge of the central open space corridor
- extensive opportunities for passive casual surveillance above the ground level through building siting, layout and design
- landscaping precluding access to the relatively remote Blue Gum High Forest
- avoidance of large, concealed areas.

Other measures such as way finding signage, lighting and detailed design of open space to encourage use can be considered, and conditioned if required, as part of the subsequent DA process.

Study Requirement 3.5

Demonstrate how the proposal contributes to and meets the Premiers Priority to "Increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10 per cent by 2023"

The proposal provides for a minimum of 3,000sqm of new publicly accessible open space, including green space intended for passive outdoor recreation, along with an environmental space of approximately 8,450sqm. This enables the entire precinct to be within a 5 minute walk of quality green, open and public space, directly contributing to the achievement of the Premiers Priority to increase the proportion of homes within 10 minutes' walk of quality green, open and public space.

Study Requirement 3.6

Demonstrate how the proposal will provide suitable pedestrian and cycle access links from and into the SSP site for the proposed residents to external recreational facilities and open space networks and for the wider neighbourhood to access the open space within the SSP site. This includes creating and improving connections from the SSP site to the surrounding streets and to consider the wider existing and proposed pedestrian and cycle access network as indicated in the relevant Hills Shire and Hornsby Shire Council plans and State plans

Anchored by Bradfield Parade and the central open space corridor, the proposal has a permeable, walkable layout that provides for cross precinct movement in both a north-south and east-west direction. This layout is aligned with the logical future movement and open space network in adjoining land and has the capability of building in physical connections to this future infrastructure. While ultimately the responsibility of DPE as part of the separate Cherrybrook Station Precinct Place Strategy, **Figure 50** below shows how the Cherrybrook Station SSP may better connect with the broader Cherrybrook Station Precinct. This will connect the Cherrybrook Station SSP to larger area of public open space in relative proximity to the Cherrybrook Station SSP such as Greenway Park and Berowra Valley Regional Park.

To support this outcome, the draft design guide (refer to **Appendix B**) incorporates measures to integrate the future pedestrian and cycle access for Cherrybrook Station SSP with its surrounding street network, specifically:

- key pedestrian through site links provide improved north-south and east-west permeability through the Cherrybrook Station SSP
- active transport network (shown as future connections is sited and designed to be capable of integrating with future connections:
  - along the waterway corridor to Robert Road
  - along the electrical easement
  - either side of the pond and Blue Gum High Forest.

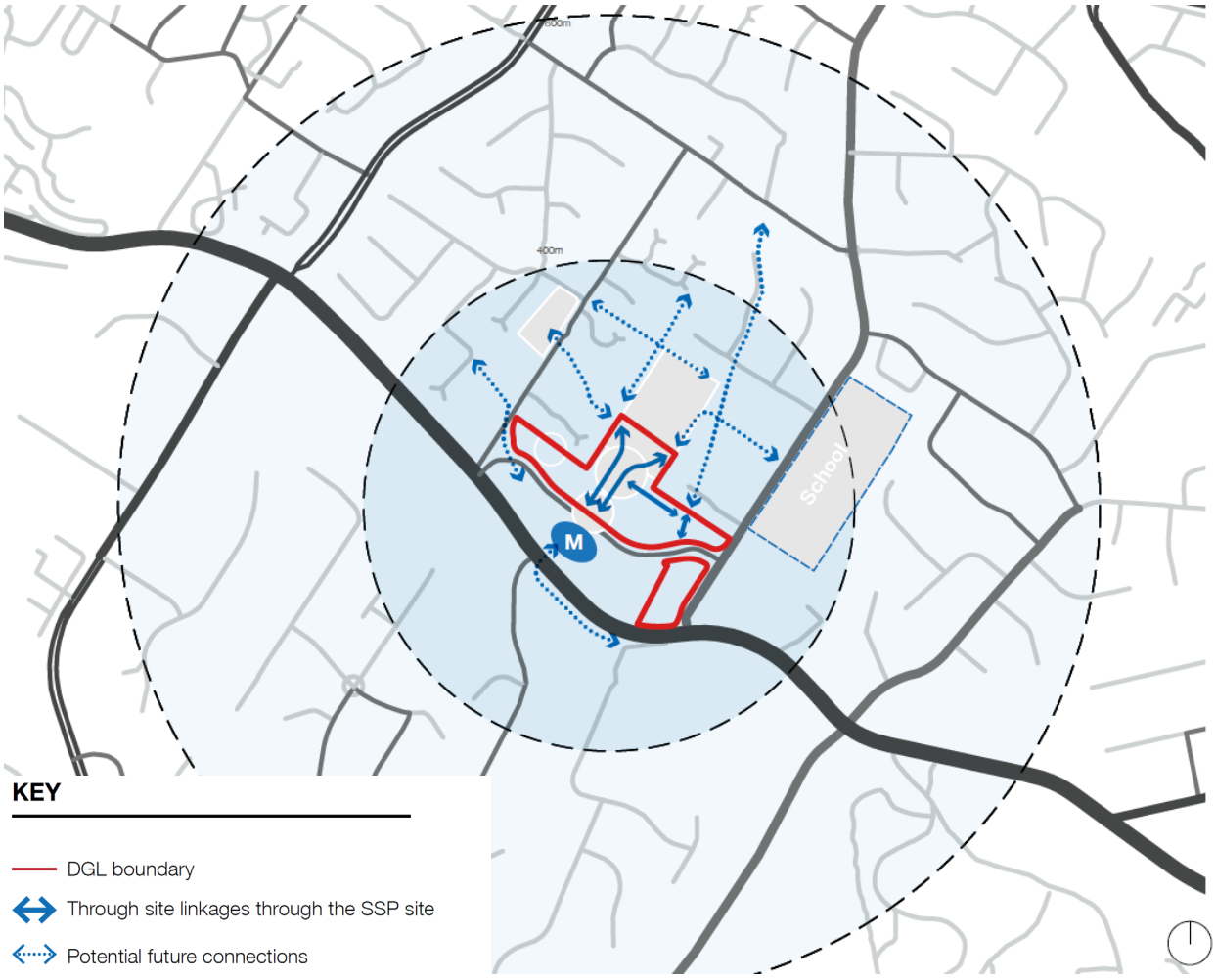

Figure 50 Connections to the surrounding movement network

Source: SJB

Study Requirement 3.7
Demonstrate how the proposal maximises opportunities to create and extend green linkages to existing surrounding and local bushland and endangered community corridors and reserves and explore opportunities to extend linkages to regional and metropolitan green corridors such as the Green Grid. (refer North District Plan p. 709)

Figure 38 shows that the Cherrybrook Station SSP provides a number of opportunities to maximise opportunities to create and extend green linkages, including:

- the ability to connect with Blue Gum High Forest to the north, providing the opportunity for a larger scale public open space and new pedestrian linkages to this endangered ecological community
- pedestrian connections to Robert Road and a potentially expanded Robert Park to the north-west along the existing drainage corridor
- a linear open space corridor to the north aligned with the high voltage electricity easement
- public domain improvements, including increased tree canopy cover through street trees, along Franklin Road and Robert Road.

These opportunities are reflected in the measures outlined by the draft site specific design guide (refer to **Appendix B**), which will ensure future development enables the realisation of these potential green linkages within the Cherrybrook Station SSP.

8.4 Urban forest

Study Requirement 4.1
Preparation of a Tree Canopy Audit for the site and adjoining streets, including documentation of tree canopy calculations:

- *by location typology (e.g. private land, open space, street trees)*
- *by classification (i.e. exotic, native, indigenous, endangered community)*
- *by generalised age of trees, generalised state of senescence and generalised life expectancy*
- *identification and mapping of any significant trees and heritage listed trees as nominated by Hornsby Shire and The Hills Shire Councils*
- *mapping, graphic and written presentation of tree canopy coverage documentation, analysis, percentages and results*

In preparation of the Tree Canopy Audit, consider the information prepared in the Cherrybrook Station Precinct Urban Tree Canopy Audit, Ecological Australia (2018) and also the information and requirements to be addressed from the draft Urban Forest Strategy, Hornsby Shire Council

A Tree Canopy Audit (TCA) has been prepared by Eco Logical Australia (refer to **Appendix L**). The TCA provides an audit of the existing tree canopy across the Cherrybrook SSP and describes the current status of tree canopy cover across the site. Information was obtained by means of an information and data review (which included the previous 2018 TCA), a tree canopy audit analysis which involved an aerial photo interpretation, as well as GIS analysis and a site survey to validate results.

The TCA has identified 0.75ha of mapped canopy across the study area (7.74ha), equating to a tree canopy of 10%. Much of the canopy cover is made up of new plantings and landscaped areas which will increase the proportion of canopy cover over time. The TCA makes the following conclusions:

- tree canopy coverage across the study area is reasonably evenly distributed between the developable government land (DGL) and non-DGL, however, almost all of the tree canopy in the non-DGL and

adjoining streets is made up of new tree plantings and almost all of the tree canopy on the DGL is situated along the northern boundary

- the majority of the canopy across the study area is made up of an endangered vegetation community (Blue Gum High Forest) adjoining a larger patch of remnant vegetation to the north of the site, primarily at the boundaries of the Cherrybrook Station SSP
- over half (54%) of the tree canopy across the Cherrybrook Station SSP is made up of mature trees, with the majority of the remaining tree canopy being mainly younger, juvenile trees (34%) made up of recent plantings with the greatest potential for growth and long life expectancy, that will increase overall canopy cover across the Cherrybrook Station SSP.

The distribution and classification of tree canopy vegetation is shown at **Figure 51**. Further detail including mapping, graphics and detailed statistics are provided in the TCA at **Appendix L**.

Figure 51 Distribution of tree canopy vegetation classification

Source: EcoLogical Australia

Study Requirement 4.2

Provide an indicative tree and planting strategy across the site, accounting for biodiversity and habitat considerations including:

- *a tree sensitive public domain/open space and that protects existing site and adjacent trees, and allows for the growth of new trees*
- *general locations, species selection/siting that maximises solar access during winter and shade during summer*
- *consider the relevant outcomes of the Public Domain/Open Space Design, Urban Design, Utilities (ensuring new utilities are undergrounded), and Wind in this strategy*

Study Requirement 4.4

Demonstrate how the proposal addresses the NSW Government and Council policies, strategies, master plans, including: draft Greener Places, Hornsby Local Environmental Plan (2013), Hornsby Development Control Plan (2013), Vegetation Management and Restoration Plan, Hornsby Shire Council (2008) and Flora and Fauna Assessment Guidelines For Development Applications, Hornsby Shire Council (2006) and draft Urban Forest Strategy, Hornsby Shire Council. If any policy/strategy is not complied with, demonstrate the implications to the project and give sufficient environmental planning grounds why such compliance is unreasonable or unnecessary

A landscape Reference Scheme has been prepared by Aspect Studios and forms part of the Urban Design Report at **Appendix D.** The landscape Reference Scheme includes indicative landscape, deep soil and tree canopy plans. They show that the total of permeable deep soil allowed for is 40%. The landscape Reference Scheme indicates that approximately 386 trees are capable of being planted on the Cherrybrook Station SSP site, with 56 of these identified as large and medium trees. Blue Gum High Forest species are retained, mostly towards the northern central boundary on the Cherrybrook Station SSP site. The balance of all proposed tree plantings results in a tree canopy cover of over 25% of the Cherrybrook Station SSP site. This improves on the existing tree canopy cover of 10%, which will support the Premiers Priority to increase the tree canopy and green cover across Greater Sydney by planting one million trees by 2022.

An extract of the Tree Canopy and Urban Forest Strategy is provided below at **Figure 52**.

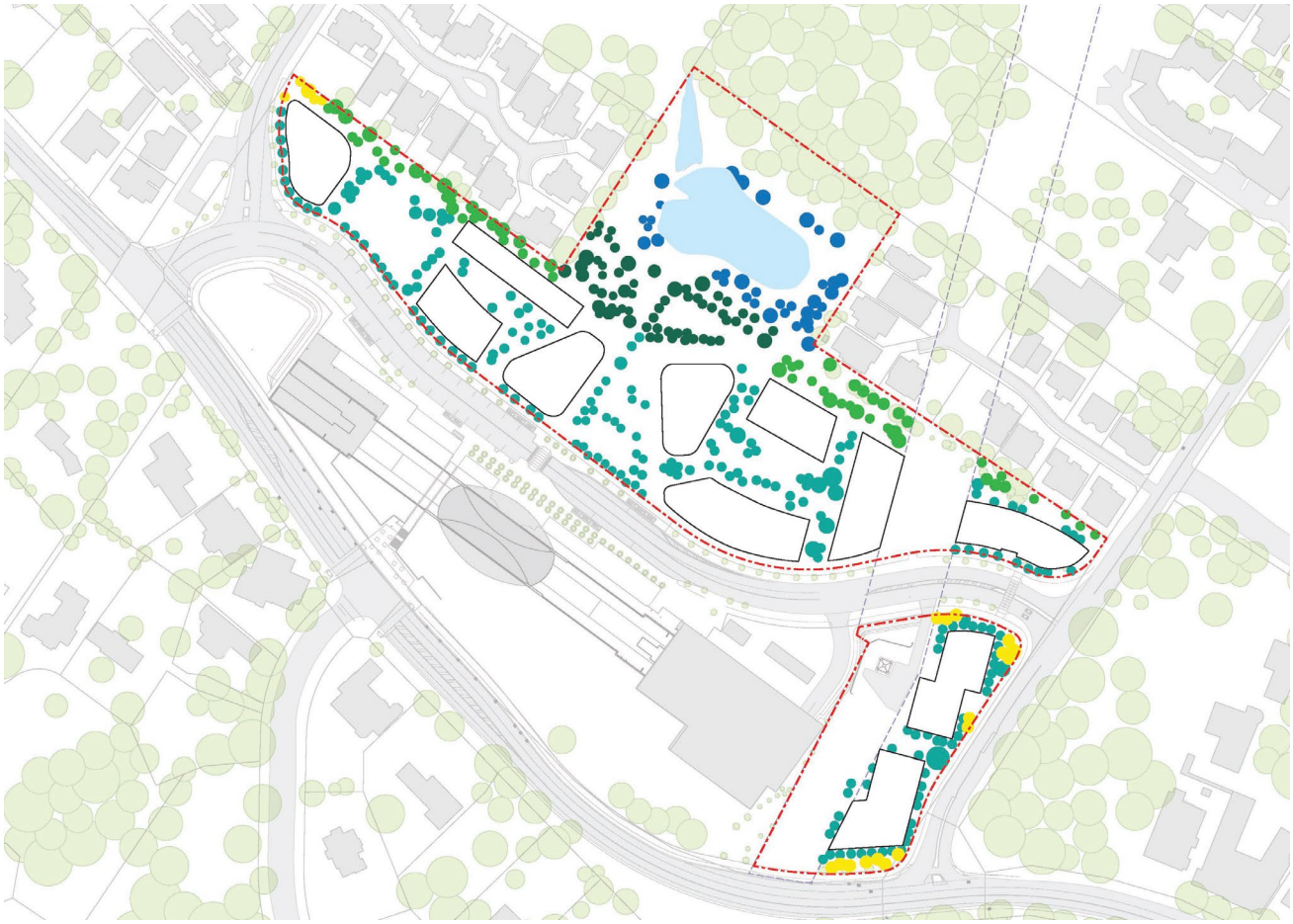

Figure 52 Tree Canopy and Urban Forest Strategy

Source: SJB

By significantly improving the balance of trees and tree canopy on the Cherrybrook Station SSP site, and retaining the endangered Blue Gum High Forest species, the proposal will give effect to NSW Government and Council policies relating to urban forests. These policies broadly seek to preserve native vegetation, regenerate existing vegetation in poor health and provide new planting to increase tree canopy cover. The increase of tree canopy coverage within the precinct will also assist in managing the pedestrian wind environment, with Windtech recommending for the general increase of densely foliating evergreen landscaping to reduce the effect of the prevailing wind impacts in its Pedestrian Wind Environment Statement (refer to **Appendix S**).

The proposal provides a large recreational area in the north of Cherrybrook Station SSP site featuring remnant native vegetation, with pedestrian access controlled to this area to promote the health of flora and fauna. This, as well as the integration of deep soil landscaping throughout the remainder of the Cherrybrook Station SSP site, complies with the intent of the Draft Greener Place Guide and the vegetation related provisions of the Hornsby LEP 2013 and DCP 2013.

A Vegetation Management and Restoration Plan and a Flora and Fauna Report will form part of any future Development Application(s) for Cherrybrook Station SSP site, noting that the intent of the proposed is to preserve vegetation and revegetate Cherrybrook Station SSP site, as outlined within the Urban Design Report prepared by SJB and Aspect (refer to **Appendix D**). The requirement to prepare a Flora and Fauna Report and Vegetation Management and Restoration Plan as part of any future DA will seek to satisfy the current prescriptive measures applying to land with biodiversity value under the Hornsby DCP 2013 (refer to section 1C.1.1 Biodiversity of the Hornsby DCP 2013).

Furthermore, Hornsby's draft Urban Forest Strategy establishes the goal of maintaining the existing canopy cover of 33% in residential areas and increasing cover in commercial areas from 11% to 15%. It is noted that

maintaining a 33% target for residential areas is largely directed toward rural and low density residential areas in the LGA. Specifically, the draft Urban Forest Strategy recognises the challenges of delivering canopy cover on medium-high density residential areas, highlighting these areas typically deliver 22% of coverage (refer to pg. 18 of the draft Urban Forest Strategy).

Notwithstanding the above targets of the Hornsby's draft Urban Forest Strategy, the Draft Greener Place Design Guide (GANSW, 2020) outlines indicative place-based targets (under investigation) for tree canopy coverage. This specifically identifies that for medium to high density urban residential areas, a minimum 25% tree canopy cover should be targeted.

Based on the above considerations, a minimum 25% tree canopy target for the private domain and 30% for the public domain has been adopted within the draft design guide. It is noted that this tree canopy target would also be subject to bush fire protection measures contained within the Rural Fire Service's Planning for Bushfire Protection 2019, which may limit tree canopy coverage to 15%.

Study Requirement 4.3
Demonstrate how the proposal contributes to and meets the Premiers Priority to "Increase the tree canopy and green cover across Greater Sydney by planting one million trees by 2022".

The Reference Scheme has demonstrated the potential to increase the tree canopy cover on Cherrybrook Station SSP site to 25% and will assist in achieving the Premiers Priority to "Increase the tree canopy and green cover across Greater Sydney by planting one million trees by 2022".

To ensure urban tree canopy will increase from existing conditions (approximately 10%), a minimum 25% tree canopy target for the private domain and 30% for the public domain has been adopted within the draft design guide. It is noted that this tree canopy target would also be subject to addressing bush fire protection measures contained within Rural Fire Service's Planning for Bushfire Protection 2019, which may limit tree canopy coverage to 15%.

8.5 Land use and planning controls

Study Requirement 5.1
Outline the proposed zoning and provide justification for the proposed mix and location of proposed land uses. The justification should consider future development scenario (based on the 2013 Structure Plan) for the wider Cherrybrook precinct and how the SSP site informs the future planning of the broader area

Study Requirement 5.2
Provide draft zoning and planning controls to amend Hornsby LEP 2013 and Hornsby Development Control Plan 2013 including lot controls, setbacks, street activation, access etc

Study Requirement 5.3
Prepare draft development controls, in a form able to be integrated with the Hornsby Development Control Plan, where additional controls are required to inform future development of the site, including where necessary: public domain, open space, street blocks, pedestrian/cycle connectivity, accessibility, car parking, driveway access crossings, building typologies, building heights/setbacks (ie. for street walls and upper storeys), active street frontages, street trees, deep soil locations for tree planting at a lot level, private open space, waste management, solar access, public art and heritage interpretation

The proposed amendments to the Hornsby LEP 2013 and the design guide are summarised in **Section 6, Section 7**, ***Appendix A*** and ***Appendix B*** of this Planning Report.

8.6 Integration with surroundings

Study Requirement 5.4

Justify the proposed development standards and explain the methodology adopted to ensure amenity standards , infrastructure provision objectives, high quality public domain/streetscape/open space, and to ensure appropriate integration and transitions to the adjoining sites and surrounding residential and institutional land (all based on their proposed/future built form outcomes), ecological areas and heritage items are achieved.

Existing situation

Building height in the Cherrybrook Station SSP is currently controlled by the Hornsby LEP 2013. Under the Hornsby LEP 2013, the current maximum building height for the Cherrybrook Station SSP is 8.5m (refer **Figure 23**). This generally translates to 2 storeys.

The Cherrybrook Station Structure Plan (2013) proposed a maximum building height of 6 storeys for the Cherrybrook Station SSP. Height in metres was not provided. Adjoining land to the north was proposed to have a maximum height of 3-6 storeys, and adjacent land opposite Castle Hill Road was also to have a maximum height of 6 storeys. Again, height in metres was not provided.

In advance of precinct planning being finalised for Cherrybrook, a number of private landowners have submitted planning proposals for greater height within the Cherrybrook Station Structure Plan study area. This has included:

- Cherrybrook Village: Up to 15 storeys
- 55 Coonara Avenue, West Pennant Hills: 22m (6 storeys).

On 18 June 2020, The Hills LEP was amended to give effect to the planning proposal for 55 Coonara Avenue, West Pennant Hills. This site is located 860m from the metro station, and will support 600 dwellings in apartment and townhouse configurations.

The proposal

The proposal seeks to amend the planning framework, including increasing existing maximum building heights, establishing a maximum FSR and requiring consideration of the design guide.

Strategic considerations

As has already been noted in this report (refer to Section 5), Sydney is growing and changing, which requires planning for a greater amount and choice of new homes. Current State and local strategic plans seek to direct much of this growth to established communities, and in particular centres served by rail stations such as Cherrybrook.

While due to their nature these strategic plans do not specify building heights, this often involves planning for taller buildings. The current maximum building height under the Hornsby LEP 2013 does not facilitate this strategic planning outcome.

While the 2013 Structure Plan is more aligned, it is considered that the greater development potential enabled under the proposal compared to the Structure Plan provides greater scope for the delivery of a number of key State and local government strategic planning outcomes while not resulting in significant adverse environmental planning impacts. Greater yield can provide for:

- a greater amount and choice of homes
- greater housing affordability
- better leveraging the city shaping potential of Metro North West, in particular to positively influence sustainable travel behaviours.

The Metro North West provides greater scope for complementary urban renewal outcomes. NSW Government-owned land surrounding the metro stations includes land that is no longer required to support operation. These sites have been made available for development that supports NSW Government priorities of housing affordability, local infrastructure delivery and economic development. This included Bella Vista, Kellyville, Tallawong and Cherrybrook. In addition, a number of stations were located next to underutilised land relative their role in the centres hierarchy such as Castle Hill.

Review of other centres that have been subject to a State led planning process over the past few years due to their co-location with rail infrastructure, including local centres such as Telopea and strategic centres including Macquarie Park, has also seen a substantial increase in potential development capacity through increased heights.

While the COVID-19 pandemic has seen a slowdown in population growth over the short-term for capital cities, it is anticipated that this is likely to be temporary and growth will return to high levels in the future[1]. This supports the argument that the potential for precincts with attributes such as Cherrybrook should be optimised through measures such as greater heights.

The evolution in planning responses to cater for changing contexts is acknowledged by the Region Plan in its 'principles for Greater Sydney's centres', with planning for local centres such as Cherrybrook to:

> *"consider the temporal nature of growth and change across Greater Sydney, both historic and future, and its influence on development opportunities at the local level".*

It is noted that since the preparation of the Structure Plan in 2013, two Greater Sydney region plans have been published (A Plan for Growing Sydney in 2014 and A Metropolis of Three Cities in 2018).

Site specific considerations

The Cherrybrook Station SSP is considered to have a relatively rare and valuable combination of site-specific attributes that provide support for optimising yield, including through taller buildings. These include:

- its location adjacent to a metro station providing access to a location providing jobs and services, including the Sydney CBD
- its large (3.5ha) area
- its State government ownership
- its 'island' nature, only being adjoined on one side by existing development (other development is located across roads)
- it not being extensively affected by major environmental issues that often constrain renewal, including significant vegetation and heritage
- existence of enabling trunk infrastructure.

Impacts

The provisions of existing, key planning documents, including the Hornsby LEP 2013, SEPP65 and the ADG will continue to apply to the Cherrybrook Station SSP. In particular, the ADG includes a large number of provisions aimed at ensuring a high level of residential amenity for existing and future residents, including through solar access and natural ventilation.

In addition, the site specific design guide will provide further assurance of amenity outcomes. This includes the following desired outcomes and prescriptive measures:

- requiring the segmentation of built form into distinct forms

[1] Centre for Population 2020, Population Statement Overview, the Australian Government, Canberra

- requiring building height (as well as massing) results in at least 50% of the Community Open Space receiving more than 3 hours of direct sunlight between 9am to 3pm at the winter solstice.

Testing of the Reference Scheme was undertaken to provide a further level of assurance of such outcomes. Testing included:

- ADG compliance (refer **Appendix D**)
- visual impact assessment (refer **Appendix T**)

The results of these studies have shown that the proposed planning framework is capable of accommodating a DA that:

- complies with solar access and separation distances, and is capable of complying with cross ventilation subject to detailed building layout at the DA stage
- is not overly visually prominent when viewed from the public domain outside the Cherrybrook Station SSP
- does not result in significant, unacceptable visual impacts having regard to the nature of the proposal and its likely future context.

Feasibility

AEC Group has undertaken a number of economic studies for Cherrybrook to inform and test the proposal. The most recent version of their Economic and Land Use Assessment is provided at **Appendix G**. An earlier version published in 2017 considered feasibility in detail.

While detailed consideration of the feasibility of building heights was not made, the study noted that:

- mixed use developments can be more challenging from a financial feasibility standpoint compared to residential only
- planning controls that add cost to development such as dwelling mix and size and minimum carparking ratio can have an impact on feasibility
- allowing for greater yield can offset costs associated with meeting planning controls
- a minimum threshold yield was required to overcome certain costs.

The study advised that in Cherrybrook, the main consideration impacting feasibility is the fragmentation and relatively high costs of land, which results in land assembly challenges. This may reduce or preclude redevelopment of land even when the planning framework has been amended to enable such an outcome to occur. Due to its State government ownership, the Cherrybrook Station SSP is not subject to these challenges.

Noting these factors, as well as the Cherrybrook Station SSP being required to make significant contribution to public open space as well as accommodating a community facility catering not only for the need it generates but also that of other land, it is argued that the planning framework for the Cherrybrook Station SSP should be optimised.

Supporting this, AEC noted that ‘pertinent development considerations for the DGL are less a question of financially feasible development but optimum use of land that will convey the benefits of transit-oriented development’ and that ‘mixed use buildings and higher densities on the DGL (i.e. the Cherrybrook Station SSP) present a real opportunity to grow a vibrant town centre and to achieve the strategic objectives of transit-oriented development’.

Heights along the northern boundary

Due to the slope of land and an absence of an existing public road that provides for increased separation, the Cherrybrook Station SSP is considered to have a sensitive interface to residential land to the north.

To address this, the Reference Scheme:

- where west of the central public domain corridor, incorporates a two storey town-home block
- where east of the central public domain corridor, sets taller buildings back behind a 2 storey podium.

It is noted that land at the western and eastern ends can achieve a height of up to 5 storeys. This is considered an appropriate gateway built form response, and is not considered to give rise to a built form scale that is incompatible with planned future heights to the north.

Other form and design based measures, such as alignment of buildings, maximum length of buildings and building articulation, large setbacks (6m, 12m, and 17m) and deep soil will mitigate the physical and visual impact of larger built forms (refer **Figure 53**).

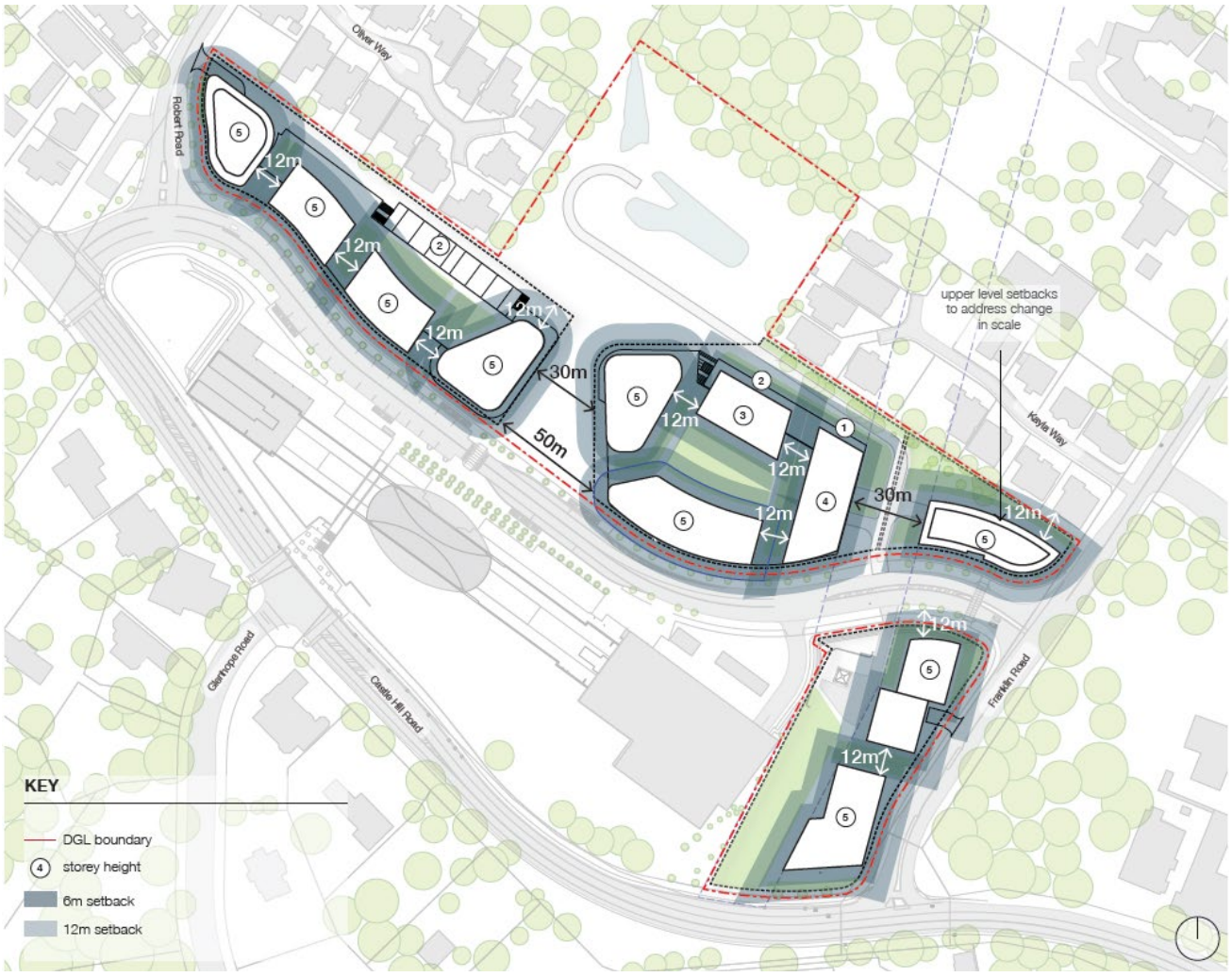

Figure 53 Building height and setback strategy

It is understood that as part of the separate Place Strategy process for the broader Cherrybrook Precinct, DPE is considering establishing increased building heights of around 5 storeys for potentially developable land to the immediate north of the Cherrybrook Station SSP around Oliver Way and Kayla Court. On this basis, an interface between the Cherrybrook Station SSP and this land is considered acceptable.

Should this proposal not proceed, it is considered that the combination of measures noted above is an acceptable interface outcome.

Inala School

Inala School is located opposite the eastern part of Cherrybrook Station SSP site on Franklin Road. Part of the school, being the “Inala School” (original house), is listed as a heritage item of local significance under the Hornsby LEP 2013. The statement of significance for the school is as follows:

- *“Good example of a large early Federation Bungalow style house. Elegant design with distinctive tall chimneys and pair of gablets. Integrity affected by some unsympathetic modifications”.*

This statement does not include reference to curtilage and setting.

The Heritage Impact Assessment prepared by Artefact states that in relation to height:

- *“The proposed planning controls and Reference Scheme identifies that construction adjacent to Inala would not exceed five storeys. Given that this proposed development is on land lower than Inala, this height (five storeys) is not considered to have substantial negative effect on the heritage values of Inala. Potential impacts to these heritage values by development may be further mitigated through sympathetic design considerations including use of screening vegetation, and choice of form and materials.”*

The school is physically separated from the Cherrybrook Station SSP by Franklin Road, which is a main road in the local area. It is located in the south-eastern part of Cherrybrook Station SSP site approximately 90m from the closest (eastern) edge of the Cherrybrook Station SSP and is separated by a curtilage rated as ‘high significance’ (Artefact, 2020) that supports rows of established trees. The combination of these elements serve to physically and visually disconnect the school from the Cherrybrook Station SSP. More recent buildings close to the school and the low significance of the curtilage suggest it may be of use for further development in the future.

The combination of physical and visual separation, as well as the heritage report’s recommendation for retention of this open space and vegetation, is considered to provide sufficient scope for respecting the context and setting of the school and not result in a height that unreasonably diminishes these heritage items.

8.7 Housing

A Housing Study has been prepared by Ethos Urban to address these study requirements. A copy of the study is provided at **Appendix H**.

Study Requirement 6.1

Undertake a housing needs and forecasting analysis for the Cherrybrook Station SSP to identify the appropriate mix of dwelling types and sizes necessary to support a diverse, healthy and socially sustainable community

This study includes a detailed housing supply analysis, including an overview of dwelling type and tenure. This has been analysed against the likely demand for housing in the study area, based on forecast population growth and age structure, household type and size, as well as market activity. This has involved a review of the housing context of the SSP and its surrounds and a housing needs analysis.

The key findings and conclusions of the analysis can be summarised as follows:

- The demographic profile of Cherrybrook (the study area) is that of a family-based suburb with detached housing as the predominant built form.
- As the population ages, the study area is gradually declining in population and a growing number of households are couple families without children.
- A significant contributor to the study area's current age profile and urban composition is that it is fully built out and the planning framework presently provides little scope for different housing typologies such as medium and higher density housing.
- Within this urban profile, the Cherrybrook Station and the immediate area around the station represents an opportunity to provide housing diversity that has, to date, been absent from the local market. In addition, it will provide a more diverse housing typology to the study area, which will attract a younger and more diverse demographic. In turn, this is likely to slow the rate of aging in the study area.
- It is noticeable that in other areas that have been provided with rail-based public transport infrastructure, demand for higher-density forms of housing has been significant. In the case of Cherrybrook, the provision of new high-capacity and high-frequency rail-based public transport infrastructure at a best practice (for Australia) level is considered almost certain to prove popular with both home buyers and the rental market.
- Additionally, the median house price in Cherrybrook ($1.4 million in 2019/20) suggests that the future high-density apartment market is likely to be at, or around, the price range required to support a significant high-density apartment market compared to median price of houses within the local area. The presence of the Cherrybrook Station adjacent to a high density precinct at Cherrybrook is likely to add further weight to Cherrybrook as an attractive high density market. This is demonstrated by previous research which points to a strong link between the median house price of the surrounding area and the commercial viability of undertaking higher density residential development.

In summary, existing planning controls have prevented the development of a higher-density residential market in Cherrybrook. The opportunity to provide such a market around the Cherrybrook Station is considered likely to be strongly supported due to its access to high-frequency rail-based public transport and the relatively high-median house price of the surrounding area.

With this in mind, the analysis has concluded that housing diversity should be implemented as a principle to guide housing supply delivery in the Cherrybrook Station Precinct. Diverse housing ensures that there are housing options for a broad range of households in the Cherrybrook Station Precinct, to maximise choice and ensure that households can access housing that meets their needs and preferences.

Study Requirement 6.2
Consider the need to increase housing diversity

Cherrybrook Station Precinct represents a unique opportunity along the Metro North West corridor, as the only non-greenfield site not centred on an established centre. As an established low density housing area, the Cherrybrook SSP offers significant scope for urban renewal, housing diversity, placemaking and opportunities for innovation.

Table 9 provides a suite of recommendations on the future housing mix in the Cherrybrook SSP, including the supply, type and tenure appropriate to meet community needs and aspirations in the area of envisaged market demand, as well as planning mechanisms to deliver the desired outcomes identified in this study.

Table 8 Housing diversity recommendations for the Cherrybrook SSP

Recommendation	Comment	Planning mechanism
Increase housing choice in the Cherrybrook SSP by delivering high density housing options	• Cherrybrook is an established low density area. In the study area, 93.4% of dwellings are separate houses, and there are no flats, units or apartments. Urban renewal in this area offers an opportunity to diversify the range of housing types in the area to meet a broader range of community needs, including unmet demand for smaller dwellings from lone person and couple households, as per the draft Hornsby Shire Council Local Housing Strategy (2020).	• Land use zoning enables high density residential development. • Objectives to encourage high density housing and town centre character are included in the design guide. • Residential development in the Cherrybrook SSP complies with SEPP 65 (Apartment Design Guide), as per legislative requirements.
Deliver high density housing for a range of household types	• Cherrybrook Station SSP site's highly accessible and connected location indicates that high density housing in this location would be attractive to a range of household types, including young families, couples, older people and lone person households. • The existing household profile of the area is dominated by family households, and rezoning of the Cherrybrook SSP provides an opportunity to support the needs of a broader range of households. 93.2% of households in the study area are couples, with or without children, compared with 61.3% of households across Greater Sydney. Only 6.1% of households in the study area currently are lone person households, compared with 21.7% across Greater Sydney.	• The design guide encourages greater housing diversity and choice, including adaptable housing and universal design housing. • The proposed amendments to the Hornsby LEP 2013 will require a minimum of 5% of new dwellings to be provided as affordable housing for a minimum of 10 years.
Deliver three-bedroom apartments appropriate for family households with children, downsizers, and multi-generational housing	• The current household profile of this area is dominated by family households, and the average household size in the study area is 3.3 persons per dwelling, compared with 2.8 across Greater Sydney.	• The design guide includes an objective for diversity of dwelling types and sizes that is responsive to local need, and encourages the provision of larger integrated terrace/townhouse typologies at ground floor level, including family

Recommendation	Comment	Planning mechanism
	• Three-bedroom apartments in this highly accessible location may be appealing to family households. Larger units of this size may also appeal to downsizers in the Hornsby and Hills Shire LGAs. • Larger housing (i.e. three-bedroom units) in this location may also support multi-generational households. As the Cherrybrook SSP is highly culturally diverse, this profile may indicate demand for multi-generational housing.	friendly dwellings, to help achieve this outcome
Deliver adaptable housing to provide opportunities for downsizing and ageing in place	• While noting this is a matter of preference, there may be older people in the broader area who are seeking opportunities to downsize into a smaller, more easily maintained dwelling close to existing connections in Cherrybrook. • The age profile of the study area is older than the Greater Sydney average.	• The design guide encourages the provision of adaptable and universal housing to meet the needs of residents
Delivering some smaller apartments appropriate for lone person households and first home buyer couples	• The dominance of separate housing (93.4% of all dwellings in 2016) and the relatively high median house price in the study area ($1.4 million in 2019-20, compared with $920,000 in Greater Sydney) may indicate unmet demand for smaller housing types in the area, which are appropriate for lone person households and couples, to support a broader range of household types in the area.	• Residential development in the Cherrybrook SSP complies with SEPP 65 (incl. Apartment Design Guide), as per legislative requirements, meeting minimum apartment size requirements.
Meet demand for housing with high design quality	• Due to the highly accessible location of Cherrybrook Station SSP site (adjacent to Cherrybrook Station) and the existing high median house price in Cherrybrook ($1.4 million in 2019-20), there is likely demand for high quality apartment stock in the Cherrybrook SSP.	• Residential development in the Cherrybrook SSP complies with SEPP 65 (incl. Apartment Design Guide), as per legislative requirements. • Residential development in the Cherrybrook SSP will be subject to Clause 6.8 of the Hornsby LEP 2013. The objective of this clause is to deliver the highest standard of architectural and urban design.
Deliver a liveable neighbourhood with social infrastructure, retail and other services and amenities to meet residents' daily living needs Deliver great public open spaces to support	• To support increased housing in the Cherrybrook SSP, and realise the goal of a vibrant and thriving centre, it will be important to ensure that new housing in the area is supported by adequate levels of amenity that caters to a broad range of demographic groups. • The existing housing profile of the area is dominated by separate houses, and	• The proposed amendment to the LEP in combination with the design guide encourage liveable neighbourhoods and the delivery of local infrastructure such as open space, retail activation etc.

Recommendation	Comment	Planning mechanism
increased density and population growth	increased housing diversity is likely to attract a broader range of household types.	
Deliver housing that is sustainable and resilient to climate change	• Housing delivered in the Cherrybrook SSP will be responsive to environmental issues (e.g. urban heat, extreme weather) so residents and communities will be safe and comfortable in their homes, and are able to connect with services and each other, to support community resilience.	• Residential development will be required to comply with minimum BASIX targets, while the draft design guide encourages opportunities to deliver residential development that aligns with precinct-specific water and energy efficiency targets.
Deliver housing that is responsive to the bushland character of the area	• The geographic context of the study area, in a suburban area with access to the natural areas, shade, urban forest and views of the surrounding bushland landscape, is strongly valued by the community. • Housing that is consistent with this existing place character and engages with the natural landscape is likely to align with community values.	• Minimum tree canopy coverage targets of 25% for the private domain and 30% for the public domain are proposed within the draft design guide (subject to bushfire risk assessment). Achieving this target will increase canopy coverage from the existing 10% coverage on Cherrybrook Station SSP site.

Study Requirement 6.3

Demonstrate how the proposed planning controls will support the achievement of housing and development objectives

The outcomes of the study have informed the recommendation of planning controls to support the achievement of increased supply, diversity and affordability of housing in the Cherrybrook SSP. These recommendations are outlined in **Table 7** above, and are included in section 1.18 – 'Housing choice' of the deign guide.

Study Requirement 6.4

Demonstrate how the proposal will meet NSW Government's commitment to delivering more Affordable Housing in 'A Plan for Growing Sydney', including the affordable rental housing target of 5-10% of new residential floorspace (North District Plan) particularly for government let urban renewal projects.

The study identifies a demand for affordable rental housing in the Cherrybrook SSP to support individual and community wellbeing, and a socially sustainable community. **Table 10** summarises the recommendations that have been made by Ethos Urban with respect to the delivery of affordable housing. The proposed site specific design guide contains controls relating to housing choice and affordable housing.

Table 9 Recommendations for affordable housing delivery in the Cherrybrook SSP

Recommendation	Comment	Planning mechanism
Deliver affordable rental housing within the Cherrybrook Station Precinct	The rezoning of government-owned land in the Cherrybrook SSP provides an excellent opportunity to deliver new affordable rental housing, as per the NSW Government's affordable housing target of 5-10% of new	• The proposed amendments to the Hornsby LEP 2013 will require a minimum of 5% of residential GFA to be provided as affordable housing for a minimum of 10 years. This is aligned with

Recommendation	Comment	Planning mechanism
	development (subject to feasibility)2, in an area well connected to public transport and employment opportunities in surrounding centres. As this land is government-owned, there is a significant opportunity to deliver improved access to affordable housing in this area.	Landcom's affordable housing policy.
Consider a range of approaches to determining rental costs for affordable rental housing	Noting the relatively high median house price and weekly household rent in the study area, affordable rental housing rented at 80% of market rent may not be affordable for households earning less than 40% of median income (a common approach to determining housing costs for affordable rental housing). It may be appropriate for Landcom to implement an alternative affordable housing metric to determine appropriate rental prices for affordable rental housing in the Cherrybrook Station SSP (e.g. 30% of household income). This recommendation is targeted towards community housing providers.	• No planning mechanism. This recommendation is targeted towards community housing providers.
Ensure all affordable rental housing is 'tenure blind'	Ensure there are "no explicit external indicators of tenure type in the design and layout of a development."3 This contributes towards minimising the stigma attached to any affordable rental housing, and increases the likelihood of a socially mixed, cohesive and connected community.	• Residential development in the Cherrybrook SSP will comply with SEPP 65 (Apartment Design Guide), in line with legislative requirements. • The design guide includes a prescriptive measure outlining, where affordable housing is provided, it is not visually distinguishable externally from other housing tenures ("tenure blind") and of the same design quality as other housing tenures.
Agglomerate affordable rental housing units to improve management efficiencies for community housing providers	The approach of agglomerating affordable housing units – either within a single building, or within floors of buildings, improves management and operational efficiencies for community housing providers. Subject to this housing being visually indistinguishable externally, this would not impact on social mix and sustainability goals.	• The design guide includes a prescriptive measure requiring the location of affordable housing to consider the operational efficiencies and improved management for community housing providers

[2] Greater Sydney Commission, Sydney Region Plan

[3] Van de Nouwelant, R & Randolph, B 2016, "Mixed-tenure development: Literature review on the impact of differing degrees of integration," *City Futures Research Centre*, Report to Frasers Property, October 2016, p.2 < https://cityfutures.be.unsw.edu.au/documents/463/Mixed-communities-for-FPA-Final.pdf>

8.8 Aboriginal and non-Aboriginal heritage

Study Requirement 7.1
Provide a desktop study for Indigenous and European Heritage (including previous studies commissioned by Landcom), that identifies and describes the heritage values that exist within and surrounding the site.

Study Requirement 7.2
This should include a desktop review of the possible existence or record of any archaeological material and sites (both Indigenous and European) on or immediately adjacent to the SSP site that may require an archaeological assessment to be undertaken at future development stages.

Indigenous Heritage

An Aboriginal Cultural Heritage Assessment (ACHAR) has been prepared by Artefact to assess Aboriginal heritage within Cherrybrook Station SSP (refer to **Appendix V**). The assessment identifies one archaeological site containing Aboriginal objects (Aboriginal Heritage Information Management System (AHIMS) site #45-6-2861) that exists within the SSP. The entire site extent of AHIMS site #45-6-2861 has been impacted by the construction of Cherrybrook Station. However, the site is still registered on the OEH AHIMS database as no site card has been submitted to classify the site as destroyed. As the site has been wholly subject to mechanical excavation and grading, it is considered to be of nil to very low archaeological potential and no Indigenous cultural heritage is identified within or adjacent to the SSP.

Notwithstanding this, and in order to mitigate impacts to the Aboriginal cultural landscape, it is recommended that development in the study area considers conservation of some open spaces. Retaining open spaces would reflect the past landscape and provide opportunity to celebrate the relationship between the Darug and Awabakal cultural values and traditional land-use activities. It is also recommended that a site impact form is submitted to Heritage NSW AHIMS to record that AHIMS site #45-5-2861 has been destroyed.

Beyond the site, the western wooded portion of Lot 10 DP 16975 to the north of the SSP has not undergone the same historical processes of land clearance as elsewhere in the vicinity, and is an area of likely heightened archaeological potential.

Archaeological sensitivity mapping, including the area with higher archaeological potential within the western part of Lot 10 in DP 16975, is shown at **Figure 54**.

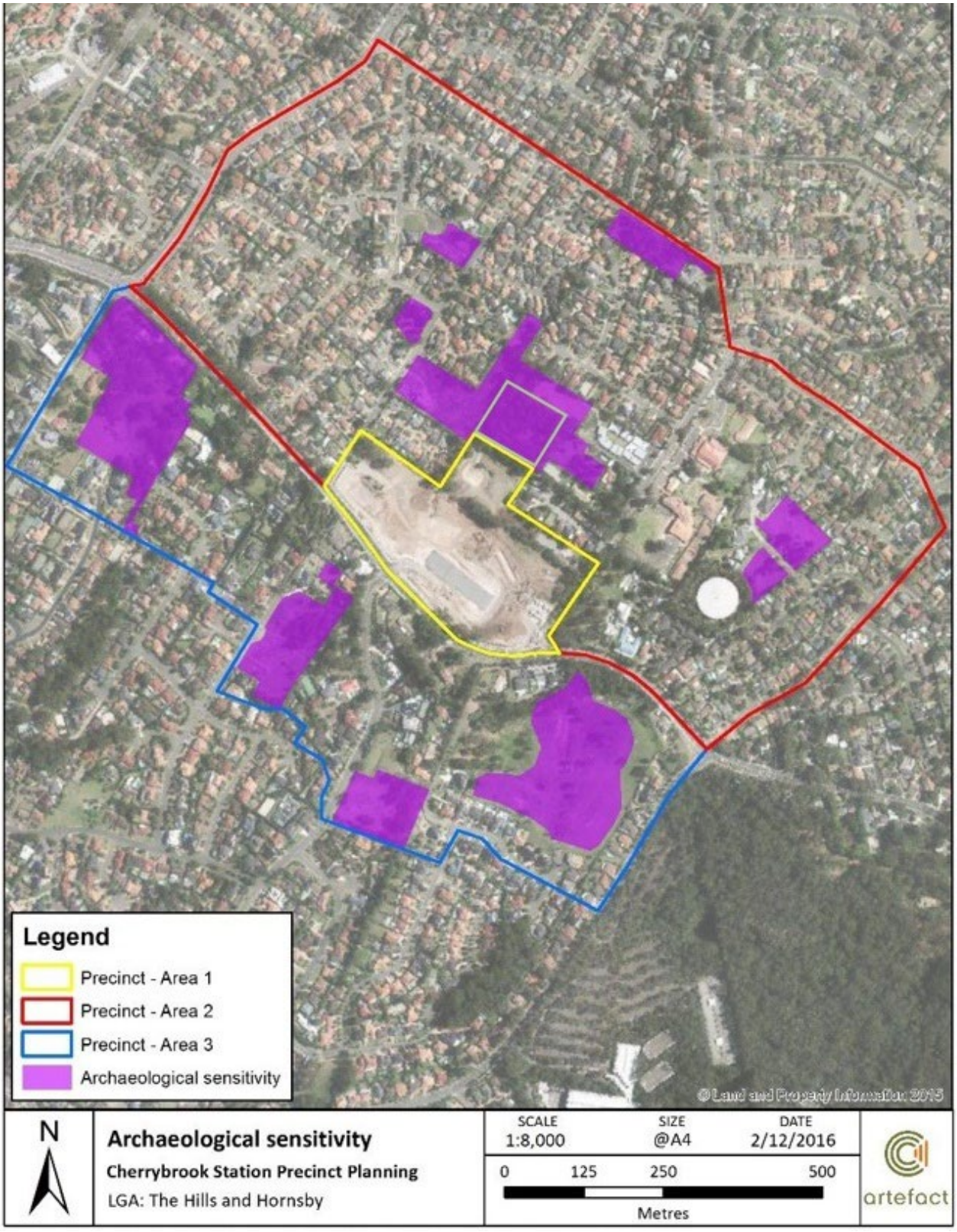

Figure 54 Archaeological sensitivity mapping

Source: Artefact

European Heritage (Built)

A Heritage Impact Assessment (HIA) has been prepared by Artefact (refer to **Appendix I**). The assessment involves a review of heritage items and the archaeological potential on Cherrybrook Station SSP site. This review found that although no built heritage items are located in the study area, there are four (4) items of local significance within close proximity to the SSP. These items are all located on Castle Hill Road (refer to **Figure 55**) and are listed as follows:

- House, Hornsby LEP I302 (high significance) at 150 Castle Hill Road;
- Inala School, Hornsby LEP I303 (high significance) at 160-168 Castle Hill Road;
- Glenhope, The Hills LEP I197 (high significance) at 113 Castle Hill Road; and
- Dunrath, The Hills LEP I198 (high significance) at 139 Castle Hill Road.

Section 4 of the HIA provides a description of each item, and provides a significance assessment for each item against the NSW Heritage criteria.

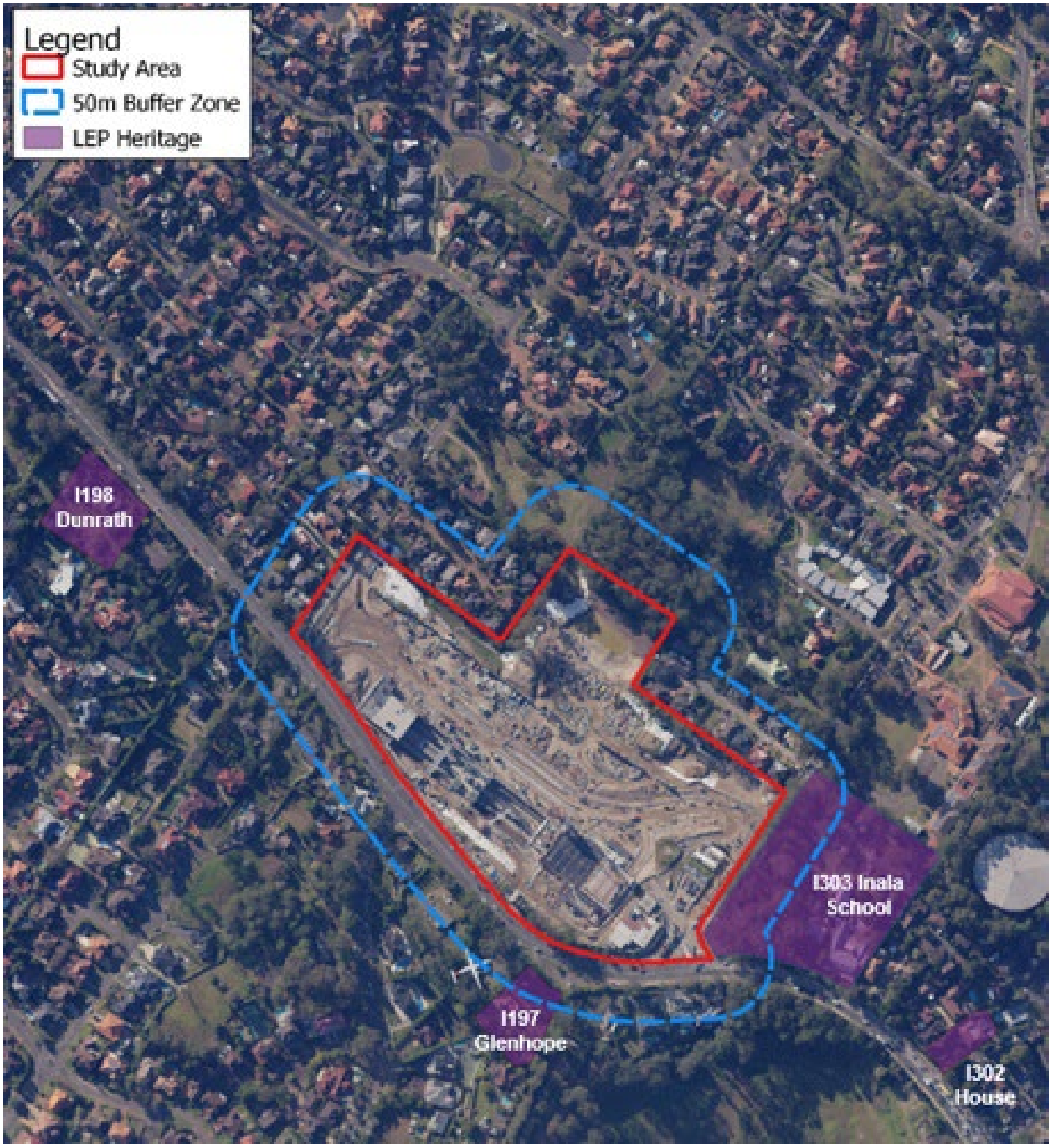

Figure 55 Heritage items in the vicinity of the study area

Source: Artefact

European Heritage (Archaeology)

With respect to historical archaeology, an Archaeological Assessment and Research Design was prepared in 2013 for the Cherrybrook Station site. The assessment identified that there was moderate potential for the remains of a late-nineteenth/early-twentieth century weatherboard house. However, following the test excavation of this house and management of its archaeological remains, no potential archaeological remains are predicted within the study area.

No other items of archaeological potential are considered to be remaining within the study area given the extensive works associated with the construction of Sydney Metro. However, such items may be present on surrounding land, including the potential for items associated with some of the heritage listed properties nominated above. **Figure 56** shows the areas of archaeological significance around the surroundings of the Cherrybrook Station SSP site.

Figure 56 Archaeological significance surrounding Cherrybrook Station SSP site
Source: Artefact

Study Requirement 7.3
In preparing the Indigenous Heritage Study, the Hornsby Aboriginal and Torres Strait Islander Consultative Committee (HATSICC) should also be consulted. Where Indigenous cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW).

As detailed in the Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared by Artefact Heritage (refer to **Appendix V**), consultation has been carried out with the Hornsby Aboriginal and Torres Strait Islander Consultative Committee (HATSICC). HATSICC did not identify any specific Aboriginal archaeological values within the study area. HATSICC noted that Aboriginal cultural values were not limited to artefacts or objects, and that therefore wider Aboriginal community consultation should be carried out in assessment of the study area. It was considered that this identification of wider cultural values associated with the study area was sufficient to trigger formal Aboriginal community consultation as required by this Study Requirement.

In accordance with step 4.1.2 of DECCW 2010, on 25 September 2020 emails were sent to agencies to identify Aboriginal groups or individuals known to have connection to the study area. On the same date, in accordance with step 4.1.3 of DECCW 2010 an advertisement was placed in the Hills to Hawkesbury Community News local newspaper issuing an invitation for Aboriginal groups and individuals to register an interest in consultation for the project.

The ACHAR was provided to Registered Aboriginal Parties (RAPs) on 27 October 2020 together with an explanatory letter setting out the reason for consultation as in accordance with the study requirements. The 28-day consultation period for RAP review of this ACHAR concluded on Friday 20 November 2020. On Monday 23 November 2020, all RAPs were called by Artefact Heritage to ensure that RAPs had concluded their review of the ACHAR, and that no RAP comments were outstanding. A log of all consultation correspondence is provided in Appendix 1 of the ACHAR (refer to **Appendix V**). Specific consultation comments and the manner in which they have been incorporated into the ACHAR has also been included (refer to Table 4 of the ACHAR).

Study Requirement 7.4
In preparing the European heritage study, consultation is also required with the Hornsby Heritage Advisory Committee (HAC).

Section 7 of the HIA (refer to **Appendix I**) provides evidence of consultation with the Hornsby Heritage Advisory Committee (HAC). The HAC's key comments have related to the level of information available at the time of consultation, potential impacts of additional height along Franklin Road (adjacent to Inala School), the grading of significance of the landscaped area of Inala School, whether or not a site specific design guide will be prepared and the suggestion to undertake an assessment of natural heritage significance and the environmental heritage significance of the Blue Gum High Forest adjoining the SSP.

Several comments were also made which go beyond the scope of the study and HIA, including the potential for rezoning outside of the study area and a review of potential heritage items in the buffer area. A response to the comments raised by the HAC is provided at Section 7 of the HIA.

Study Requirement 7.5
This study where applicable shall provide management recommendations and interpretation opportunities for any Indigenous and European heritage and archaeological sites, including development control provisions if required to guide future development of the site to ensure any identified heritage significance is retained and enhanced.

Indigenous Heritage

As detailed above, there are no existing Aboriginal heritage values within the study area that would require management. It is recommended that a site impact form be submitted to Heritage NSW AHIMS to record that AHIMS site #45-5-2861 has been destroyed.

However, in order to mitigate cumulative impacts to the Aboriginal cultural landscape, the ACHAR makes the following recommendations, which have been reflected in the draft site-specific design guide:

- In order to mitigate cumulative impacts to the Aboriginal cultural landscape, it is recommended that development in the study area considers conservation of some open spaces. Retaining open spaces would reflect the past landscape and provide opportunity to celebrate the relationship between the Darug and Awabakal cultural values and traditional land-use activities.
- Strategies to emphasise the importance of open spaces to reflect the Aboriginal cultural landscape should be sensitive to the presence and potential cultural landscape value of apparently undeveloped open land immediately adjacent to the study area in Lot 10 DP 16975.
- Acknowledgement of Aboriginal ties to country could be achieved through implementation of heritage interpretation strategies and plans.

European Heritage

Artefact has provided series of general recommendations, as well as specific recommendations for Inala School and Glenhope. A summary of the key recommendations is provided at **Table 11**.

Table 10 Heritage management recommendations

Component	Recommendations
General	• Development adjacent to listed heritage items should be compatible with their historic values and should utilise sympathetic architectural design, materials, and finishes. • Building heights adjacent to listed heritage items should respect the context and setting of the items, and should not be at a height that would dwarf these heritage items. • Appropriate screening vegetation at heritage items adjacent to the SSP study area should be retained or reinstated if removed, to minimise visual impacts to items and preserve context and setting. • A detailed Statement of Heritage Impact should be prepared for any development that may have a visual impact on listed items within the vicinity of the SSP study area. • The SSP study area has been assessed as having nil-low archaeological potential so no additional assessment would be required. • Future excavation works for the project should occur under the Sydney Metro Unexpected Finds Policy, in conjunction with a Heritage Induction for all contractors. • Where there are opportunities for heritage interpretation to be included in the development of the Masterplan, these should reflect the historic character of the area as a whole and focus on items identified within the area as having heritage significance.
Inala School	Height • Development must not be of a height that would negatively impact the heritage values of Inala. Potential impacts to these heritage values by development height may be mitigated through sympathetic design considerations including use of screening vegetation, setbacks, podium and the choice of form and materials. Form • Inala is of discrete profile and traditional form. Development must utilise design forms that are sympathetic to Inala and must not utilise radical forms that would substantially detract from the heritage values of Inala. Materials • Finishes, materials and choice of colours must be sympathetic to the heritage values of Inala
Glenhope	View lines to the NNE from Glenhope • Any new proposed development situated opposite Glenhope must be sympathetic to the low profile design principles implemented in the construction of the existing multi storey car park. View lines to the ENE • Partial view lines exist between Glenhope and the corner of Franklin Road and Castle Hill Road. These are impacted by the high voltage power lines mentioned above. • Development at the corner of Franklin Road and Castle Hill Road should employ setback from Castle Hill Road and tree plantings as utilised along the adjacent street frontage of the Cherrybrook Station car park to create a continuity of vegetated streetscape as viewed from Glenhope.

Responding to the above recommendations, the draft design guide has adopted the following prescriptive measures to apply to any future development within the Cherrybrook Station SSP:

- a detailed Statement of Heritage Impact is to be prepared for any development that may have a visual impact on listed items within the vicinity of the Cherrybrook Station Government Land State Significant Precinct.
- development adjacent to Inala School (original house) (160-168 Castle Hill Road) is to:
  - incorporate sympathetic design considerations including use of screening vegetation, setbacks, podium and the choice of form and materials to mitigate the impact of height along Franklin Road
  - apply finishes, materials and colours that are sympathetic to the heritage values of 'Inala School'
- the open space network includes areas that reflect the past landscape and provide opportunity to celebrate the relationship between the Darug and Awabakal cultural values and traditional land-use activities
- a Heritage Interpretation Strategy is to be prepared as part of the first development application which interprets Aboriginal ties to country and Aboriginal cultural landscape values, including the potential cultural landscape value of the Blue Gum High Forest.

8.9 Biodiversity

A Biodiversity Development Assessment Report (BDAR) has been prepared by Biosis to satisfy the requirements of the Biodiversity Conservation Act 2016 (BC Act) and the associated NSW Biodiversity Assessment Method (BAM). The BDAR is provided at **Appendix J**.

Study Requirement 8.1
Identify and assess the key biodiversity attributes of the site and surrounds and document how these have been appropriately considered in the planning, rezoning and future development proposed for the site.

Study Requirement 8.2
This should include the identification and potential impacts on the common vegetation species and particularly of the threatened species, ecological communities and/or their habitat listed under the NSW Biodiversity Conservation Act (2016) and/ or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Native Vegetation

The biodiversity attributes of Cherrybrook Station SSP site and surrounds have been assessed in detail in the BDAR. The extent of native vegetation, threatened ecological communities (TEC) and vegetation integrity within the subject land and study area was determined using the results of site investigations, previous studies undertaken at Cherrybrook Station SSP site (Biosis 2016, Biosis 2017), assessment of local vegetation mapping (OEH 2016a) and Chapter 5 and Appendix 6 of the NSW Biodiversity Assessment Methos (BAM) (OEH 2017).

The vegetation within the study area and surrounds has been modified by past disturbances. Very few patches of undisturbed remnant vegetation occur within the locality, with remnant native vegetation and communities generally being considered re-growth following clearing over the past 50-150 years. As a result, fully structured forest vegetation is scarce outside protected areas, with the majority of native plant communities consisting of native canopy trees over a paucity of native shrubs and/or groundcovers.

This is the case for the identified PCT (PCT 1237) within Cherrybrook Station SSP site, where native trees such as Sydney Blue Gum – Eucalyptus salinga and Blackbutt – Eucalyptus pilularis occur over an understory dominated by noxious listed species. The vegetation within the subject land forms the southern extent of a larger patch of PCT1237 that is in higher ecological condition. The assessment recorded 0.31ha of PCT 1237, 0.27ha of which equates to the Blue Gum High Forest threatened ecological community. PCT 1237 is found along the northern and north-eastern boundary of Cherrybrook Station SSP site, as shown in **Figure 57**. In summary:

- PCT 1237 within the northern boundary of the subject land has been assessed as PCT 1237 – Moderate condition, and meets the threshold for listing as Blue Gum High Forest as a Critically Endangered Ecological Community (CEEC) under both the BC Act and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
- a small row of planted native trees extends along the north-eastern boundary of the subject land. This vegetation community has been assessed as PCT 1237 - Planted condition due to the presence of one Sydney Blue Gum, but is not considered to be a remnant stand of the surrounding PCT 1237 observed within the study area and locality.

The remainder of Cherrybrook Station SSP site has been cleared and is devoid of vegetation and habitat for native fauna. No Cumberland Plain Woodland was recorded within the study area.

No native vegetation or habitat is to be removed as a result of the rezoning of the development site, and this assessment was undertaken under the assumption that no native vegetation will be removed as the result of the future proposed development within the subject land. As such, in accordance with Section 10.3 of the BAM, offsets are not required for the proposed rezoning or future development of the site.

The project is not considered likely to result in a significant impact to species or communities listed under the EPBC Act, and as such a referral to the Commonwealth Minister of the Environment is not required.

Figure 57 PCTs and TECs within the subject land and study area

Source: Biosis

Threatened Species

A list of predicted species (ecosystem credit species) expected to occur within the subject land was refined as per Section 6 of the BAM.

Due to the highly degraded and disturbed nature of the flora habitats within the subject land, no flora species credit species were considered candidates for the BAM assessment. As such, no targeted surveys were undertaken for threatened flora in accordance with the NSW Guide to Surveying Threatened Plants (OEH 2016).

No targeted surveys were undertaken for threatened fauna, as the habitat present within the subject land was considered unsuitable for all but two candidate fauna species, being Southern Myotis Myotis macropus (vulnerable, BC Act) and Koala Phascolarctos cinereus (vulnerable, BC Act and EPBC Act).

Both species were assumed to be present within the subject land based on their habitat requirements. However, as no fauna habitat will be removed from the subject land, no species credits are required to offset impacts to these species. No threatened flora species were considered to be candidate species, and thus will not be impacted by the proposed project.

It is assumed that future development of the subject land will be undertaken in accordance with the Hornsby Local Environmental Plan 2013 which contains provision relating to the protection of biodiversity, including threatened species.

Study Requirement 8.3

The proposal should retain Blue Gum and Cumberland Plain species, with local offsets prioritised within the site to maintain on site biodiversity values and preservation.

Study Requirement 8.4

Consider the recommendations of the soon to be released Cumberland Plain Conservation Plan in relation to the vegetation on the government land site and the adjacent land.

Study Requirement 8.5

Identify the requirements and approach to protecting the existing Blue Gum High Forest area adjacent to the north of the site and investigate opportunities for new pedestrian/cycle connection/s between the town centre and surrounding streets to the north east and north west that could be potentially be provided adjacent/to the outer edge of this Blue Gum High Forest area.

Whilst no Cumberland Plain Woodland was recorded within the study area, one TEC (Blue Gum High Forest in the Sydney Basin Bioregion) has been recorded or assumed present within the subject land. No vegetation or areas of the threatened ecological community will be removed as part of any future proposed development.

As no native vegetation would be directly impacted by rezoning or by future development, offsetting through the transfer and retirement of biodiversity credits is not required for the proposed rezoning or future development of the subject land because:

- The proposed works will avoid impacts to native vegetation; and
- The proposed works will avoid impacts to threatened species and their habitats.

No Cumberland Plain Woodland was recorded within the study area and the Cumberland Plain Conservation Plan has not yet been released. Once released, the rezoning and future development of the study area will consider this Plan in relation to the vegetation within the study area and adjacent land.

Section 5.1.3 of the BDAR outlines the approach to protecting the Blue Gum High Forest within the study area. Specific recommendations include the following:

- The establishment of a private land conservation agreement under Part 5 of the BC Act to conserve the TEC;
- Incorporation of the retained vegetation into the future open space plan and the provision of pedestrian access and cycleway around the retained vegetation;
- Investigating opportunities for low impact access through the vegetation, such as through raised boardwalks located in low impact areas; and
- Consideration of fencing to prevent access to retained vegetation.

Where appropriate, these recommendations have been included into the draft design guide (refer to **Appendix B**).

8.10 Traffic and transport

A Traffic and Transport Assessment has been prepared by SCT Consulting at **Appendix E** to address these Study Requirements. The findings of the Traffic and Transport Assessment are summarised below. The assessment concludes that the proposal would have an acceptable impact, and can be accommodated within the existing transport network.

Study Requirement 9.1

Preparation of a traffic and transport assessment for the SSP site, in accordance with TfNSW and RMS requirements and methodologies and to address the transport and movement initiatives and benefits (listed under 'Purpose of the SSP study'– page 7), including:

- *Review of relevant State, regional and local planning policies and all relevant background documents.*
- *Review of concept plans prepared and provide traffic, transport, access and parking design advice during design development phase, for all modes of transport.*
- *Review of existing traffic and travel pattern data (pre COVID-19) including Census, Journey-to-work data and Opal data.*
- *Liaison with TfNSW and other stakeholders to review and update Strategic Travel Model (STM) and PTPM (by Transport Performance and Analytics (TPA)) to reflect relevant modelling scenarios required for this assessment.*

SCT Consulting has undertaken a review of existing State, regional and local planning policies and documents containing principles and strategies relating to traffic and transport to inform their understanding of the land use and transport planning context.

Existing journey-to-work data collected in 2016 (including 9,100 trip samples) demonstrates the travel mode split of the Cherrybrook statistical area. The data shows that private vehicle (driver or passenger) is the most dominant travel mode with 59% utilisation, followed by 10% and 16% for train and bus usage respectively, implying a less developed public transport infrastructure (obtained from 2016 data) in the area surrounding Cherrybrook Station SSP site.

The low public transport mode share in the Cherrybrook area is expected to have changed significantly with the introduction of the Metro North West Line, as a larger catchment of residential areas along the metro / rail network would now have direct and frequent access to employment areas via significantly improved public transport.

Finally, SCT Consulting has liaised closely with the design team to provide design advice during preparation of the Reference Scheme. SCT has also consulted with external stakeholders, including TfNSW, to review and update the PTPM (by Transport Performance and Analytics (TPA)) to reflect relevant modelling scenarios required for this assessment.

Study Requirement 9.2
Collection of traffic and transport movement data (walking, cycling and traffic) at the following intersections near the SSP site (undertaken after the opening of the new metro station) on a typical Thursday:

- *Castle Hill Road / Robert Road (Bradfield Parade from early 2019)*
- *Castle Hill Road / Franklin Road*
- *Castle Hill Road / County Drive / Highs Road*
- *Castle Hill Road / Edward Bennett Drive / Coonara Avenue*
- *Castle Hill Road / Glenhope Road*
- *Bradfield Parade / Robert Road*
- *Bradfield Parade / Franklin Road*

Study Requirement 9.3
Review of existing traffic and transport conditions, including connectivity and accessibility to walking and cycling routes, public transport accessibility and intersection performance for a typical Thursday AM and PM peak hour.

The Cherrybrook Station SSP site is currently an interchange station for walking, cycling, buses (5 bus bays) and taxis (4 spaces), as well as providing a kiss-and-ride (14 spaces) and a park-and-ride (400 spaces). It primarily serves as a key 'origin' transport node for the surrounding residential population in the suburbs of Cherrybrook and West Pennant Hills. Cherrybrook Station SSP site is adjacent to Cherrybrook Station which forms part of the Metro North West Line (opened in May 2019) and provides an average of 30 services (in both directions) per weekday peak hour and 12 services per hour throughout the day during weekends. 5 bus routes service the SSP, with 93 and 97 bus services servicing Cherrybrook Station SSP site during the AM and PM peak hours respectively.

In addition, existing pedestrian infrastructure in proximity of Cherrybrook Station SSP site includes a footpath network that provides access for pedestrians to the station entry points from the surrounding areas, including:

- A shared path along the northern side of Castle Hill Road between David Road and Victoria Road and a footpath along the southern side of Castle Hill Road;
- Shared paths along both sides of Bradfield Parade and the eastern side of Robert Road, with a portion of shared path along the eastern side of Robert Road; and
- A shared path along a portion of the western side of Franklin Road.

Bicycle parking is provided at two locations at Bradfield Parade, with an existing bike shed for 35 bicycles and bike racks for 10 bicycles.

The key intersections currently operate with a performance of Level of Service (LoS) D or better, with the intersections at Castle Hill Road / County Drive and Castle Hill Road / Edward Bennett Drive approaching capacity. The results of the SIDRA modelling for existing intersection performance is provided in **Table 12**.

Table 11 Network performance for existing conditions (2019)

Intersection	AM Peak			PM Peak		
	Delay	LoS	DoS	Delay	LoS	DoS
Castle Hill Road / County Drive / Highs Road	41.0s	C	0.93	53.8s	D	0.95
Castle Hill Road / Bradfield Parade	12.8s	A	0.64	10.2s	A	0.50
Castle Hill Road / Glenhope Road	10.4s	A	0.38	10.6s	A	0.58

Intersection	AM Peak			PM Peak		
	Delay	LoS	DoS	Delay	LoS	DoS
Castle Hill Road / Franklin Road	45.5s	D	0.28	37.1s	C	0.39
Castle Hill Road / Edward Bennett Drive / Coonara Avenue	28.8s	C	0.72	27.4s	B	0.97
Bradfield Parade / Robert Road	6.7s	A	0.11	6.5s	A	0.10
Bradfield Parade / Franklin Road	2.9s	A	0.13	4.9s	A	0.11

Study Requirement 9.4

Consideration and application of the Movement and Place objectives and general approaches as outlined in "Better Placed Aligning Movement and Place" by Government Architect NSW. This should be considered as part of the traffic study analysis and recommendations and the urban design work and should include informing the transport prioritisation and overall urban design framework for new street/s and public domain and recommendations for adjacent streets and intersections

The Better Placed Aligning Movement and Place document (Government Architect NSW, 2019) provides an introduction to the Movement and Place framework and sets out an approach to understanding places in relation to movement infrastructure. The Movement and Place framework provides guidance around:

- Tools for delivering better places on movement links;
- Indicators to recognise the degree of balance required in a given context;
- Mechanism for shaping project briefs to reduce severance and improve mobility; and
- Mechanism for ensuring place benefits are included in briefs and realised.

It is noted that Bradfield Parade was created as a 'High Pedestrian Activity' zone with high place function, while serving local interchange movements of buses, cars and cyclists and having an emphasis on pedestrian movement. Franklin Road and Robert Road are local residential streets with relatively low place and movement functions. On the other hand, County Drive, New Line Road and Castle Hill Road beyond the SSP are major traffic movement corridors serving the major centres and communities of Sydney's north west.

The redevelopment of the SSP does not seek to alter the existing street network. SCT Consulting notes that the development of the SSP would have a minimal impact on the Movement and Place status of existing key streets surrounding the sites, including Bradfield Parade, Robert Road and Franklin Road given the small amount of additional traffic as a result of the Cherrybrook Station SSP site using each of these vehicular access points.

Study Requirement 9.5

Evidence should be provided to demonstrate the future travel behaviour (i.e. mode share) patterns which are established on the basis of a comparative Benchmarking Study and forecast modelling such as the Strategic Travel Model (STM) or Public Transport Project Model

The proposed development is characterised by a mix of residential and non-residential uses within immediate proximity of the Cherrybrook Station, as well as restrained parking provision. Research indicates that these types of built environments lead to higher public transport mode share.

SCT Consulting has reviewed the average trip rate for high density residential developments that have good access to public transport services within urban Sydney areas, as published in the RMS Technical Direction in

2013/14. Sites reviewed include St Leonards, Chatswood, Cronulla and Strathfield. The data shows that these sites all achieve 27-42% car mode share as a proportion of all vehicular trips. However, all of these developments offer a range of parking provision (ranging between 0.64 and 1.6 and on average of 1.24 spaces per dwelling) but still achieve low car use. This suggests that the trip generation rates are also dependent on other factors such as good access to frequent public transport services and access to jobs in key employment centres.

As a result, lower peak hour car trip rates are considered appropriate for this development for the following reasons:

- the site is in proximity to frequent public transport services
- the site has constrained parking provision in line with transit-oriented development principles
- the site has access to a large number of key employment centres within a reasonable travel time. This will further expand with the completion of Sydney Metro City & Southwest in 2024.

Despite this, 0.3 trips per residential dwelling has been adopted for this study to ensure consistency with the wider Cherrybrook Precinct Place Strategy Traffic and Transport Assessment endorsed by relevant stakeholders.

SCT Consulting's Traffic and Transport Assessment (refer to **Appendix E**) reference recent surveys showing that public transport mode share of high-density residential developments that are located close to high frequency public transport services range from 40 to 70 per cent. SCT anticipate for the Cherrybrook SSP site to have a minimum of 50 percent mode share to public transport. A future mode shift target of approximately 24 per cent toward public and active transport (20 per cent train / metro and four per cent bus) has therefore been set, resulting in a future public transport mode split of 30 per cent train / metro and 20 per cent bus trips. A summary of existing and future mode share of the residential component of the development is shown in **Table 13**. Based on this mode share and trip generation rates, it is estimated the proposed residential development at the Cherrybrook Station SSP site will generate a total of just over 677 total trips by all modes of transport.

Table 12 Existing and future mode share of Cherrybrook SSP residential development

Mode	Existing mode share	Forecast mode share	Estimate future trips per peak hour with forecast mode share
Car	58%	28% (-30%)	220
Train / metro	10%	30% (+20%)	236
Bus	16%	20% (+4%)	157
Cycling	0%	2% (+2%)	16
Walking	1%	5% (+4%)	40 (+393 of walking trips to public transport stops)
Other	1%	1%	8
Total trips by all modes	*86%*	*86%*	*677*
Did not go to work	14%	14%	110
Total	**100%**	**100%**	**787**

Source: SCT Consulting

To further support non-car mode share, Landcom and Sydney Metro have established a framework for encouraging more sustainable travel, which has been used as a key principle in planning for the development. Key initiatives and measures to be implemented include:

- Reduce the need to travel by car by planning mixed-use developments to maximise trip containment within the Cherrybrook Station SSP and encourage use of active transport (walking and cycling) for short trips
- Re-think the mode of travel to encourage more walking and cycling and the use of public transport through the provision of:
  - highly permeable and safe pedestrian networks throughout the development, allocate dedicated cycle routes that connect to the regional routes and other major transport hubs and include high quality, safe and accessible end-of-trip facilities. This can include centralised cycle hubs that are integrated within development at convenient locations, on-street secure bicycle storage located conveniently at end of cycle destinations, parking hubs for shared bikes, lockers and showers
  - Provision of frequent public transport services to establish non-car travel behaviour, supplemented by good quality transport stops, clear tailored information at public transport stops and real-time information embedded into development and public transport stops
- Parking measures are also recommended to encourage alternative modes of travel. This could consider the reduction of parking rates, flexibility in parking arrangements, spaces to be dedicated to electric vehicles, car share scheme and community car-share vehicles both on-street and incorporated in easily accessed public car parks.

A Travel Plan will be developed by future developers to deliver best practice travel programs and initiatives to manage travel demand for a transit-oriented development.

Study Requirement 9.6

Preparation of a traffic and transport assessment for the SSP site, in accordance with TfNSW and RMS requirements and methodologies and to address the transport and movement initiatives and benefits (listed under 'Purpose of the SSP study'– page 7), including:

- *Assess site access and demonstrate connectivity to the surrounding road network, including consideration of the servicing and delivery requirements of the SSP site development.*
- *Understand the surrounding walking and cycling networks and determine future demands.*
- *Identify and propose walking and cycling network measures to improve access to and from the SSP site development as well as connecting to the surrounding area.*
- *Consider appropriate Travel Demand Management measures to reduce vehicular trip generation of the SSP site.*
- *Apply background growth scenarios from strategic modelling outputs to the surrounding road network and understand the without development transport demand scenarios for future years.*
- *Determine net increase trip generation of the proposed development.*
- *Distribution of the net trip generation to the surrounding road network based on the preferred access strategy and using the travel patterns derived from the strategic models.*
- *Identify existing and proposed bus and public transport services that connect to the Cherrybrook Station in the surrounding area.*
- *Review the Cherrybrook Station Precinct Parking Strategy and liaise with relevant stakeholders to confirm appropriate parking provision for the SSP site plus review on-street parking requirements.*
- *Identify separate bicycle and car parking requirements to be applied to the development considering sustainable travel initiatives for the development.*
- *Assess the suitability and provision of electric vehicle charging infrastructure and parking.*
- *Assess the road network using SIDRA (Version 8) for each identified intersection with and without the development, for existing and future scenarios during AM and PM peak hours according to modelling requirements as set out below.*
- *Identify potential road network traffic impacts due to the development and non-development related traffic and recommend mitigation measures.*

A Traffic and Transport Assessment has been prepared by SCT Consulting at **Appendix E**, to address the requirements outlined in Study Requirement 9.6. Many of the items outlined in Study Requirement 9.6 are addressed elsewhere in this section. Where matters have not been addressed elsewhere, a response is provided below.

Assess site access and demonstrate connectivity to the surrounding road network, including consideration of the servicing and delivery requirements

Vehicular access points for the individual development 'lots' is shown at **Figure 58**. Each development lot will have individual accesses, as follows:

- Lot A has vehicular access to the car park for residential uses via Robert Road
- Lot B and Lot C have vehicular access to the car park via Bradfield Parade, just to the west of Franklin Road. This access point will provide access to the car park and loading dock facilities for both the residential and non- residential uses of the Cherrybrook Station SSP
- Lot D has vehicular access to the car park for residential uses via Franklin Road.

The location of the car park and loading dock accesses have been designed to minimise interface with high pedestrian areas particularly at Bradfield Parade, while providing the most direct access to the surrounding street network. Hence, the proposal should have minimal impacts on the Movement and Place status of Bradfield Parade, Robert Road and Franklin Road given the small amount of additional traffic as a result of the proposed SSP site using each of these access points.

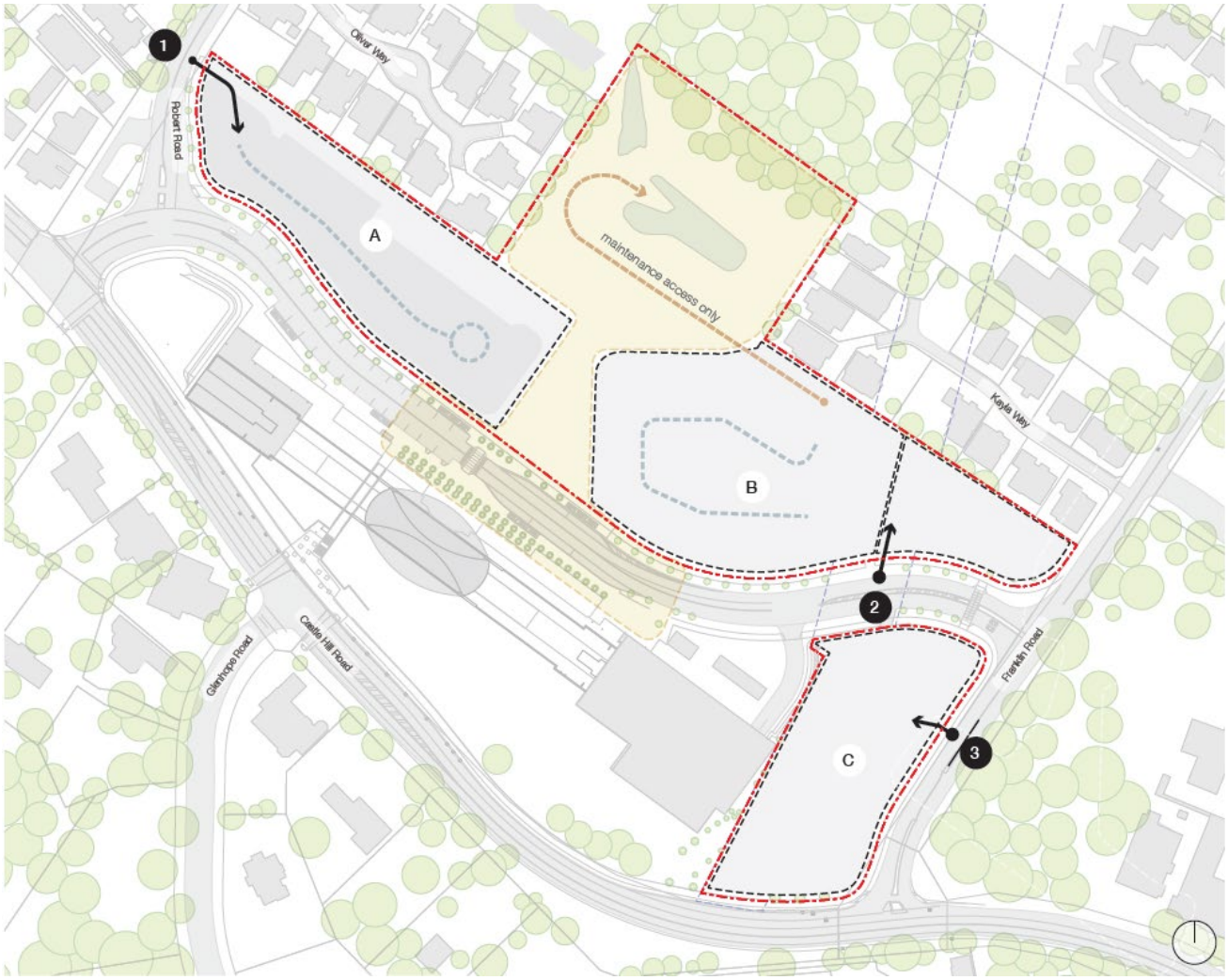

Figure 58 Vehicular access and servicing strategy

Source: SJB

Understand the surrounding walking and cycling networks and determine future demands. Identify and propose walking and cycling network measures to improve access to and from the SSP site development as well as connecting to the surrounding area.

The vast majority of trips to, through and within the site will be taken on foot and the experience of the pedestrian is a critical consideration. Pedestrian footpaths and through site links have been proposed to ensure permeability and activity within all parts of the site.

Footpaths within the proposed development will ensure capacity to cater for a high number of walking trips. In particular, the proposal seeks to create a Community Open Space directly across from the station entrance at Bradfield Parade that will connect with the community and retail facilities.

Shared paths are already provided along Franklin Road, Bradfield Parade and Castle Hill Road, which provide connection to the existing cycleway / shared path network. On-site bicycle parking will be provided for residents and employees, which will have access to the existing pedestrian and cycle path network.

Identify existing and proposed bus and public transport services that connect to the Cherrybrook Station in the surrounding area.

The Metro North West Line was opened in May 2019 and the site has direct access to Cherrybrook Station. The Metro provides an average of 30 services (in both directions) per weekday peak hour and 12 services per hour throughout the day on the weekend.

Cherrybrook Station is also a bus-rail interchange station serving the local residential and education uses surrounding the site. Bus stops are located immediately outside the station on Bradfield Parade and within a short walking distance on Castle Hill Road east of Franklin Road. The bus routes that operate around Cherrybrook Station typically run between a variety of places such as Rouse Hill, Castle Hill, Pennant Hills, Beecroft and Wynyard.

In total, there are 88 and 101 bus services servicing the site during the weekday AM and PM peak hours (6am to 10am and 3pm to 7pm) respectively, while 48 and 40 services run on the Saturday and Sunday (from 10 am to 2pm). On average, 22 and 25 services serve the site per weekday AM and PM peak hour respectively. On the weekends, 12 and 10 services per hour run past the site, during the Saturday and Sunday respectively.

Review the Cherrybrook Station Precinct Parking Strategy and liaise with relevant stakeholders to confirm appropriate parking provision for the SSP site plus review on-street parking requirements.

The Cherrybrook Station Precinct Parking Strategy is considered at Section 2.12 of the Traffic and Transport Assessment. The background data analysis undertaken as part of the Strategy was based on the expected accessibility and urban form variables for the Cherrybrook Station Precinct in and outside the SSP and has been supported with comparable benchmarks across metropolitan Sydney. The outcome of the analysis predicted a car ownership rate of:

- 1.3 cars per dwelling in developments within the SSP but outside the developable government land area
- 1 car per dwelling for developments in the developable government land area.

The proposed parking rates are outlined in **Table 14** below and are largely based on the existing parking rates of the Hornsby DCP 2013. The suggested rates have been benchmarked against similar developments and are the same as those adopted for the redevelopment of the Developable Government Land at Epping Station (with Epping being the next station from Cherrybrook). The maximum rates suggested by the Cherrybrook Station Precinct Parking Strategy have not been adopted to acknowledge the likely parking needs of future residents, noting that the site has limited opportunities to accommodate additional on street car parking. However, the proposed rates are maximum such that flexibility is provided for future developers to further reduce the rates.

Given the site's excellent access to Cherrybrook Station as well as benefiting from improved active transport links, it is most appropriate to apply the maximum parking rates of the Hornsby Shire DCP for developments within 800 metres of a railway station in order to manage transport demand and encourage public transport usage. These rates were also compared to other relevant DCP rates or rates approved or adopted by other similar sites near railway / metro stations.

Non-residential parking rates adopt a lower rate when compared to other relevant rates given the transit-oriented nature of the development and retail's main target customer group, being a local walk-up catchment. It is recommended that for the non-residential component that the car parking rate be set at a maximum of 1 space per 70 sqm. This maximum non-residential parking rate for the developments is generally consistent with parking rates applied to other transit-oriented locations in the vicinity of a Metro North West station.

As a result of the opening of Cherrybrook Station, timed parking was introduced on the streets surrounding the station to minimise the impacts of all-day commuter parking and retain access to on-street parking for local residents and their guests. Limited access to all-day parking encourages commuters to use other modes of transport to access the station. The proposed parking provisions contained within the draft design guide and limited availability of long-term on-street parking will ensure that there will be minimal overflow into on-street parking from future development.

Identify separate bicycle and car parking requirements to be applied to the development considering sustainable travel initiatives for the development.

Restrained parking is proposed in-line with the principles of transit-oriented development – reflecting the higher level of public transport services and to minimise additional congestion to the surrounding road network.

Based on a review of parking rates in relevant DCPs and benchmarking against similar developments that are located close to train stations, the following car and bicycle parking rates are proposed within the draft design guide (refer to **Table 14**).

Based on the yield and land use mix, as well as the requirements for the provision of car share spaces, the Reference Scheme would require up to 376 car parking spaces and the required service and motorcycle parking, as well as a minimum of 177 bicycle parking spaces. A balanced approach has been taken in consideration of the proposed bicycle parking spaces to encourage sustainable transport options for shorter distance trips, hence the proposed rate which is higher than that required by the current Hornsby DCP 2013.

Table 13 Proposed parking rates for Cherrybrook SSP under the draft design guide

Type	Car parking rates	Bicycle parking rates
1 bed or smaller	Maximum 0.4 spaces per dwelling	Minimum 1 space per 3 dwellings
2 bed	Maximum 0.7 spaces per dwelling	
3 bed or larger	Maximum 1.2 spaces per dwelling	
Visitor	Maximum 0.14 spaces per dwelling	Minimum 1 space per 10 dwellings
Car share	1 per 150 residential dwellings 1 per 80 car spaces provided for commercial premises	N/A
Commercial office / Retail / Community facilities	Maximum 1 per 70sqm of GFA	Minimum 1 space per 600sqm GFA for staff

Assess the suitability and provision of electric vehicle charging infrastructure and parking.

SCT Consulting have recommended that at least 10% of total parking spaces have electric vehicle charging stations.

Study Requirement 9.7

Agree the core modelling assumptions including trip generation, travel mode share, parking rates with all relevant stakeholders, prior to commencement of any future year traffic modelling

The key modelling scope, approach and assumptions undertaken by SCT Consulting were discussed and consulted with the Project Working Group including DPE, Hornsby Shire Council, The Hills Shire Council and Transport for NSW in several meetings to clarify traffic modelling assumptions before traffic modelling commenced.

As specified in the study requirements, the Strategic Travel Model (STM) approach was utilised for future year traffic modelling. Trip generation rates, travel mode share or parking rates are not an input into the STM model.

The STM model forecasts trip generation based on the transport infrastructure and services in the area. The STM predicts trip generation using over 3,000 survey samples from across Sydney (the household travel survey) rather than an isolated number of surveys in the RMS Technical Direction. As such the STM represents a more accurate means of forecasting travel behaviours.

Study Requirement 9.8

Undertake the following traffic modelling requirements to provide an understanding of the impacts of the SSP site as well as any regional upgrades required to cater for the background traffic growth and local upgrades required to support the SSP site and that of the broader precinct growth, including:

- *Existing traffic (based on survey data). SIDRA base models are to be calibrated / validated in accordance with RMS Traffic Modelling Guidelines and Chapter 2.6 of the SIDRA 8 User Guide.*
- *Vehicle movements associated with Cherrybrook Station.*
- *General background traffic growth on the road network as a result of wider population and employment growth of the whole Sydney Metropolitan Area excluding the surrounding precinct (Cherrybrook Structure Plan area), IBM site and the SSP site. The background growth will be determined using outputs of PTPM model, to be run by TPA.*
- *Traffic generated by the SSP site e.g. 600 -700 dwellings.*
- *Traffic generated by proposals in vicinity of Cherrybrook Station including:*
  - *The surrounding precinct (2013 Cherrybrook Structure Plan area) – total of 3,200 additional dwellings (less estimated SSP site dwellings).*
  - *Note: the Cherrybrook Station SSP dwelling total may change and require additional input to this modelling as a result of:*
    1) the Cherrybrook Station SSP planning process, or
    2) any planning proposals within the surrounding precinct that receive gateway determination approval or rezoning approval.
    - *former IBM site proposal – gateway approval– 600 additional dwellings*
    - *potentially Cherrybrook Central (Toplace) proposal– proposed additional dwellings*
    - *potentially Grosvenor Place proposal-proposed additional dwellings.*

The Traffic and Transport Assessment considers the impact of traffic generated by the development of the Cherrybrook Station SSP on key intersections adjacent to or near the Cherrybrook Station SSP under the various scenarios required by Study Requirement 9.8 during both the morning (AM) and evening (PM) 'worst case' peak periods.

Assessment was based on the Reference Scheme. It shows the following likely traffic generation outcomes:

- approximately 220 additional, typical peak hour vehicular trips
- approximately 450 - 460 additional, typical peak hour active transport trips, being 430 additional pedestrian trips and 16 additional cyclist trips
- approximately 390 additional, typical peak hour public transport trips (based on the assumed future mode share target), being 236 metro trips and 157 bus trips.

2026/2036 Base Case (FY0)

Background traffic growth was derived from the PTPM strategic model prepared by TPA that takes into account latest population and employment growth forecasts generated by the Department. Based on PTPM forecasts, Castle Hill Road is expected to experience background traffic growth of an average of 7% and 14% by 2026 and 2036, respectively (compared to 2019).

SIDRA modelling shows that during the peak hours in 2026 and 2036, the intersections of Castle Hill Road / County Drive / Highs Road and Castle Hill Road / Edward Bennett Drive / Coonara Avenue continue to operate as the critical intersections of the surrounding road network, where DoS are over 1.00 in both 2026 / 2036 and LoS becomes E / F in 2036.

The constraints of the network capacity lead to reduced demand that can enter the network, making it necessary for infrastructure upgrades to achieve acceptable performance of the critical intersections.

Furthermore, these potential road network upgrades are not programmed or funded and have yet to be agreed with Transport for NSW. These upgrades should be further tested and refined as funding becomes available and should be considered as part of the broader Traffic and Transport Assessment for the Cherrybrook Station Precinct.

2026/2036 Base Case + SSP (FY1)

Trip generation associated with the SSP has been applied to the 2026 and 2036 base case traffic volumes. The highest traffic increase on the surrounding road network as a result of SSP development is observed at Bradfield Road, given the intersection with Castle Hill Road would be the main access gateway to the proposed development.

The performance of all assessed intersections under the Cherrybrook Station SSP development scenario (cumulatively with background traffic growth) in 2026 and 2036 is shown at **Figure 59**.

Given the scale of the development and associated small increase in vehicle trip generation, the Cherrybrook Station SSP has limited impact on the road network. Therefore, no additional infrastructure is needed for the SSP development regardless whether intersection upgrades proposed at the intersection of Castle Hill Road / County Drive / Highs Road are provided or not.

No.	Intersection	2026 Base Case			2026 Base Case (+ intersection upgrades)			2036 Base Case			2036 Base Case (+ intersection upgrades)		
		Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS	Delay	LoS	DoS
	AM peak												
1	Castle Hill Road / County Drive / Highs Road	51.4s	D	1.03	56.2s	D	0.99	60.8s	E	1.13	50.6s	D	0.96
2	Castle Hill Road / Bradfield Parade	12.8s	A	0.64	10.7s	A	0.88	13.2s	A	0.69	10.7s	A	0.88
3	Castle Hill Road / Glenhope Road	10.7s	A	0.38	9.8s	A	0.41	10.8s	A	0.42	9.9s	A	0.44
4	Castle Hill Road / Franklin Road	45.3s	D	0.28	32.1s	C	0.29	54.1s	D	0.30	38.2s	C	0.32
5	Castle Hill Road / Edward Bennett Dr / Coonara Av	29.5s	C	0.75	29.9s	C	0.79	31.1s	C	0.79	33.5s	C	0.93
6	Bradfield Parade / Robert Road	6.9s	A	0.14	7.1s	A	0.20	7.1s	A	0.16	7.3s	A	0.22
7	Bradfield Parade / Franklin Road	4.9s	A	0.13	4.9s	A	0.13	4.9s	A	0.14	4.9s	A	0.14
	PM peak												
1	Castle Hill Road / County Drive / Highs Road	56.1s	D	1.04	54.5s	D	1.00	76.1s	F	1.13	50.7s	D	0.99
2	Castle Hill Road / Bradfield Parade	10.3s	A	0.56	5.7s	A	0.94	13.2s	A	0.81	4.9s	A	0.86
3	Castle Hill Road / Glenhope Road	10.7s	A	0.57	13.3s	A	0.59	11.1s	A	0.61	15.2s	B	0.67
4	Castle Hill Road / Franklin Road	39.5s	C	0.38	43.2s	D	0.41	44.2s	D	0.41	43.2s	D	0.44
5	Castle Hill Road / Edward Bennett Dr / Coonara Av	31s	C	1.02	22.3s	B	0.79	66.9s	E	1.33	31.5s	C	0.98
6	Bradfield Parade / Robert Road	6.7s	A	0.11	6.8s	A	0.11	6.9s	A	0.12	7.0s	A	0.12
7	Bradfield Parade / Franklin Road	4.9s	A	0.12	4.9s	A	0.12	4.9s	A	0.13	4.9s	A	0.13

Figure 59 2026 and 2036 Intersection performance (FY1)

2026 / 2036 Base Case + SSP + IBM Proposal + Structure Plan (FY3)

As set out in the Study Requirements, the cumulative impact of the Cherrybrook Station SSP, IBM site redevelopment, background traffic growth and the net trip generation from the Cherrybrook Structure Plan have been applied to the 2026 and 2036 traffic volumes (modelling scenario FY3).

It is noted that whilst the IBM proposal has been modelled, neither the Cherrybrook Central or the Grosvenor Place proposals are proceeding at this time, and so they have not been modelled.

No additional infrastructure upgrades would be triggered in 2026, where the proposed extension of turning lanes for background growth could accommodate the additional traffic demand of the Structure Plan. However, the Castle Hill Road / County Drive / Highs Road intersection would need further upgrades in 2036 to ensure an acceptable LoS beyond those proposed for background growth, comprising:

- Extension of the Castle Hill Road westbound third lane from 120 m to 140 m on both approach and departure side of the intersection; and
- Conversion of the Castle Hill Road eastbound left turn lane to a slip lane with 120 m turning bay (extended from 80m).

With the provision of infrastructure upgrades and signal optimisation, the network will operate satisfactorily with the DoS not exceeding 1.0 and the LoS being acceptable for all intersections for the two peak hours.

8.11 Ecologically sustainable development

Study Requirement 10.1
Provide a Sustainability Plan that identifies the key sustainable design opportunities for the design, construction and ongoing operation phases of the proposal and establishes a baseline and target for environmental footprint for waste, water and greenhouse emissions in addition to renewable energy targets. This should include reference to Green Star Communities tool, climate change adaptation and a methodology for implementation. It should also include the impacts of climate change including the increase in wind/storm events in the future

An Ecologically Sustainable Development (ESD) Plan has been prepared by Edge Environment and is provided at **Appendix Q**. The plan establishes targets for each indicator to ensure that the environmental footprint of the SSP is reduced throughout its lifecycle. These targets are as follows:

Waste

- 50% diversion of residential and office waste from landfill during operations; and
- 95% diversion of construction and demolition waste from landfill during construction and decommissioning.

Water

- 40- 50% reduction in potable water use in the built Precinct compared to a business as usual baseline

Energy and Green House Gas Emissions

- 50% reduction in Scope 1 and 2 emissions in the as built Precinct compared to a business-as-usual baseline
- 20% reduction in Scope 1, 2 and 3 greenhouse gas emissions in the as built Precinct compared to a business as usual baseline;
- 100% reduction in Scope 1, 2 and 3 greenhouse gas emissions by 2050 compared to a business as usual baseline; and
- minimum canopy coverage of 25% for the private domain and 30% for the public domain.

A range of action types are available to reduce waste generation, water consumption and greenhouse gas emissions which are identified within Section 6 of the ESD Plan (refer to **Appendix Q**). Initiatives have been identified for consideration during the Cherrybrook Station SSP's development process to meet any modelled shortfall that BASIX, NABERS or Green Star initiatives may overlook, including:

- Urban greening in the form of green roofs, gardens and general soft landscaped opportunities throughout the Cherrybrook Station SSP to increase the canopy cover, reduce the urban heat island effect, mitigate stormwater runoff and promote sun shade, biodiversity habitat and thermal comfort to the Cherrybrook Station SSP.
- Installation of clean energy technology such as solar panels on buildings or on public access places in the form of creative and functional structures which can in turn help activate spaces, combine technology, design, art, nature, and culture, and build community awareness and support for sustainable design.

- The utilisation of cool surfaces such as cool seal products on rooftops and pathways to reflect more heat than darker surfaces which lowers external air and surface temperatures. Additionally, cool seal products allow less heat to enter buildings resulting in energy savings from traditional cooling requirements. They are easy to implement and are cost effective.
- Active and public transport incentives through:
  - Promoting increased cycling, over personal car use, provides cost savings, helps reduce GHG emissions, and supports health and well-being benefits for users of the Cherrybrook Station SSP. This extends beyond providing safe cycle paths as it should also include bike facilities that support cycling as a regular commuting option, such as separated bicycle paths, secure bike storage sheds or lockers, bike maintenance stations, and end-of-trip facilities.
  - Creating areas and services that encourage walking, over personal car use, provides cost savings, helps reduce GHG emissions, and supports health and well-being benefits for users
  - Providing a diversity of amenities and mixed land uses, particularly when integrated with walkability can increase the value of local residential buildings and improves the liveability of the zone
  - Implementing car free zones, reduced parking opportunities, parking pooling and car-share exclusive parking. When coupled with improving cycling infrastructure, walkability and amenity diversity, doing so frees land and spaces on building for other purposes, reduces traffic and associated negative impacts such as smoke, noise, and hazards for pedestrians, and improves the liveability of urban centres

The full range of initiatives suggested are documented in the Section 6 of the ESD Plan at **Appendix Q**. It is important to note that the initiatives suggested in the report will likely have benefits that extend beyond the three main indicators being water, waste and energy consumption. Additional likely benefits include, for example: improved biodiversity and ecosystem functioning, improve human physical and mental health and well-being, increased local economic prosperity, increased local property values, decreased crime rates, and increased infrastructure lifespans.

The proposal has also been considered against the Green Star Communities and Green Star Homes tools. All of the proposed ESD initiatives are aligned to some of Green Star Communities Credits and the recently presented Green Star Home categories. Therefore, they could contribute to reaching a high-level rating in both frameworks, if executed. The relationship between the suggested initiatives and these rating tools is outlined at Table 9 of the ESD Plan at **Appendix Q**.

The ESD Plan has also considered potential initiatives to adapt to impacts of future climate change events such as, heat, wind and storm damage, and potential for infrastructure to be compromised in the event of electrical blackouts indirectly caused by extreme weather events. These initiatives demonstrates one way in which future development can adapt to the impact of climate change which would be further detailed as part of any future development application.

8.12 Climate change mitigation and adaptation

Study Requirement 11.1
Undertake a sustainability assessment of the proposal, reflecting the directions outlined in the 'NSW Climate Change Policy Framework', October 2016, and Northern District Plan 2018 and Hornsby Shire Councils target to achieve net-zero carbon emissions by 2050. Options for achieving both net zero buildings and a net zero SSP site should be considered

The ESD Plan prepared by Edge Environment (refer to **Appendix Q**) outlines the sustainability commitments that have been established for the Cherrybrook Station SSP, including a commitment to net zero emissions by 2050 and GHG reduction initiatives. Section 1.5 of the ESD Plan demonstrates that the adopted sustainability strategy has been informed by the NSW Climate Change Policy Framework, the North District Plan and Hornsby Shire Council's target of net-zero carbon emissions by 2050.

Approximately 29% of the Cherrybrook Station SSP Scope 1, 2 and 3 emissions can be mitigated through ten feasible initiatives modelled at a high level for this study. The ESD Plan recommends the approach to net zero emissions to make up for the shortfall through technological and behaviour based initiatives which are grouped according to sustainability indicators, being energy and greenhouse gas emission, water and waste and materials as outlined in Chapter 3 of the ESD Plan.

In order to contribute toward net-zero carbon emissions by 2050, the draft design guide (refer to **Appendix B**) requires that the development applications are accompanied by an ESD report prepared by a suitably qualified sustainability consultant that demonstrates how development achieves the following sustainability targets:

- a minimum 50% reduction in Scope 1 and 2 greenhouse gas emissions in the as built Precinct compared to a business-as-usual baseline
- a minimum 20% reduction in Scope 1, 2 and 3 greenhouse gas emissions in the as built Precinct compared to a business-as-usual baseline (Scope 3 emissions must include construction materials (embodied carbon), waste disposal & processing, and employee & resident commuting)
- a 100% reduction in Scope 1 and 2 greenhouse gas emissions by 2050 compared to a business-as-usual baseline
- a minimum 5% of the estimated operational energy demand of new projects supplied from onsite renewable energy
- 40% reduction in potable water use in the built Precinct compared to a business-as-usual baseline

In addition, for any future development application, the design guide requires development applications to demonstrate how the Climate Adaptation Plan included in the Climate Resilience Assessment prepared by AECOM (refer to **Appendix M**) has been considered as part of the development.

Study Requirement 11.2
Provide a Climate Change Adaptation Report which details how the proposal will address temperature increases from climate change (see NSW and ACT Regional Climate Modelling: NARCLIM) including the integration of vegetation (existing and future), permeable and reflective surfaces, and Water Sensitive Urban Design features into the design of the development.

Study Requirement 11.3
Undertake sensitivity analysis to address the impact of climate change due to increased temperatures, extreme heat events and increase of rainfall intensity integrated with the Water Quality, Flooding and Stormwater Study.

A Climate Resilience Assessment has been prepared by AECOM (refer to **Appendix M**) to address the ability of the SSP to respond to climate change and climate change induced events. This involves outlining the historical and potential future climate, and identifying climate related risks and adaptation responses to address these risks by means of a Climate Adaptation Plan.

A sensitivity and scenario testing approach has been undertaken to compare projections across different climate scenarios. Sensitivity testing has been undertaken through a comparison of projections available from the CSIRO and Bureau of Meteorology (2015), assessing those available for low and medium/high emissions scenarios. Other climate and temperature modelling for the site developed by NARCliM indicate that average annual temperatures for the locality are expected to increase by 1.96C by 2070. Climate related variables with a high-risk rating include impacts and risks relating to extreme heat (over 35C), extreme rainfall and storms. In addition, the Concept Stormwater Management and Preliminary Flood Risk Assessment (refer to Section 7 of **Appendix N**) has accounted for a 1% AEP with climate change flood event.

Section 4 of the Assessment includes a Climate Adaptation Plan, which sets out a number of adaptation and resilience actions to improve climate resilience. Key recommendations are outlined below.

- Encourage public space and buildings to integrate green roofs and vertical planting to help minimise the urban heat island impacts.
- Explore options for allocating additional space for onsite battery storage to support decentralised energy solutions. Consider opportunities to incorporate additional capacity for solar PV (or other renewable energy) and storage across the precinct.
- Adoption of principles outlined by the Urban Heat Island Credit under the Green Building Council of Australia's Green Star Communities Rating Tool.
- Explore opportunities for landscaping to capture and use water (increase cooling effects) and opportunities to reuse water on site for irrigation.
- Flooding and stormwater plans undertaken on a precinct-wide approach and account for a projected increase in rainfall.
- During detailed design, specify the use of building materials (façade, roofing) resistant to hail and can withstand high wind speeds (based on wind study during detailed design).
- Specify minimum requirements for mechanical air filtration and outside air shut-off as part of HVAC installation, particularly for public buildings such as community facilities.
- Ensure that selection of building equipment and materials (e.g. HVAC, cables) caters to higher operating temperatures and extreme heat events (e.g. design to 2070 temperatures) to reduce local incidence of interruptions.

The Climate Adaptation Plan demonstrates one approach to meeting sustainability targets of the draft design guide It is anticipated that an ESD Plan will support a future DA at the Cherrybrook Station SSP outlining its preferred approach to meeting the adopted targets of the draft design guide (refer to **Appendix B**)

8.13 Local infrastructure

A Social Infrastructure Needs Assessment has been prepared by Cred Consulting to identify the social infrastructure needs generated by the proposed redevelopment (refer to **Appendix F**). To support this, GLN Planning has prepared an Infrastructure Delivery Strategy (refer to **Appendix X**).

Study Requirement 12.1
Outline the community profile in social and cultural groups, age groups and time series format of the surrounding community.

Section 3 of the Social Infrastructure Needs Assessment (refer to **Appendix F**) provides a detailed overview of the community profile of the existing population within the Cherrybrook Precinct are (based on ABS Census 2016 SA1 level data), compared to Hornsby Shire LGA, The Hills Shire LGA and Greater Sydney. It provides a forecast of the estimated future population resulting from the proposal and their likely characteristics, utilising data from forecast.id and considers the place characteristics which will influence social infrastructure needs.

A summary of the findings is provided below:

- In 2016, the total Usual Resident Population of the Cherrybrook Precinct was 3,846 people. The population slightly decreased by 1% or -37 people between 2011 and 2016
- At 21.9 persons per hectare (p/ha), Cherrybrook Precinct has a significantly higher population density compared to Hornsby Shire and The Hills Shire LGAs
- With 3.27 persons per dwelling, Cherrybrook Precinct has a relatively higher average household size compared to The Hills Shire LGA at 3.15 persons per dwelling, and much higher compare to Hornsby Shire LGA and Greater Sydney (2.86 and 2.72 persons per dwelling respectively)
- The area is a family area, with very high median incomes, and a high proportion of young people (12 to 24 years) and working aged pre-retirees (50 to 59 years)

- Almost half of the population in Cherrybrook Precinct (45.4%) were born overseas, a significantly higher proportion compared to Hornsby Shire, The Hills Shire LGAs (36.9% and 35.1% respectively) and Greater Sydney (36.7%)
- Cherrybrook Precinct is a low-density area, with separate houses making up the majority of housing in the area at 95.3%.

Forecast Population

The Cherrybrook Station SSP is anticipated to have approximately 390 dwellings. Based on a household size of 2.3 persons per household, in similar density areas in the Hornsby LGA, this will result in an additional 897 people.

Growth in the wider Cherrybrook Precinct is anticipated at 3,200 dwellings by 2036. Based on a household size of 2.3 persons per household, this would result in 7,360 residents in the Cherrybrook Precinct.

Given precedents across Sydney, and trends in the local area, the forecast population of the site and the Cherrybrook Precinct is likely to be increasingly lower household sizes, culturally diverse, a younger median age, and an increased proportion of working aged residents.

Study Requirement 12.2
Analyse the existing and currently planned local infrastructure within the SSP site.

8.13.1 Existing local infrastructure

Section 4 of Social Infrastructure Needs Assessment provides a community facilities needs analysis. The analysis is based on an audit of existing facilities and a community facilities benchmarking exercise. The findings are summarised below.

Community Facilities

- There are currently no multipurpose community centres within walking distance of the SSP. The nearest council owned centres are between 1 and 3km away at the West Pennant Hills Valley Community Centre, Gumnut Community Centre and Cherrybrook Community and Cultural Centre
- There is no library within 2km of the site. Castle Hill Library is the nearest library that could service the Cherrybrook Station SSP and is located approximately 2.9km away. It is owned by The Hills Shire Council and services a large catchment including the growing Castle Hill area which also includes a high proportion of high school and university students. The nearest Hornsby Shire Council library is Pennant Hills Library which is located 4.6km walk or drive from the Cherrybrook Station SSP. It is a local level library with the capacity for a small local catchment and is unlikely to be able to accommodate the additional volume of future residents anticipated at the Cherrybrook Station SSP
- The area is well serviced for long day care with 10 long day care centres within 2km of the Cherrybrook Station SSP, providing a total of 405 places. There are 2 outside school care (OSHC) and vacation care centres within 2km of the Cherrybrook Station SSP, with a total of 214 places
- There are no primary schools within walking distance of the SSP. The nearest NSW public school is Cherrybrook Public School which is located 2km from the site and has 900 enrolments with limited capacity to support additional growth
- There are 3 high schools servicing the area, the nearest being the independent school Tangara School for Girls (approximately 550m east of the site). The nearest high school servicing the catchment is Cherrybrook Technology High School which has 2,005 students and does not have the capacity onsite for future growth
- The nearest public hospital, Hornsby Ku-ring-gai Hospital, is approximately 11km from the site.

Open Space and Recreation Facilities

There are 27 open space areas and recreational facilities within 2km of the site, many of which are located within the northern boundaries of the Hornsby Shire LGA and are not walkable from the Cherrybrook Station SSP.

Many of the district parks service sporting and recreational needs, with features including outdoor tennis and netball courts, soccer and rugby fields, and cricket pitches. There are no existing public open space or recreational facilities within the SSP and there is no part of the site that can currently access a public open space within either a 200m or 400m walkable catchment of the Cherrybrook Station SSP site.

8.13.2 Planned Local Infrastructure

There is no planned infrastructure currently located on the Cherrybrook Station SSP site.

Study Requirement 12.3
Prepare an infrastructure needs analysis, working in close collaboration with Council that outlines the proposed local infrastructure, including recreation, open space, pedestrian/cycle connections and indoor community facilities required to meet the characteristics and needs of the future population of the SSP site. The analysis should include assessment of the general costs for these items and the proposed financial framework for local provision.

Infrastructure Needs Analysis

Based on the analysis carried out by Cred Consulting and GLN Planning, the Cherrybrook Station SSP population and wider precinct population will generate demand for a range of open space and community facilities that will not be met by existing facilities. A summary of the local and regional infrastructure demand generated by the Cherrybrook Station SSP and wider precinct is outlined in **Table 15.** It is noted that State and regional infrastructure provision is considered further at **Section 9.14.**

Table 14 Social infrastructure requirements triggered by the SSP and wider precinct

Infrastructure	Cherrybrook Station SSP Demand	Cherrybrook Precinct Demand	Comment
1 x multipurpose community facility (community centre and library) that would service the SSP and precinct.	• 262sqm of community floorspaces, comprising: – 72sqm community centre that can enable a multipurpose venue for hire as well as facilitate meetings or community programs. – 190sqm library with quality study space and lounge areas.	• 1,098sqm of community floor space, comprising: • 590sqm community centre that can enable a multipurpose venue for hire as well as facilitate meetings or community programs. • 508sqm library with quality study space and lounge areas.	A new multipurpose community facility of 1,300 square metres is to be provided on the Cherrybrook Station SSP, to address demand from both the Cherrybrook Station SSP and wider Cherrybrook Precinct
New primary school places	• 93 spaces for new students between primary school ages (5 to 11 years)	• 662 space for new primary school students (5 to 11 years)	School Infrastructure NSW has advised that the proposed growth of 3,200 additional dwellings over 20 years, together with current projections, indicates that there will be requirement for at least one additional primary and one additional secondary school and support services infrastructure. The possible
New secondary school places	• 89 spaces for new students at high school age (12 to 17 years)	• 633 spaces for new high school students (12 to 17 years)	

Infrastructure	Cherrybrook Station SSP Demand	Cherrybrook Precinct Demand	Comment
			need for new school sites will be subject to future population and housing forecasts issued by DPE within the NSW Common Planning Assumptions. SINSW has requested ongoing liaison in order to monitor the situation as detailed planning progresses.
1 x local multipurpose park of minimum 0.3 ha	• 1 park of minimum 0.3ha to 0.5ha •	• N/A	The forecast population of the SSP will trigger demand for a new local park within the Cherrybrook Station SSP. This park should be a minimum of 0.3ha and up to 0.5ha (to meet Government Architect Greener Places Design Guidelines for local park size in medium density areas).
1 x double playing field	• N/A	• 1.8 playing fields	While the Cherrybrook Station SSP cannot accommodate playing fields due to size and topography, based on Hornsby Shire Council benchmarks and identified undersupply in the area that has a high proportion of 12-24 year olds, 1.8 playing fields would be required to service the future Cherrybrook Precinct population including the growth generated by the Cherrybrook Station SSP.
Playable elements	• None for younger playground • 0.15 older playground	• 0.7 younger playground • 1.3 older playground	The design guide includes a provision to include the provision of 'playable elements' in appropriate locations within new, publicly accessible open space
Fitness equipment	• None	• 0.7 outdoor fitness station	This has been assessed by the SIA as not being required

The Cherrybrook Station SSP will also generate demand for 17 early education and care (long day care) places, 28 out of school hours care places and 3 hospital beds. The wider Precinct will generate demand for 154 early education and care (long day care) places, 245 out of school hours care places, 604 primary school places, 729 high school places and 22 hospital beds.

The SIA determines that the area is well serviced by early education and childcare, and that no additional facilities are required for the site, with demand for long day care places able to be met by upgraded or new long day care centres by both non-profit and for-profit providers. However, it is anticipated that new out of school hours care places may need to be delivered as part of future upgrades to existing schools.

Demand for hospital care can be accommodated by existing hospital facilities, with the nearest hospital located approximately 11km from the site.

As detailed at **Section 8.10**, the proposal does not trigger the need for any intersection upgrades. However, local roads, footpaths, and bus stops adjoining the site will be upgraded as part of the development of the site.

Costs and Financial Framework

The costs and financial framework for delivery of the infrastructure are addressed in response to Study Requirements 12.5 and 12.7 below, and at Section 4 of the Infrastructure Delivery Strategy (refer to **Appendix X**).

Study Requirement 12.4

Consult closely with Hornsby Shire Council and The Hills Shire Council to understand existing opportunities to integrate the local infrastructure needs for the SSP site with the existing and planned broader infrastructure network

Consultation has been undertaken with Hornsby Shire Council and The Hills Shire Council in preparing the Infrastructure Delivery Strategy. The results of this consultation are summarised below, it is noted that consultation with The Hills Shire Council has been through the Project Working Group.

Hornsby Shire Council

Council has raised particular concern regarding traffic and the need for intersection upgrades as a result of the proposal. Council staff emphasised the importance of understanding the traffic impact of development in the Cherrybrook Station SSP and wider Cherrybrook Station Precinct, the cost of traffic works to address this impact, and the need for an appropriate strategy to fund these costs.

The Traffic Assessment that has subsequently been prepared concludes that development of the Cherrybrook Station SSP will have limited impact on the road network, and that no additional infrastructure is needed because of the Cherrybrook Station SSP (refer to **Section 8.14**).

Regarding the proposed multipurpose community facility, Council staff gave in-principal support to providing a multipurpose facility on the Cherrybrook Station SSP site to meet demand generated by both the Cherrybrook Station SSP site and the wider Cherrybrook Station Precinct, given its strategic location.

Council staff are actively negotiating with Landcom regarding the design, future ownership and management of the proposed open space. Offsets for the proposed works against local infrastructure contributions could potentially be justified on the basis that the works will fully meet the State Significant Precinct development's demand for local open space and that it is co-located with the potential community facility (as recommended in Council's Draft Community and Cultural Facilities Strategic Plan). A planning agreement, including any potential offsets against local infrastructure contributions, would provide certainty for any future developer, Council and the local community about infrastructure costs. Landcom will commence planning agreement negotiations with Hornsby Shire Council during the assessment of the SSP study rezoning proposal.

Council staff also advised that they may prepare a new development contributions plan following completion of the Department's current precinct planning for the wider Cherrybrook Station Precinct.

The Hills Shire Council

The Hills Shire Council provided the following feedback through Project Working Group:

- consideration of site constraints in the delivery of infrastructure
- connections through the SSP to Cherrybrook Station and the broader area
- impacts of cumulative growth on the road network and ensuing the traffic study captures roads and intersections likely to be impacted by the development
- ensuring the quantum of open space addresses the existing shortfalls in West Pennant Hills
- ensuring open space is accessible and within 400 metres from a park with a minimum size of 5,000sqm as required in The Hills Shire Council Recreation Strategy
- providing an infrastructure schedule and delivery mechanisms

- impacts of a potential future special infrastructure contribution (SIC) for the Cherrybrook SSP.

Study Requirement 12.5

Outline how the proposal, including the town centre infrastructure and planning, responds to the infrastructure needs identified for the future SSP site population by including spatial planning and estimated costs of the related works and timing. This should include, subject to the priorities of the Council's, to plan for potential future expansion of certain SSP site infrastructure such as indoor community facilities, to potentially cater for the future growth of the surrounding precinct.

An overview of the local infrastructure required to support the future population of the Cherrybrook Station SSP site is outlined in Table 13 above. The ability to deliver infrastructure within the site is limited by the size of the site. However, the Reference Scheme makes provision for the following:

- a multi-purpose community facility with a GFA of approximately 1,300sqm
- 12,950sqm of local open space on the Cherrybrook Station SSP site, made up of 4,500sqm for Community Open Space, and 8,450sqm for an Environmental Space.

The delivery, cost and timing of this infrastructure is addressed in more detail below.

Delivery of Multi-Purpose Community Facility

The proposed multi-purpose community facility is not included in Council's current local development contributions plan. The total estimated cost of providing the community facility is estimated at $9.5 million, noting this figure is subject to quantity survey verification and price increases such as inflation.

The timing for provision of the multi-purpose community facility would be subject to the timing of development at Cherrybrook Station SSP which is anticipated to be provided by the developer concurrently with any future development. As noted, staging is still to be determined and is subject to future planning and divestment stages of the project.

Delivery of Local Open Space

The proposed local open spaces are not included in Council's current development contributions plan. The estimated cost of the Community Open Space and rear Environmental Space areas is approximately $12.5 million, noting this figure is subject to quantity survey verification.

The timing for provision of the open space would be subject to the timing of development at Cherrybrook Station SSP, since the open space would be provided by the developer concurrently with any future development. Staging is still to be determined and is subject to future planning and divestment stages of the project.

Study Requirement 12.6

Provide recommendations and measurable targets for opportunities to maximise positive social outcomes for neighbouring and likely future communities through the project. This should include measurable targets to demonstrate how the project will address the needs of neighbouring and future communities and include measures that are tangible, timely and effective, and within the ability of the applicant (alone or in partnership) to deliver.

The Social Infrastructure Needs Assessment prepared by Cred (refer to **Appendix F**) includes discussion on needs of the communities. The measurable targets are the planning benchmarks and the commitment to the provision of exceeding those targets by the onsite facilities delivered by Landcom or a future developer, or both.

Social outcomes will be maximised by the project providing 1,300sqm of community floor space and more than 1 hectareof public open space. The following factors will lead to this area becoming a thriving urban place:

- the northerly aspect of the community space interfacing with the open space
- the central location adjacent to the metro station where many people regularly visit or pass through (in 2019 around 3,000 people entered and 3,000 people exited the station each weekday).

Co-locating the community facility and public open space next to each other is also consistent with Council's Draft Council's Draft Community and Cultural Facilities Strategic Plan. The proposed community facility will meet the needs of not only the SSP but, over time, the redeveloped Cherrybrook Station Precinct. Of the 1,300sqm proposed, 262sqm relates to the needs of the SSP. Over 1,000sqm will be provided to meet the demand of other developments. Similarly, the proposed public open space is well above the minimum 3,000sqm needed by the proposal.

Study Requirements 12.7
Outline the scope and mechanism for local development contributions between the proponent and Hornsby Shire Council to fund the local infrastructure identified, having regard to Council's existing contributions plans

On 3 August 2020, Council adopted a Section 7.11 Contributions Plan 2020-2030. The contribution plan applies to the entire Hornsby LGA and provides three sub-catchments that apply different rates. The Cherrybrook Station Precinct is located in the southern sub-precinct, however the plan and associated contribution rates do not account for any future development or population growth on the Cherrybrook Station SSP site or wider Cherrybrook Station Precinct.

Sydney Metro and Landcom intend to negotiate a planning agreement with Council during the assessment of the SSP study rezoning proposal, which is intended to be the primary mechanism to plan and fund local infrastructure associated with the Cherrybrook Station SSP. Details on this planning agreement is provided at **Section 7.3**.

Study Requirement 12.8
Outline the proposed ongoing responsibilities and maintenance of any proposed open space/connections, drainage reserves, and community facilities.

Study Requirement 12.9
Outline details of any proposed arrangements with Council for public use of proposed community facilities.

As highlighted earlier, Council staff indicated they may consider reviewing the development contributions plan in the future to include the SSP development and associated infrastructure demand in relation to public open space land. The Proponent seeks for Council to own and manage the public open space area.

However, Council staff have indicated their in-principle support for locating the proposed multipurpose community facility on the Cherrybrook Station SSP site. The facility would likely be constructed by a future developer, dedicated to Council and then owned and operated by Council as a publicly owned and operated facility.

Negotiations around the delivery, ownership and management of open space and the community facility will be ongoing as the project evolves.

8.14 State and regional Infrastructure

Study Requirement 13.1
In consultation with Council and the relevant government agencies, outline the impact of the proposal on State and regional infrastructure including public transport, road, hospitals, regional open spaces and schools. Identify additional infrastructure required to meet the needs of the future population of the SSP site, including the spatial planning, estimated costs and timing of the works.

The Social Infrastructure Needs Assessment prepared by Cred Consulting and the Infrastructure Delivery Strategy prepared by GLN Planning also address State and regional infrastructure. Refer to **Appendices F** and **X** respectively. The demand generated for State and regional infrastructure is summarised below.

Public Transport

The proposed development would be expected to generate over 390 public transport trips in a typical peak hour based on the assumed future mode share target. The site has access to an average of 30 metro services (in both directions) per weekday peak hour and 12 services per hour throughout the day during weekends. The bus data indicates that the combined frequency of bus services near the site is 21 and 23 services (in both directions) per AM and PM peak hour respectively during weekdays.

It is expected that the additional public transport demand can be accommodated by the existing frequent metro and bus services. Applying the additional 236 metro trips and 157 bus trips would equate to approximately 8 additional passengers per metro train and 6 additional passengers per bus being generated by the site during weekday peak hours as discussed in the Traffic and Transport Assessment (SCT 2020). With bus stops interchanging directly with the Cherrybrook Station, no changes to bus service patterns are considered necessary to service the development.

Roads

The Traffic and Transport Assessment has considered the impact of the Cherrybrook Station SSP site development on seven intersections next to or near the Cherrybrook Station SSP site under various scenarios in 2026 and 2036 during both the AM and PM peak periods.

The traffic assessment found that the Cherrybrook Station SSP development will generate approximately 220 vehicle trips per hour during the AM and PM peak hours. The impact that these additional trips will have on the seven intersections in proximity of the site for the future years of 2026 and 2036, was determined using a SIDRA network model.

The Traffic and Transport Assessment has determined that no additional infrastructure is needed as a result of the Cherrybrook Station SSP development. However, adding the Cherrybrook Station Precinct Structure Plan traffic results in the Castle Hill Road / County Drive / Highs Road intersection operating at a level of service E or worse in the peak hour by 2026. Therefore, future development in the wider Cherrybrook Station precinct beyond the Cherrybrook Station SSP would necessitate further upgrades to the intersection beyond 2036.

Hospitals

The Social Infrastructure Needs Assessment found that the SSP will generate demand for 3 hospital beds. The wider Precinct will generate demand for 22 hospital beds.

Demand for hospital care can be accommodated by existing hospital facilities consisting of a variety of both public (e.g. Hornsby and Westmead) and private hospitals (e.g. Norwest Private Hospital and Sydney Adventist Hospital) and future planned hospitals (e.g. Rouse Hill), and would not rely solely on Hornsby Ku-ring-gai Hospital.

Regional Open Space

The Social Infrastructure Needs Assessment identifies the need for 1 double playing field to service the future Cherrybrook Precinct population, including the growth generated by the Cherrybrook Station SSP.

Site constraints mean it is not practical to provide a double playing field within the Cherrybrook Station SSP and it will therefore need to be provided outside the Cherrybrook Station SSP, potentially in the wider Cherrybrook precinct.

Council's current development contributions plan includes various upgrades to existing playing fields, such as converting existing turf fields to synthetic fields, but it does not include the acquisition of land for new playing fields. Additionally, it does not address the playing field demand from the wider precinct and Cherrybrook Station SSP.

The provision of new playing fields within the Cherrybrook precinct is challenging due to the topography and cost of surrounding land. For these reasons, a more practical strategy to meet the demand generated by the Cherrybrook Station SSP and broader Cherrybrook Precinct may be to provide new playing fields outside of the Cherrybrook Station SSP using local infrastructure contributions collected from development inside the Cherrybrook Precinct, including the Cherrybrook Station SSP. This could include upgrading existing facilities, for example, converting existing turf fields to synthetic fields, and/or acquiring land for new playing fields.

Schools

The Social Infrastructure Needs Assessment found that the proposal will generate demand for 74 primary school places and 89 high school places. The wider Cherrybrook precinct will generate demand for 602 primary school places and 729 high school places. School Infrastructure NSW has advised that the proposed growth of 3,200 additional dwellings over 20 years in the broader precinct, together with current projections, indicates that there will be a requirement for at least one additional primary and one additional secondary school and support services infrastructure. The possible need for new school sites will be subject to future population and housing forecasts by DPE within the NSW Common Planning Assumptions. SINSW has requested ongoing liaison in order to monitor the situation as detailed planning progresses.

There is no existing or current proposed SIC requiring contributions to upgrade existing schools. The upgrade cost may be met through existing NSW budget processes.

Early Education

The Social Infrastructure Needs Assessment identified that the Cherrybrook Station SSP site will generate demand for 17 early education and care (long day care) places and 28 out of school hours care places. The wider Cherrybrook Station precinct will generate demand for 154 early education and care places and 245 out of school hours care places.

The Assessment considers that new out of school hours care places may need to be delivered as part of future upgrades to existing schools. Demand for long day care places can be met by market delivery of upgraded or new long day care centres, for example, by non-profit or for-profit providers. Council's existing development contributions plan does not include any childcare centres and likely assumes demand will be met through market delivery.

Study Requirement 13.2
Outline the framework for State and regional and local infrastructure contributions including scope and delivery mechanism/s for development contributions

State and regional infrastructure contributions

Redevelopment does not generate significant demand for State or regional infrastructure.

This infrastructure could be delivered through a SIC or the draft RIC (which would apply to the site if finalised), a Secretary's concurrence clause or a planning agreement.

Under a Secretary's concurrence clause, the Planning Secretary would be required to grant concurrence to confirm that the need for any additional designated State public infrastructure has been addressed. This may include a monetary contribution toward road upgrades. However, given the demand for such works will mostly be generated from development in the wider Cherrybrook Precinct, it is expected that any contribution from the Cherrybrook Station SSP would be small.

Local infrastructure contributions are addressed above in response to Study Requirement 12.

8.15 Economic analysis and feasibility

An Economic and Land Use Assessment has been prepared by AEC (refer to **Appendix G**) to analyse the market demand for the commercial/retail components of the proposal and to provide an economic assessment of the proposal in relation to employment, commercial and retail impacts.

Study Requirement 14.1

Provide an analysis of the market demand for the commercial/retail components of the proposal based on trade area of the proposed local centre, and the impacts on the existing nearby shopping centres.

The market analysis establishes a trade area with a radius of 3km around the site (refer to **Figure 60**). The defined main trade area resident population is estimated at 45,177 (2020) and is projected to increase to 50,975 people by 2041, representing an average annual growth rate of 0.6%.

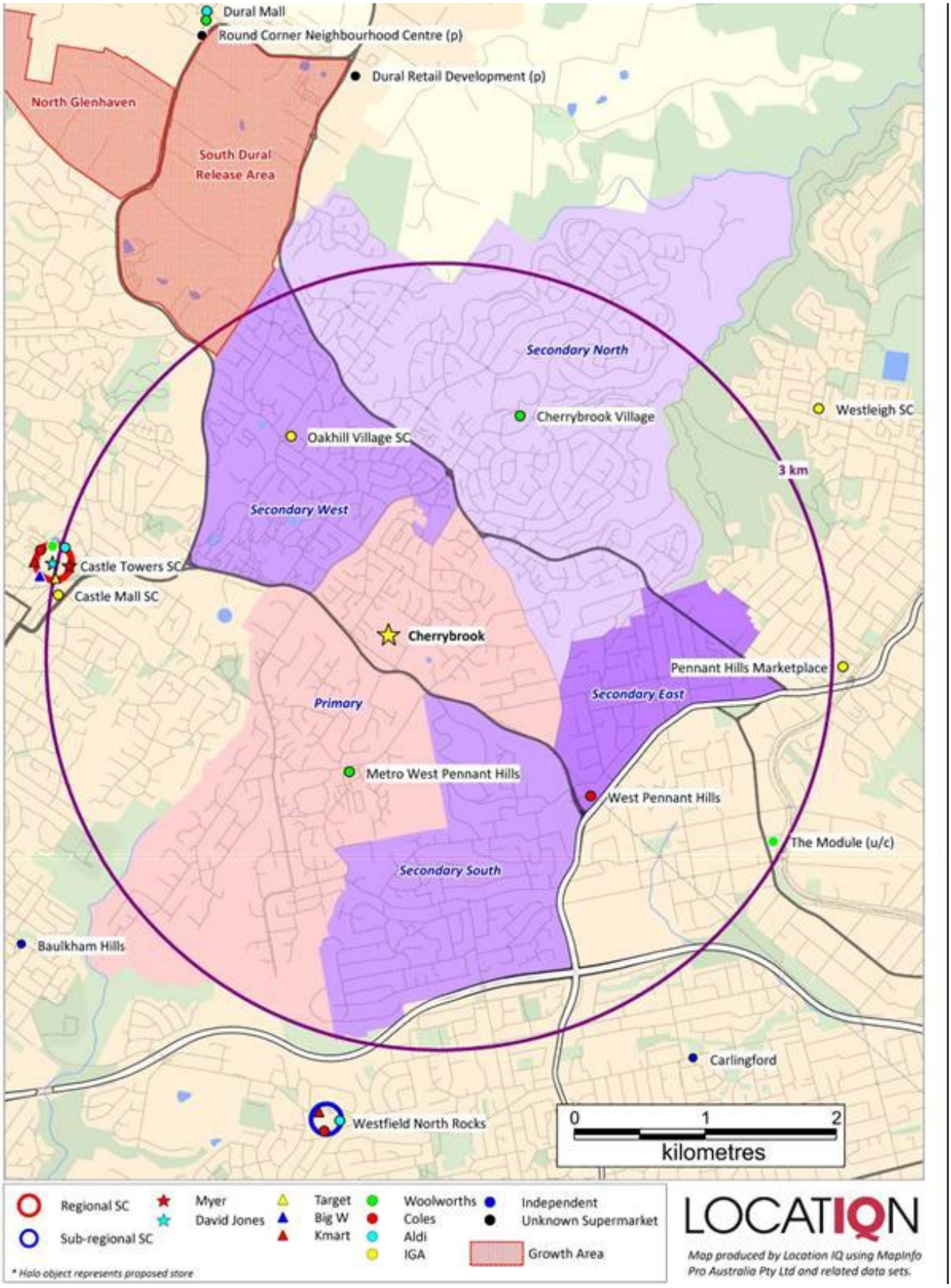

Figure 60 Residential main trade area and retail competition

Source: AEC x Location IQ

The existing provision of supermarkets within the main trade area comprises only one full-line supermarket at Cherrybrook Village (3,923sqm) along with three other smaller format stores (less than 2,000sqm). Castle Towers Regional Shopping Centre is located immediately beyond the trade area. Although this centre contains supermarkets, its size limits the convenience of the centre for supermarket shopping.

Analysis of comparable transit-oriented developments indicates that food catering, food retail and retail services form essential components of supermarket-based centres, and provision of other retail such as apparel, leisure and household goods is limited. A small provision of non-retail shopfronts could also be provided to complement the convenience offer within the Cherrybrook Station SSP which provides access to essential services. This includes banks or other financial services, Australia Post and other similar services.

There are several competitive retail facilities within the defined main trade area, however they are of limited competitive relevance to the retail floorspace proposed as part of the Cherrybrook Station SSP site redevelopment which will primarily be convenience-based retail serving immediate residents and commuters.

The above findings have been used to provide a summary of recommended floor space (GLA) and tenant mix (refer to **Table 16**).

Table 15 Indicative floorspace recommendations and tenant mix

Category	Indicative Uses	GLA (sqm)	
		Low	High
Supermarket		1,650	3,000
Food Catering	Cafes, restaurants, takeaway shops	500	500
Food Retail	Fresh produce, liquor stores	375	500
General Retail	Pharmacy, newsagency	150	200
Retail Services	Hairdresser, beauty salon	125	300
Non-Retail Uses	Australia Post, banks	100	200
Medical	Medical centre, Health services	-	300
Commercial	Offices	-	500
Total Retail		**2,800**	**4,500**
Total Non-Retail		**100**	**1,000**
Total		**2,900**	**5,500**

To ensure an adequate amount of commercial and retail floor space, the draft DCP requires a minimum provision of 3,000sqm of commercial GFA. While no maximum GFA is set, the corresponding performance criteria requires that the site function as a local centre within the centres hierarchy. Furthermore, development will be required to satisfy other relevant provisions such as traffic and transport matters, which will likely limit the amount of such floorspace achieved.

Study Requirement 14.2

Provide an economic assessment of the proposal, including the likely wider economic benefits in relation to employment, commercial and retail impacts.

Economic impacts associated with the rezoning proposal result from construction activity, as well as operational turnover from retail, food and beverage and commercial uses on the site, and additional household expenditure resulting from ongoing use of these services.

Major industry beneficiaries of construction activity include:

- Construction (GRP of $29.4 million).

- Professional, Scientific, and Technical Services ($6.0 million).
- Ownership of Dwellings ($2.5 million).

The construction phase associated with the proposal is expected to support the following economic activity through direct and flow-on impacts (over the course of the construction phase):

- $160.3 million in output (including $97.5 million in direct activity).
- $52.6 million contribution to Gross Regional Product (GRP) (including $24.6 million in direct activity).
- $36.7 million in incomes and salaries paid to households (including $17.7 million in direct wages).
- 397 FTE jobs (including 180 directly employed in the construction activity).

Once fully developed and operational, the commercial and community components of the development as well as jobs associated with people working from home is estimated to support the following annual economic activity within the Hornsby LGA through the direct and flow-on impacts (per annum):

- $33.3 million in output (including $21.9 million in direct activity).
- $18.5 million contribution to GRP (including $12.2 million in direct activity).
- $12.1 million in incomes and salaries paid to households (including $8.4 million in direct wages).
- 170 FTE jobs (including 125 FTE jobs from direct activity, comprised of 100 jobs related to retail development, 7 FTE jobs with community establishment and 18 FTE jobs delivered by working from home).

Major industry beneficiaries of the Proposal include:

- Retail Trade (GRP $4.9 million per annum).
- Financial and Insurance Services (GRP $3.7 0 million per annum).
- Accommodation and Food Services (GRP $1.9 million per annum).

The Economic Impact Assessment at Section 3 of AEC's report concludes that the proposal would deliver a 'Strong Positive' economic impact compared to the Base Case (the site in an undeveloped state). Delivery of the proposal contributes to supporting growth of both the North Region and the broader Northern City District, and results in a strong net positive economic impact.

Once fully developed and operational, the Proposal could provide significant economic benefits to the Hornsby LGA each year.

- Economic activity from businesses locating to the site, as well as employees working from home in the Hornsby LGA economy, is estimated to support 125 direct jobs and 45 indirect jobs elsewhere in the Hornsby LGA.
- The economic activity is estimated to support approximately $33.3 million in output and roughly $18.5 million in contribution to GRP with circa $12.1 million in incomes and salaries paid to households.

Study Requirement 14.3
Undertake a feasibility analysis of future development to contribute towards local, State and regional infrastructure.

As part of its Infrastructure Delivery Strategy (refer to **Appendix X**), GLN has undertaken a feasibility analysis of future development based on the Reference Scheme and its contribution towards local, State and regional infrastructure. It is noted that the local infrastructure contributions applying to future development on the SSP are still not known as Council is awaiting the findings of the Department for the Cherrybrook Station Precinct before it can prepare a s7.11 contributions plan.

Given this, other contributions plans that have been adopted by The Hills Shire and Hornsby Shire Councils for station walking catchments along the metro line have been used as proxy to estimate the contribution rates that may apply in the Cherrybrook Station Precinct. These plans include the Hornsby Shire Council's Section 7.11 Contributions Plan 2020-2030 which applies to development applications lodged under the current land use zoning.

When applying the rates used in these plans, the local infrastructure contributions range between about 5 per cent to 9 per cent of the cost of the Reference Scheme. Excluding the lower outlier rate (that is, rate charged under the Hills Showground Contributions Plan) the average contributions are between $21,000 and $24,000 per dwelling.

By comparison, the value of infrastructure proposed to be provided on the SSP by Landcom was found to be significantly greater, at approximately $64,000 per dwelling equivalent if land and works costs are included in the calculation (around 22.8% of the cost of development) or around $43,000 per dwelling equivalent if only works costs are included in the calculation (around 15.4% of the cost of development). This is estimated to be around twice the value of the monetary s7.11 contributions that might otherwise be imposed on development approvals on the Cherrybrook Station SSP site.

The overall value and broad public benefit of the infrastructure offered presents a compelling case for the negotiation of a planning agreement between Sydney Metro and Landcom with Hornsby Shire Council. Such an agreement would require the infrastructure to be provided either by Landcom (or assigned by agreement with the Council to another future developer), in exchange for the offset of section 7.11 monetary contributions.

8.16 Geotechnical and contamination

Study Requirement 15.1
Provide an assessment of the local soil, outlining its suitability for the proposed uses with respect to erosion, salinity and acid sulphate soils.

A Geotechnical Desktop Study has been prepared by PSM to assess the geotechnical conditions within the site (refer to **Appendix W**). Several geotechnical investigations have been carried out for the construction of Cherrybrook Station. These investigations are considered adequate for concept planning purposes. Further investigations will be carried out at detailed design stage, as part of future Development Applications.

The study indicates that the site is underlain by Ashfield Shale, with residual soil and topsoil above. The study classifies the site as Class P in accordance with AS 2870-2011 "Residential slabs and footings – Construction".

The site and its surrounds have been mapped by the Hawkesbury Nepean Salinity Hazard mapping, undertaken by the NSW Department of Environment and Climate Change in 2008. The site is identified as having a very low to moderate salinity potential.

With respect to groundwater, the regional groundwater table is expected to be at depth within the Hawkesbury Sandstone. However, some 'perched' groundwater is likely to be present in soils and siltstone in the top 10m, especially after prolonged rainfall.

The Geotechnical Desktop Study concludes that no unusual geotechnical conditions are likely to be present on the site and that normal civil engineering and building approaches will be satisfactory for geotechnical aspects of the proposed rezoning. Furthermore, the Preliminary Site Investigation prepared by JBS&G concludes that there is no appreciable risk of Acid Sulfate Soil (ASS) presence within natural residual or quaternary alluvial soils at the SSP. Therefore, no future management for the potential presence of ASS is required during future ground works.

Study Requirement 15.2
Provide an assessment of the proposed land uses to reflect the Section 9.1 Direction – 2.6 Remediation of Contaminated Land in accordance with SEPP 55.

A Preliminary Site Investigation (PSI) has been prepared by JBS&G (refer to **Appendix K**). This PSI aims to provide a preliminary assessment of site contamination to evaluate whether the SSP is, or can be made suitable for the proposed rezoning. JBS&G has undertaken a review of the available site history and environmental context and a detailed site inspection to identify areas of environmental concern. JBS&G has also developed a conceptual site model and has undertaken an assessment of conditions which may require further consideration.

The PSI concludes that there are no significant indications of gross and/or widespread contamination within the SSP. However, there are a number of potentially contaminating activities currently being undertaken, or that have previously been undertaken, at the SSP that carry a low potential to have introduced localised contamination within areas of the SSP. These areas of contamination may have resulted from demolition of structures, application of demolition wastes and other fill material to land to make previous site levels, storage/application of pesticides, herbicides and/or vehicle maintenance. These and other historical site uses present a low contamination risk to the development.

It is noted that whilst assessment of the site history has identified potential for contamination to be present at the SSP, the indicators of widespread contamination were not identified within the SSP. Nonetheless, these areas will require further assessment prior to future development works to demonstrate that the SSP is suitable (or can be made suitable) for individual uses. On this basis, and subject to implementation of an appropriate staged contamination assessment framework and development of any required management strategies, it is considered that all areas of the SSP can be made suitable for the proposed future land uses.

The report concludes that whilst there is potential for contamination to be present at the site, the site is able to be made suitable for the proposed development subject to management of contamination during future investigations or redevelopment. Therefore, JBS&G recommend that a detailed assessment of contamination be completed during the detailed design phase for each individual development parcel so that site specific development considerations can be accounted for.

The PSI and contamination investigations that have been undertaken satisfy the requirements of SEPP 55 (now State Environmental Planning Policy (Resilience and Hazards) 2021), which require contamination and remediation to be considered in the determination of a Development Application. A Stage 2 Detailed Site Investigation is not required at this stage given that the PSI concludes that the site is suitable from a contamination and remediation perspective for the proposed rezoning.

Study Requirement 15.3
Consider the requirements of Sydney Regional Environmental Plan 20 – Hawkesbury Nepean River, noting that the SREP requires development consent for remediation of contaminated for future development.

Part 2 of Sydney Regional Environmental Plan 20 – Hawkesbury Nepean River sets out planning policies and recommended strategies for the health of the Hawkesbury-Nepean Catchment. The PSI concludes that there is no requirement at this stage to undertake remediation works. If required, development consent will be sought for remediation works as part of future detailed Development Applications.

8.17 Utilities

Study Requirement 16.1

Provide a utilities and infrastructure servicing report identifying existing capacity, required capacity and augmentation needed for the proposal and for the broader precinct, sustainability measures and staging. The water utilities component should be prepared by a suitably qualified hydraulic consultant. Required capacity should detail the future potable and non-potable water demand of the SSP site in addition to stormwater, drainage, and sewer. The power utility requirements should be prepared by a suitably qualified consultant. Previous Utilities Assessments for the SSP site and broader precinct commissioned by Urbangrowth in 2016-2017 should be utilised where appropriate to inform this report

Study Requirement 16.2

The utilities and infrastructure servicing report should outline the proposed development yield and staging for the SSP site and the cumulative impact of the proposed yield of the broader precinct, and should include an assessment of the capacity of:

- *Ausgrid electrical network to service the development and outline the likely impacts on the broader Ausgrid electrical network.*
- *Sydney Water's network to service the development and the proposed servicing options considered for the development.*
- *Undergrounding of all new power lines and telecommunications within the SSP site.*
- *Consider the urban design impacts of the existing high voltage electrical power lines and outline the approach to addressing the impacts through land use principles and development controls.*

A Utilities Assessment was prepared by Atmos Consulting (refer to **Appendix O**). The Assessment outlines the existing capacity, required capacity and augmentation required for both the Cherrybrook Station SSP site and broader precinct. The Assessment has been informed by discussions and information received from relevant authorities and utility providers.

The Assessment considers the proposed land use mix for the Cherrybrook Station SSP site and wider precinct. Significant utility upgrade works were completed around the Cherrybrook Station SSP site as part of the Cherrybrook Station. Utility infrastructure for all nominated services was enabled to permit future capacity to be implemented. The findings of the Assessment are summarised below:

Electrical

The SSP and broader precinct is serviced by both Ausgrid and Endeavour Energy infrastructure, demarcated at Castle Hill Road. It is considered that there is suitable capacity within both authorities' infrastructure to accommodate the rezoning of both the SSP and broader locality.

For the SSP, more detailed enquiries will need to be made at detailed DA stage to coordinate requirements. A Preliminary Enquiry submitted to Ausgrid has confirmed that there is available capacity to enable the proposed development with the extension of cable infrastructure and the installation of three (3) kiosk type substations.

It is noted that any modifications to the existing 132kV overhead sub-transmission service would be costly, complex and would span over many years. Therefore, works to the overhead sub-transmission service have not been considered further.

The Urban Design Study outlines key structuring elements for the proposed public open space areas, which include providing a green corridor under the powerline easement.

Communications

NBN services are available within the SSP, with Fibre To The Node (FTTN) services available to connect to future buildings. NBN services are also available to the wider precinct.

Water

There is no authorised recycled water infrastructure within the vicinity of the development, so all water requirements would be potable water. Should future development propose to utilise its own recycled water system this would be defined by the hydraulic engineer within the detailed development design process.

It is anticipated that existing water mains within the area would adequately service future development with the Cherrybrook Station SSP. However, the increased number of dwellings for the broader Cherrybrook Precinct may necessitate augmentation of parts of the water network to accommodate the increased density.

Sewer

Sydney Water would require an extension of their sewer asset to service the Cherrybrook Station SSP.

For the broader Cherrybrook Precinct, the increased number of dwellings will necessitate augmentation of parts of the sewer network to accommodate the increased density.

Gas

It is anticipated that the existing mains are sufficient for the proposed SSP rezoning.

It is expected that some upgrades of gas infrastructure may be required within the broader precinct, depending on the proposed dwelling design and use of gas versus electric appliances. A formal application through the Jemena portal will be required to confirm that the existing gas assets are sufficient for the development at design stage.

8.18 Water quality, flooding and stormwater

A Concept Stormwater Management and Preliminary Flood Risk Assessment has been prepared by Royal Haskoning DHV (RHDHV) (**Appendix N**) to support the SSP and is further explained below.

Study Requirement 17.1

Provide a concept Stormwater Management Plan outlining the general stormwater management measures for the proposal, with particular emphasis on the relationship with the OSD system for the Metro Station and Commuter Car Park, WSUD options and water quality in accordance with Council's relevant policies and DCP.

A concept Stormwater Management Plan (SMP) has been prepared to address the following;

- The general arrangement of stormwater management measures expected at the DGL site;
- Details of the relationship of additional detention storage with the On Site Detention (OSD) system for Cherrybrook Station and Commuter Carpark stormwater; and
- Water Sensitive Urban Design (WSUD) options for stormwater quantity and quality control in accordance with Hornsby Development Control Plan 2013 (Part 1C 1.2 Stormwater Management).

With consideration to Council's guidelines and DCP, industry guidelines and Landcom's sustainable places strategy targets, the SMP sets out the following stormwater management objectives for development with the DGL (refer to **Table 17**).

Table 16 Proposed stormwater management objectives for development within DGL

Stormwater management components	Guideline Objectives Summary
Minor stormwater system criteria	• Piped drainage capacity to accommodate 20-year ARI. • Apply the following pit blockage assumptions1:

Stormwater management components	Guideline Objectives Summary
	• Sag pits 50% blockage • On-grade pits 20% blockage.
Major stormwater system criteria	• Overland flow path capacity to accommodate 100-year ARI flow. • Apply a 50% pipe blockage as a sensitivity to assess flood risks associated with pipe system blockages. • Velocity-depth (VD) product on roads ≤0.4 m2/s. • 500 mm freeboard to habitable floor levels.
Detention storage requirements	• OSD is to be provided to mitigate any increase in peak flows associated with re-development. • Opportunities to provided OSD and/or detention storage to reduce peak flows below existing levels are to be assessed on merit.
Stormwater quality	Water quality controls are designed to achieve the following pollutant load reductions: • 85% reduction in the average annual load of TSS • 65% reduction in the average annual load of TP • 45% reduction in the average annual load of TN.
Potable water	• All new projects modelled to reduce mains potable water demand by 50% at the precinct scale, against a 2016 reference case.2.

Stormwater Drainage

It is expected that piped stormwater drainage system will be established to manage stormwater runoff from future development within the site. Where possible, the piped drainage system that has been constructed by Sydney Metro will be utilised. However, some modifications may be required. It is expected that the system will be integrated with the detention storage and water quality treatment controls. Treated water will be discharged into the existing gully that is located to the north of the site.

The trunk drainage system would need to be designed to meet the following design objectives for the minor and major stormwater system that are provided in **Table 15**. The risk of pipe blockage is expected to be low as all inflows into the trunk drainage will be through either kerb inlet or grated inlet pits, which will prevent large debris entering the piped drainage system.

Stormwater Detention

Development of the site will increase the impervious area of the site from anywhere between 15% and 85%. Increased imperviousness will increase both peak flow rates and runoff volumes from the development area, potentially increasing stormwater flood risk in downstream areas. Stormwater detention storage is proposed to mitigate those hydrologic changes.

Detention storage volumes were calculated using DRAINS hydrologic and hydraulic modelling software and OSD volumes based on the upper estimate (85%) and best estimate (65%) of developed site imperviousness. The stormwater management basin constructed as part of the Sydney Metro stormwater system was designed to provide 1,637m^3 of detention storage. Based on site storage requirements estimated by RHDHV (2016), up to 1,563m^3 of additional storage is needed to satisfy the upper bound volume requirement.

Section 6 of RHDVH's Assessment outlines three potential OSD configurations, including:

- maintaining the Sydney Metro basin and provide additional lot scale detention storage within the future development lots,
- expanding the existing Sydney Metro basin to provide the fully developed site storage requirements, or

- replacing the Sydney Metro basin with underground detention storage tank(s). A preferred configuration or combination of configurations would need to be established at future development stages.

A preferred configuration or combination of configurations would need to be established at future development stages. Water Sensitive Urban Design (WSUD) and water quality are assessed in response to Study Requirement 17.2.

Study Requirement 17.2
Provide a Water Sensitive Urban Design Strategy for the proposal in accordance with the Hornsby Development Control Plan 2013 (part 1C. 1.2 Stormwater Management) including a high-level indicative concept that address the key considerations listed.

A preliminary WSUD strategy is provided consistent with recommended stormwater quality targets (refer to **Table 15**) to mitigate potential stormwater quality impacts associated with the redevelopment of the site. The strategy does not prescribe a detailed configuration for stormwater controls, as it is expected that a range of configurations will be appropriate for different areas. However, information on possible options to be considered for the site are provided.

Water quality controls are required to improve the quality of stormwater runoff from the developed area. MUSIC modelling was used to demonstrate the quantity and quality of stormwater from the development that can be appropriately managed within the site. The WSUD strategy provides reductions to stormwater pollutant loads (total suspended solids (TSS), total nitrogen (TN) and total phosphorus (TP)) to achieve both Council's DCP targets and the targets set out by Landcom in their Sustainable Places Strategy.

The following water quality treatment controls arranged in a 'treatment train' are considered to be capable of meeting the abovementioned pollutant load reductions:

- Rainwater harvesting
- Vegetated buffers
- Vegetated swales
- Raingardens or biofiltration systems
- Underground propriety stormwater treatment systems (such as the Humes Jelly Fish unit or similar).

The following secondary controls can also be deployed in certain areas to assist meeting the above-mentioned pollutant load reductions (by reducing the effective impervious area in the site):

- Permeable pavement in low traffic or public open space areas; and
- Green roof tops could be considered on building roofs to reduce the effective impervious area. This would also reduce OSD requirements.

Stormwater quality modelling results demonstrate that stormwater load reduction targets could be achieved for a future development using a combination of these stormwater controls, but this would need to be confirmed against the layout and design of the proposed future development as part of future development applications. The draft design guide (refer to **Appendix B**) includes a prescriptive measure to prepare a Water Sensitive Urban Design (WSUD) Strategy with supporting modelling as part of any future Development Application detailing the proposed stormwater management plan for the proposed development to ensure appropriate measures are considered to improve stormwater quality flowing into waterways.

Study Requirement 17.3

Provide a preliminary Flood Risk Assessment, developed in consultation with Councils, identifying flooding behaviours for existing and developed scenarios as well as flood impacts on surrounding environments in post-development scenarios, in accordance with the relevant Council flood studies to outline the suitability of the land for proposed uses

Study Requirement 17.4

Provide preliminary assessment on recommended flood management measures including mitigation works, development controls and the most appropriate emergency response strategy to manage risk to life.

Due to the site being located at an existing ridge line along Castle Hill Road at the top of the catchment where terrain is steep, flows are conveyed by a combination of existing stormwater drainage and natural overland flow paths or creeks. Consequently, flood extents at the site are narrow and well-defined. The Assessment states that even during large and less frequent flood events (such as a 1% AEP event), flooding within the site is confined to the creek line that traverses the northern site boundary, as well as a small backwater body located immediately downstream of the existing detention basin. The majority (more than 90%) of the DGL is not subject to flooding during events up to and including an extreme flood event (refer to **Figure 61**).

Figure 61 DGL site flooded area in an extreme flood event

Source: RHDVH

Overall, preliminary Flood Risk Assessment concludes that the existing flooding behaviour estimated near the site does not present a significant risk to property or life associated with the proposed redevelopment. The risk to property as a result of the flood planning (1% AEP design) event can be effectively managed by onsite detention storage and any permissible site discharge requirements, which would reduce the peak flood discharge from the site post-development to an amount less than (or equivalent to) the existing site discharge condition.

The risk to life as a result of an extreme flood event is very low for the site as it is located at the top of the catchment, and there are no overland flow paths from upstream catchments which could impact the site (apart from the northern side and downstream of the existing detention basin). Localised stormwater drainage issues/nuisance flooding may occur during an extreme event within Bradfield Parade to the north of Cherrybrook Station as the underground stormwater system may not be designed to convey such a large storm event. Mitigation measures in this location implemented during detailed design will serve to eliminate the risk to loss of life in extreme flooding events. To ensure these measures are considered at the DA stage, the draft design guide (refer to **Appendix B**) includes a prescriptive measure for a stormwater management plan to be prepared and specifically requiring sufficient stormwater detention storage capacity to ensure peak flows from the site do not increase and cause increased flooding to neighbouring/downstream properties.

Downstream of the DGL site, flood impacts during the 20% and 5% AEP events are generally contained within the underground stormwater network and in the kerb and gutter systems. Flood impacts during the 1% AEP and 1% AEP with climate change flood events exceed the capacity of the trunk drainage system downstream of the DGL site. The TUFLOW model indicates that Robert Road, Robert Road Park, Dalkeith Road and Ashford Road provide a sufficient flow area to allow these flood events to pass without hazardous flood conditions negatively impacting on properties neighbouring the overland flow path. As highlighted previously, the draft design guide (refer to **Appendix B**) responds to this risk through the prescriptive measure requiring sufficient stormwater detention storage capacity to ensure peak flows from the site do not increase and cause increased flooding to neighbouring/downstream properties.

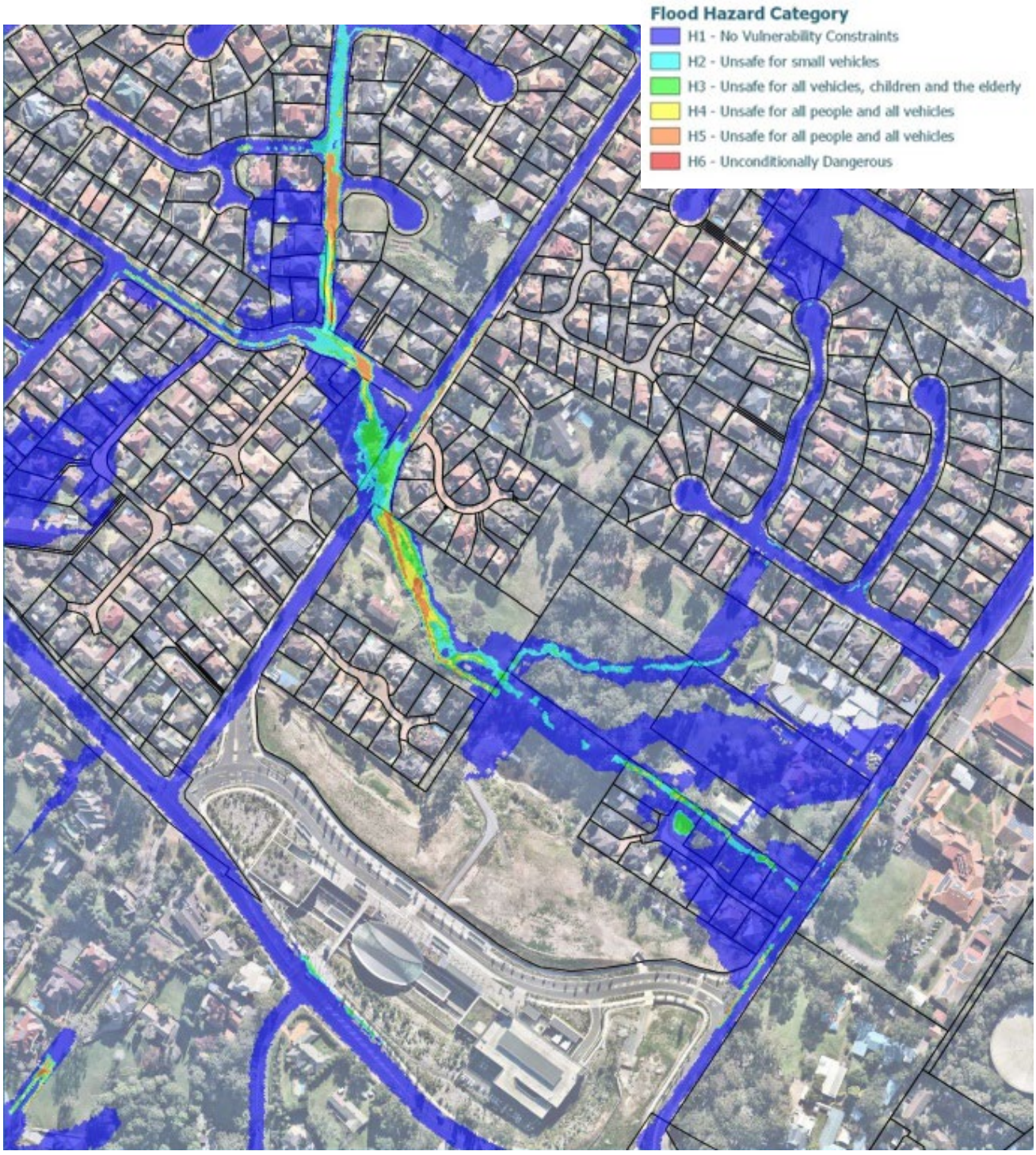

Figure 62 Cherrybrook Flood Risk Assessment 1% AEP Flood Hazard Category Map

Source: RHDVH

8.19 Noise, vibration and air quality

Study Requirement 18.1
Provide a preliminary noise, vibration impact and air quality assessment for the proposal. The assessment will address the relevant policies and guidelines including State Environmental Planning Policy (Infrastructure) 2007, Development Near Rail Corridors and Busy Roads – Interim Guideline, Assessing Vibration: A Technical Guideline (2006) and Policy and Guidelines for Noise and Vibration Generating Development, Hornsby Shire Council (2000).

Study Requirement 18.2
Model and demonstrate that the proposal can meet the recommended noise, vibration and air quality standards and/ or appropriate mitigations measures can be achieved on the site. This is to include potential metro/rail noise and air quality impacts.

A Noise and Vibration Assessment has been prepared by SLR Consulting (refer to **Appendix R**). The Assessment aims to identify existing sources of noise at the site, identifies nearby sensitive receivers and details the findings of existing noise surveys completed within the study area to identify the potential noise and vibration impacts from and within the SSP. The noise assessment aims to inform the detailed design of the site based on the potential future noise and vibration impacts.

The findings of the Assessment are summarised below.

8.19.1 Noise

Noise Sources and Criteria

Existing noise sources that have the potential to impact on the Cherrybrook Station SSP include:

- road traffic noise, particularly from Castle Hill Road
- rail noise from the Metro North West Line which runs beneath the Cherrybrook Station SSP
- industrial noise from non-residential uses proposed as part of the redevelopment.

The noise and vibration criteria adopted for this assessment is in accordance with the requirements of State Environmental Planning Policy (Transport and Infrastructure) 2021 and Table 3.1 of the NSW Department of Planning and Infrastructure's Development near Rail Corridors and Busy Roads – Interim Guideline (the DP&I Guideline). The potential impacts from project related traffic on the surrounding public roads have been assessed using the NSW EPA Road Noise Policy (RNP). Operational noise from non-residential uses has been considered against the NSW Noise Policy for Industry (NPfI) criteria.

Road Traffic Noise Assessment

Noise levels have been predicted across the Cherrybrook Station SSP during the daytime and night-time periods. The daytime noise predictions represent the period from 7am to 10pm and the night-time period is 10pm to 7am.

The assessment has shown that:

- the worst-case noise levels in the Cherrybrook Station SSP are predicted to be in the region of 60 to 70dBA during the daytime period, with night-time levels typically being around 5dB lower
- the highest impacts are seen adjacent to Castle Hill Road for the southernmost building on Lot D immediately adjacent to the Franklin Road and Castle Hill Road intersection (referred to in the Noise and Vibration Assessment as 'Building 1'). Noise levels reduce as the set-back distance from the roads increases and where additional shielding is provided by intervening structures or buildings.

In response to the future road traffic noise anticipated for the Cherrybrook Station SSP, the following mitigation measures have been identified by SLR:

- standard window glazing typically attenuates external noise levels by around 20dB with windows closed and 10dB with windows open (allowing for natural ventilation). Where attenuation of more than 20dB is required, then upgraded glazing would likely be required along with alternative means of ventilation to allow residents to keep windows closed
- upgraded glazing would be required for most facades of residential buildings which have line of sight to Castle Hill Road or Bradfield Parade.

The required noise mitigation for each building would be further assessed during the detailed design process as part of any future development application.

Rail Noise Assessment

Cherrybrook Station is an open station with a depth of approximately 7m below ground level. A canopy covers part of the platform. Noise from trains at the station would be minimal, as train speeds would be low in the open-air section as trains approach and depart from the station.

Public address (PA) announcements from station platforms would occur on a relatively frequent basis, however the existing and future noise levels at the site are controlled by relatively high road traffic noise impacts, which are generally expected to be higher than PA noise from the station.

8.19.2 Vibration

Trains operating in the underground Metro North West tunnels are a potential source of intermittent vibration at buildings in the Cherrybrook Station SSP. The NSW Government's Assessing Vibration: a Technical Guideline provides an assessment methodology which uses the Vibration Dose Value (VDV).

Train noise in buildings adjacent to rail tunnels is predominantly caused by the transmission of ground-borne vibration rather than the direct transmission of noise through the air. Building 1, in the south-east corner of the site, is located directly above the Metro North West alignment.

The assessment of ground-borne noise and vibration levels has shown that:

- A maximum vibration level of around 93dB is predicted at Building 1. The predicted level is below the vibration screening level of 10 dB for residential receivers during the night-time, meaning the preferred and maximum Vibration Dose Value criteria are also expected to be complied with at all locations
- The ground-borne noise level at most buildings in the Cherrybrook Station SSP are predicted to comply with the criteria of 35 dBA for bedrooms (night-time) and 40dBA for other habitable rooms. Building 1 may be subject to a marginal exceedance of the night-time 35dBA criterion. It is, however, noted that the assessment is conservative as it assumes limited coupling loss between the ground and building
- The likelihood of potential ground-borne noise impacts in the Cherrybrook Station SSP and requirements for any vibration isolation mitigation measures should be assessed further during detailed design when more information is available regarding the specific details of the site.

8.19.3 Air Quality

An Air Quality Assessment (AQA) has been prepared by SLR Consulting (refer to **Appendix Y**). It assesses potential air quality impacts and addresses relevant study requirements. The AQA considers the local topographical, meteorological and land use context and potential pollutant sources, and assesses these relative to the air quality guidelines adopted by the NSW EPA and published in the Approved Methods, as well as the objectives of State Environmental Planning Policy (Transport and Infrastructure) 2021and the Development Near Rail Corridors and Busy Roads Interim Guideline.

The primary source of air pollutant emissions in the area immediately surrounding the SSP is expected to be vehicles travelling along Castle Hill Road. Emissions of combustion products and particulate matter from vehicles on this road is identified as the key potential air quality issue for the site. Other potential sources of air pollution include small scale industrial and commercial activities that fall below the National Pollutant Inventory program, and operation of the metro station and car park.

Air quality modelling results demonstrate that there are no exceedances of the relevant criteria for cumulative PM_{10}, $PSQM_{.5}$, NO_2 and CO concentrations at 10m from the Castle Hill Road kerbside, except for the annual average $PSQM_{.5}$ criterion of 8.0 µg/m^3. While no exceedances of the relevant air quality criteria are predicted for locations where the nearest Reference Scheme buildings are proposed, results indicated exceedances of the relevant air quality criteria at locations within 10m of the kerbside. If changes are made to the Reference Scheme which bring sensitive receptors within 10m of the Castle Hill Road kerbside, further air quality modelling will need to be undertaken during the development application stage to ensure that these changes do not lead to potential exceedances of the air quality impact assessment criteria.

Based on the modelling results, SLR Consulting concludes that the SSP is suitable for the intended rezoning, providing that a further assessment on final building configurations be undertaken at development application stage to ensure that potential air quality impacts at future sensitive receptors are not exacerbated by the building design.

Study Requirement 18.3
Recommend appropriate noise and vibration and air quality measures. The consultant is expected to work with the urban designer, and suggested measures to be provided for the protection of future residents of buildings including through the careful siting and layout of the building envelopes whilst maintaining natural ventilation through open windows.

Table 18 summarises the recommended measures made by SLR Consulting that could be adopted as part of the detailed design to manage impacts relating to noise and vibration and air quality.

Table 17 Summary of noise, vibration and air quality recommendations

	Recommended Mitigation Measures
Noise	• Install a noise barrier to Castle Hill Road, noting that this may have limited benefit • Position larger commercial or residential buildings closer to Castle Hill Road to act as a noise barrier to areas behind • Arrange internal building layouts so that less sensitive uses are located close to the noise source. • Engineering solutions can be designed which use localised balcony screening, low-level openable windows and acoustic absorption on balcony surfaces to control noise ingress whilst ensuring natural ventilation through open windows can be achieved. • For mechanical plant associated with commercial uses: - Provide separation between noisy activities and noise sensitive areas. - Where it is not possible to have large separation distances, internal residential spaces may have acceptable amenity by ensuring the residential buildings have appropriate acoustic elements designed - Take advantage of site features that can be used to screen noise impacts - Arrange buildings to maximise the area shielded from noise - Use intervening structures to act as barriers.
Vibration	• No vibration specific mitigation measures have been proposed in this report, however it is recommended that these measures be investigated further in the detailed design phase.
Air Quality	• Having buildings of varying heights interspersed with open areas and setting back the upper stories of multi-level buildings. • Locating living areas, outdoor space and bedrooms and other sensitive uses (such as childcare centres) as far as practicable from the Castle Hill Road. • Locating mechanical air intakes and means of natural ventilation as far as practicable from Castle Hill Road.

	Recommended Mitigation Measures
	• Using vegetative screens, to assist in maintaining local ambient air amenity

To ensure mitigation measures are considered during the detailed design process, the draft design guide includes the following prescribed measures for any future DA in the Cherrybrook Station SSP:

- Development applications are accompanied by an acoustic report prepared by a suitably qualified acoustic consultant that demonstrates the site and building design is suitable for use in terms of acoustic amenity
- Development considers the implementation of the following noise attenuation measures:
  - spatial separation between noisy activities and noise sensitive areas
  - utilisation of natural site features that can be used to screen noise impacts
  - incorporation of noise mitigation principles into their building design to ensure appropriate internal noise conditions
  - locating mechanical plant inside plant rooms or in enclosures with appropriate acoustic treatment
- Noise attenuation fencing is not provided along any road, including Castle Hill Road.

8.20 Wind

Study Requirement 19.1
Consider and address potential wind impacts and amelioration approaches through the layout and arrangement of the public domain/open space and the proposed built form envelopes.

A Wind Report has been prepared by Windtech Consultants to assess the likely impact of the proposed design on the local wind environment affecting pedestrians within the critical outdoor areas of the proposed Reference Scheme (refer to **Appendix S**). The analysis of wind effects relating to the proposed development was carried out in the context of the predominant wind directions for the region, building morphology of the development and nearby buildings, and local land topography. An assessment was carried out against the prevailing winds for the site, being north-easterly, south-easterly and westerly winds.

The assessment indicates that the Reference Scheme results in the site being relatively exposed to prevailing winds, resulting in the potential for wind comfort impacts on pedestrians. However, wind impacts can be appropriately managed and minimised with the following treatment strategies:

- the inclusion of densely foliating evergreen landscaping for areas where winds are expected to funnel or side stream, such as communal open spaces or through-site links that are situated between two buildings
- the inclusion of densely foliating evergreen landscaping, permanent screening or operable screening where the prevailing winds are expected to interact with building corners
- the inclusion of awnings, canopies or densely foliating evergreen trees where winds are expected to downwash from facades onto footpaths or communal open spaces
- the inclusion of high impermeable balustrades or densely foliating evergreen landscaping for areas that are exposed to directly impacting winds.

Further detail in relation to specific treatment strategies against specific prevailing winds is provided in the Wind Report in **Appendix S**.

To ensure wind impacts are managed as part of any future DA, the draft design guide (refer to **Appendix B**) includes a prescriptive measure for a quantitative wind effects report to be submitted with any development application for new buildings that addresses how development satisfies the Wind Comfort Standard criteria for sitting, standing and walking relevant criteria:

- Walking Criterion (7.5m/s with a 5% probability of exceedance) for general circulation and pedestrian thoroughfares (e.g. footpaths, private balconies/terraces, through-site links etc.)
- Standing Criterion (5.5m/s with a 5% probability of exceedance) for stationary activities generally less than an hour (e.g. waiting areas, communal terraces, main entries, café seating etc.)
- Sitting Criterion (3.5m/s with a 5% probability of exceedance) for stationary activities longer than an hour (e.g. outdoor cinemas, outdoor fine dining etc.).

8.21 Bushfire

Study Requirement 20.1
Address the bush fire protection measures in the publication Planning for Bushfire Protection (2006), avoiding the removal of native vegetation areas.

Study Requirement 20.2
Ensure any Bushfire Asset Protection Zones can be located entirely within the site.

A Bushfire Protection Assessment has been prepared by EcoLogical Australia in accordance with the requirements of Planning for Bushfire Protection (PBP) 2019 to determine the required Asset Protection Zones (APZ) and construction requirements for the proposal (refer to **Appendix P**).

The proposed development is located on land currently classified as bushfire prone on the Hornsby Shire Council's bush fire prone land map. In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140m from the subject land in all directions.

There is a small area of vegetation identified as Blue Gum High Forest along the site's northern boundary and to the north-east of the site. The vegetation has an area of less than 1ha. As this is a single area of vegetation less than 1 ha in area and greater than 100m from other areas of Category 1 or Category 2 vegetation, this vegetation is assessed as low threat vegetation and is excluded by PBP.

As there is no bushfire hazard within 140m of the subject land, no APZs are required for this development so long as future development complies with the specifications and requirements of 'Planning for Bush Fire Protection 2019' (PBP 2019) (Rural Fire Service, 2019).

It is noted that the Bushfire Protection Assessment (refer to **Appendix P**) recommends the consideration of the landscaping and management specifications for asset protection zones contained within the PBP 2019. These management specifications include limiting tree canopy cover to less than 15% at maturity for inner protection areas (the area closest to the building). This is despite the draft design guide (refer to **Appendix B**) containing a prescriptive measure for a minimum 25% tree canopy coverage target for the private domain and 30% for the public domain.

To ensure any development proposal does not pose a bushfire risk, the draft design guide (refer to **Appendix B**) will require a bushfire risk assessment is to be submitted with any development application for a new building and associated landscaping. This assessment will be required to address the bush fire protection measures in the PBP 2019 and consider avenues to delivering tree canopy cover targets while managing bushfire risk for future development proposals (e.g. by integrating vegetation that is considered a 'low threat vegetation - exclusion').

9.0 Conclusion

In 2019, the Minister for Planning and Public Spaces (the Minister) declared that the government-owned land at Cherrybrook be a Nominated State Significant Precinct. This decision was made on the basis of it being of State or regional planning significance because of its social, economic or environmental characteristics, in particular due to its ability to increase the delivery of homes and jobs.

Subsequent to this declaration, Landcom has commenced a State Significant Precinct Study (the SSP Study) to investigate a potential change to the planning controls applicable to the State Significant Precinct. The SSP Study has been undertaken in accordance with study requirements developed by DPE in collaboration with Hornsby Shire Council, The Hills Shire Council and other State government stakeholders, including Transport for NSW.

This study has considered a range of matters relevant to a rezoning, in particular, investigating the strategic and precinct specific merit. Strategic merit may be drawn from a multiple of considerations, such as:

- relevant plans and/or strategies in the Greater Sydney and district-level context
- a relevant local strategy that has been endorsed by DPE
- responding to a change in circumstances, such as the investment in new infrastructure or changing demographic trends that have not been recognized by existing planning controls.

Based on the above considerations, Landcom is proposing to amend the planning framework for the Cherrybrook Station SSP to enable its development as a vibrant, mixed-use and transit-oriented local centre for the surrounding Cherrybrook and West Pennant Hills communities. Under the proposed rezoning, the Cherrybrook Station SSP could include:

- a mix of uses including retail, residential, services and community space
- around 390 new homes in buildings up to five (5) storeys in height (when viewed from Bradfield Parade) to meet the needs of people with changing lifestyles and different income levels
- over 1 hectare of high-quality open space
- new pedestrian and cycle paths
- a landscape character which reflects the surrounding area.

In summary, the SSP Study has found that renewal of the Cherrybrook Station SSP based on the proposed amendments to the planning framework is justified on strategic and site specific grounds taking into consideration the study requirements. In particular the proposed amendments to the planning framework will:

- contribute toward the Premiers Priorities to:
  - increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10 per cent by 2023
  - increase the tree canopy and green cover across Greater Sydney by planting one million trees by 2022
- give effect to the relevant objectives, directions and priorities of regional, district and local strategic plans, in particular:
  - objective 14 of the Greater Sydney Region Plan by integrating land use and transport to create a compact, walkable urban form that contributes to a 30 minute city
  - planning priority N5 of the North District Plan by providing greater housing supply and choice, including smaller homes to support affordability, in a new local centre next to a metro station
  - planning priority N6 of the Hornsby LSPS by creating a great place that delivers new, high quality public domain and a vibrant local centre with retail options

  - local priority LP2 of the Hornsby LSPS by providing housing in the right locations, in this case co-located with a metro station
  - local priority LP3 of the Hornsby LSPS by providing the potential for a new multi-purpose community facility that meets the needs of the broader Cherrybrook and West Pennant Hills communities
  - local priority SP1 of the Hornsby LSPS by protecting areas of high biological importance in the form of Blue Gum High Forest
  - local priority SP6 of the Hornsby LSPS by providing for urban forest outcomes, including greater tree canopy, through extensive areas capable of accommodating deep soil
- transform vacant land into a mixed-use and transit oriented local centre that supports the function of the metro station and the needs of the surrounding Cherrybrook and West Pennant Hills communities
- deliver public benefit through high quality new public domain, including a vibrant, community focussed Community Open Space, potential for a new multi purpose community facility and increasing the amount and choice of new homes, enabling greater opportunities for the aging population and more affordable housing options
- promote easier, safer and more attractive pedestrian connections to the metro station, with provision for connectivity to the broader Cherrybrook Station precinct in the future
- be compatible with the bushland character of the surrounding areas, and will include measures to ensure acceptable impact on surrounding land
- have a distinct place character derived from consideration of its unique opportunities.

After public exhibition, the DPE will consider all relevant planning matters as part of its assessment following the exhibition of the draft SEPP amendment. A recommendation on the proposal will then be forwarded to the Minister for decision. Amendments would need to be made to the Hornsby LEP 2013 following any approval by the Minister. The approval and publication of the new planning controls would enable the lodgement of Development Applications under the new controls with DPE, with any applications to be determined by the Minister.

Table 19 provides an overview of the next key actions that will be undertaken to finalise the proposed plan:

Table 18 Next steps

Action	Comment
1. Public exhibition of SSP Study	The public exhibition will enable the community and any stakeholders the opportunity to provide feedback to the Department regarding the proposed planning controls for the Cherrybrook SSP.
2. Review of Submissions	Following community consultation, DPE and Hornsby Shire Council will review and consider any submissions received. This will involve the preparation of a Summary of Responses, which includes a list of the key issues raised and further studies, if required.
3. Review of finalised plan	Following the review of submissions, the proposal may be amended where required in response to submissions received during community consultation. The DPE may request further information from Landcom at this time to assist with DPE's assessment of the proposal.
4. Recommendation to Minister	Following completion of their assessment, the DPE will make a recommendation to the Minister for Planning and Homes.
5. Adoption of proposed plan	If the Minister for Planning and Homes approves the finalised proposal, the draft SEPP amendment will be adopted and gazetted.