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Riverwood Multi-storey car park project

Landscape and Visual Impact Assessment

Transport for NSW Commuter Car Park Program

June 2021

Riverwood multi-storey car park project – Landscape and Visual Impact Assessment

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TABLE 1-1 ABBREVIATIONS

Term	Meaning
CBD	Central Business District
CCTV	Closed Circuit TV
CPTED	Crime Prevention Through Environmental Design
DCP	Development Control Plan
DDA	*Disability Discrimination Act 1992*
LEP	Local Environmental Plan
LSPS	Local Strategic Planning Statement
NSW	New South Wales
TfNSW	Transport for New South Wales

TABLE 1-2 DEFINITIONS

Term	Meaning
Concept design	The concept design is the preliminary design presented in project description document (dated April 2021), which would be refined by the Contractor (should the Proposal proceed) to a design suitable for construction (subject to TfNSW acceptance).
Detailed design	Detailed design broadly refers to the process that the Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to TfNSW acceptance).
Out of hours work	Defined as works *outside* standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
The Proposal	The construction and operation of Riverwood Commuter Car Park.

1. Introduction

1.1. Overview

Transport for NSW is proposing to construct a Commuter Car Park at Riverwood (the Proposal). This facility would improve the customer experience at this location through the provision of additional parking spaces for commuters. Transport for NSW is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the Proposal.

The Proposal forms part of the Commuter Car Park Program. The NSW Government is committed to delivering accessible public transport infrastructure, which is why Transport for NSW is providing more commuter car parks where they are needed. The delivery of commuter car parks at key transport interchanges will provide a range of benefits, including:

- improved customer access to the public transport network
- encouraging mode shift away from private vehicles
- improving the flexibility and reliability of customer's '*first and last mile'* of their journey
- contributing to reducing congestion on our road network.

1.2. Study scope

This visual impact assessment identifies the potential visual impacts of the Proposal on views to the car park from surrounding areas. The study area for this Proposal extends generally from William Road to the north, east to Belmore Road, south to Webb Street, and west to Keppel Avenue Reserve and the rail corridor. (Refer to Figure 1-2)

This assessment identifies and assesses views that are seen from the public domain to the Proposal. This assessment includes views from surrounding residential and commercial areas, footpaths and streets, other educational facilities and the Riverwood Railway Station. The potential views from neighbouring properties will be inferred from these views and site observations.

The assessment has identified the impacts of the Proposal during the day and night, throughout construction and in operation.

The assessment also considers the urban design and landscape impacts of the Proposal. This assessment includes: an assessment of the Proposal's consistency with requirements of the *Multi-level and at-grade Commuter Car Parks urban design guidelines* (TfNSW, 2017, Interim Issue), identification of any direct landscape impacts such as tree removal, and a detailed assessment of the potential overshadowing impacts of the project.

1.3. Site location and description

The Proposal is located in the suburb of Riverwood, in the local government area of Georges River, about 16 kilometres south west of Sydney's central business district. The site is about 220 metres to the south west of Riverwood Station on Webb Street. Riverwood Station is on the T8 Airport and South Line.

The Proposal is immediately to the west of the Riverwood Plaza, and about 130 metres from the main commercial centre of Riverwood.

The Site location is shown in Figure 1-1 and the Site context is shown in Figure 1-2.

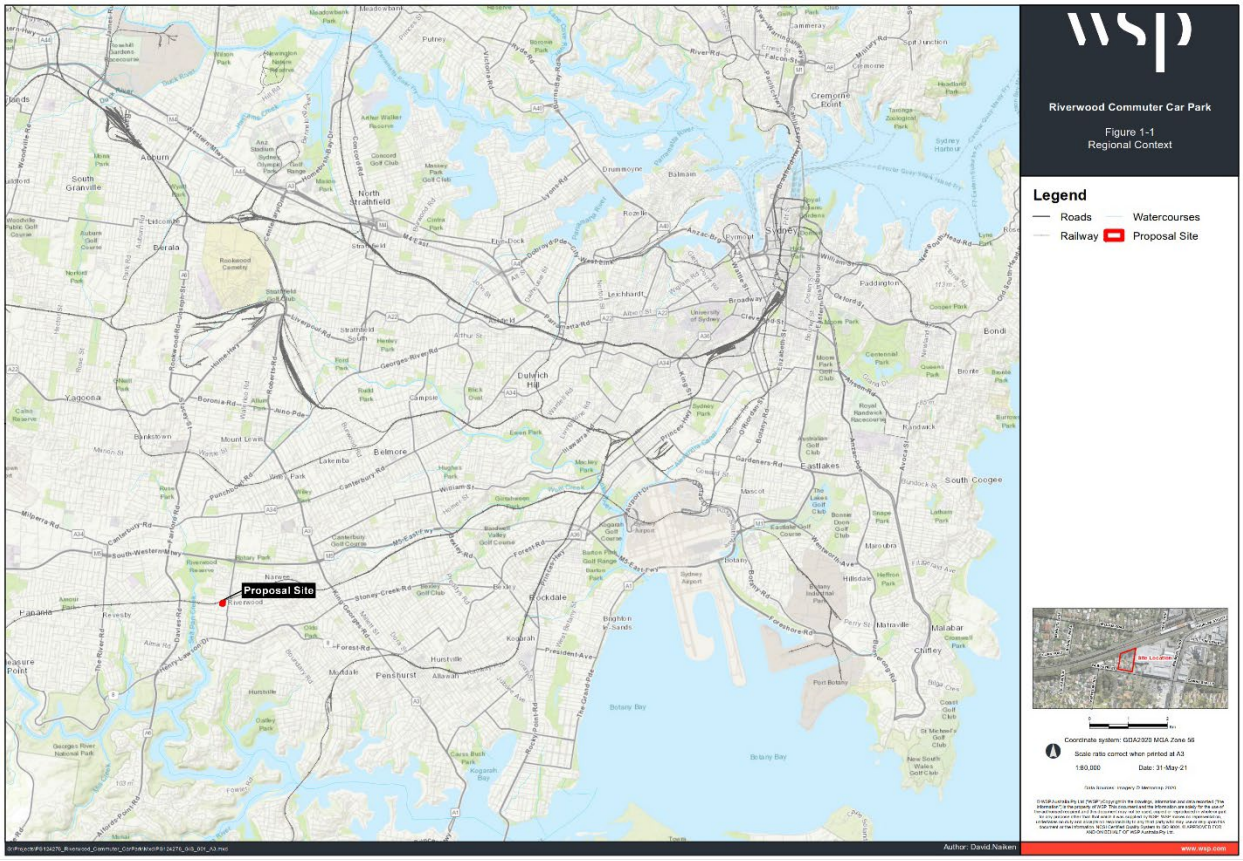

FIGURE 1-1 SITE LOCATION

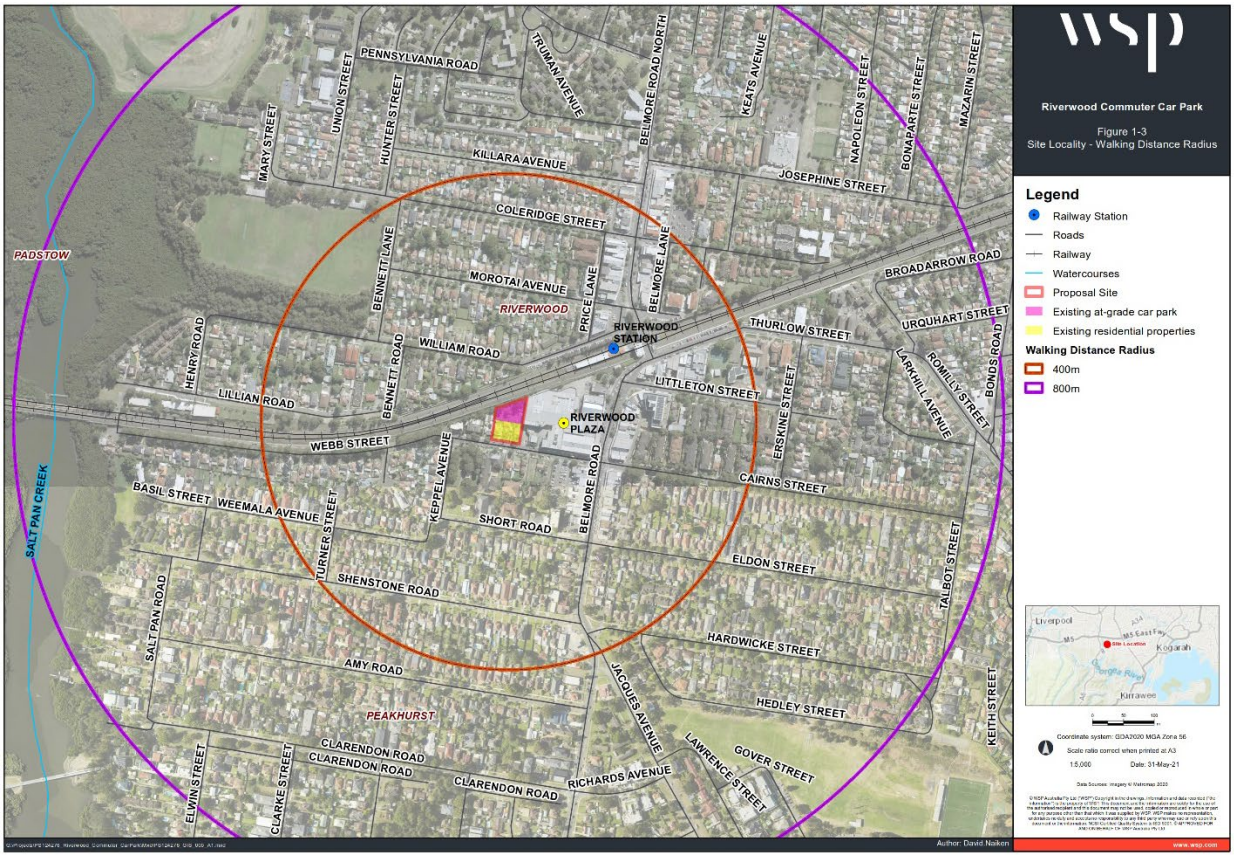

FIGURE 1-2 SITE CONTEXT

2. The Proposal

2.1. Proposal components

The Proposal includes the following key features:

- removal of the existing at grade car park and three residential properties
- construction and operation of a multi-storey car park (MSCP) rising to around three storeys, comprised of a ground level plus two additional levels (including rooftop) of commuter car park, which would include:
    - around 140 commuter car parking spaces
    - a minimum of three accessible parking spaces
    - access to each level of the car park via one lift and two stair wells
    - internal vehicle circulation ramps connecting each level of the car park
    - provision for future electric vehicle charging stations (at least 15% of car spaces)
    - Transport Park&Ride infrastructure (Opal card operated boom gates)
- vehicle access and egress direct from Webb Street
- separation of vehicles access points and pedestrian access paths
- installation of roof top solar panels
- ancillary works including services diversion and/or relocation and drainage works
- landscaping including:
    - screen planting along the western boundary of the site
    - low gardens between the car parking structure and footpath on Webb St
    - supplementing the existing trees along the northern boundary with the rail corridor.
- installation of CCTV, lighting and wayfinding signage for safety and security.

FIGURE 2-1 EXAMPLE OF ROOFTOP SOLAR PANELS

The structure would be an unpainted concrete structure for the car park levels and lift and stair walls. An architectural screen system would be located along all façades to screen the view to cars and lighting. This system would include vertical aluminium louvers in different colours (to be specified during design in accordance with TfNSW Urban Design guidelines and principles) to create visual interest and break down the visual scale of the structure.

The louvres would be angled to decrease views into the car park and minimise light spill to neighbouring properties.

All trees and vegetation within the construction footprint for the car park structure would be removed, including two mature Brush box trees *(Lophostemon confertus*) within the northern area of the site. The existing Gum trees (*Eucalyptus sp.*) and Casuarina trees along the northern and north western boundary of the site, and two existing mature street trees adjacent to the site on Webb Street would be retained and trimmed to create a clear trunk for vehicle sightlines and CPTED.

The car park would be illuminated to current lighting standards which may include motion sensor lights. This would include lighting within all areas of the car parking structure, entry driveway and pedestrian entries.

An artist's impression of the Proposal is included at Figure 2-2. A detailed description of the Proposal is provided in Chapter 3 of the Review of Environmental Factors.

FIGURE 2-2 ARTIST'S IMPRESSION, VIEW FROM WEBB STREET

2.1.1. Construction

A construction site would be established at the Proposal site. The construction site would also be used for materials storage, contractor site offices etc. This would be required for the duration of the works.

The construction site would be enclosed with temporary security fencing and hoarding as required. The machinery and activities occurring on site would include excavators, cranes, heavy and light delivery vehicles, concrete trucks and pumps, and other typical construction equipment.

The construction methodology would be further developed during the detailed design stage, and includes the following construction activities:

- site clearing and demolition of existing car park pavements
- relocation of services and preparation of substructure
- construction of floor slabs, columns and walls
- construction of internal and external road works and footpaths
- installation of façade treatment
- construction of landscape works.

Subject to approval, construction is expected to commence in late 2021 and take around 12 months to complete.

The existing car park would be closed for the duration of the works. The footpath along the north side of Webb Street would remain open during construction with some temporary diversions if required.

A detailed description of the Proposal construction is provided in Chapter 3 of the REF.

3. Planning context

The following state and local government planning documents provide relevant context for the assessment of landscape and visual impact. These are summarised in the following paragraphs.

3.1. State planning documents

3.1.1. Multi-level and at-grade Commuter Car Parks Urban Design Guidelines, TfNSW 2017, Interim Issue

The NSW Government is committed to the development of a customer focused transport network to help it achieve its economic, social and environmental objectives. '*Good architectural and urban design'* can help to achieve '*efficient, safe and user-friendly car parking that sits comfortably within its urban context'* (p.3, TfNSW 2017).

The design of the commuter car park '*should complement its surroundings with an appropriate built form and character'* (p.12, TfNSW 2017). Preferred design solutions will '*sit comfortably in their context, carefully managing scale, bulk and entry locations in a considered and integrated way'* (p.12 TfNSW 2017). The guideline recommends a 'A view analysis study' to and from the proposed site, to identify the following:

- existing views towards the site from surrounding built form and open spaces, and these should be rated according to importance
- the visual prominence of the site within the broader urban or landscape context
- the views on approach to the site from a pedestrian and vehicular perspective
- whether passive overviewing of the site and surrounds is possible to assist in passive crime prevention
- potential areas of conflict and/or loss of privacy to surrounding developments both existing and with the potential to exist.

The guideline refers to six urban design principles:

1. Connect with and enhance the transport network.
2. Deliver quality built form that is appropriate to context.
3. Include quality landscaping.
4. Ensure a sustainable design outcome.
5. Enhance the public realm.
6. Allow for future growth (p.17-23, TfNSW 2017).

TfNSW commuter car park projects are required to outline how they have addressed each of these principles, to ensure they '*sit comfortably within their built and natural context'* (p.5, TfNSW 2017).

Chapter 6 of this report provides a review of the car park design against the urban design objectives set out in this guideline.

'*Solar access and overshadowing of adjacent sites'*, including '*open spaces and buildings'* is identified in this guideline as a key consideration in Objective 2: Deliver quality built form that is appropriate to context (p.19, TfNSW 2017). Chapter 6 considers overshadowing of neighbouring properties.

3.1.2. Greater Sydney Regional Plan: A Metropolis of Three Cities, NSW Greater Sydney Commission 2018

The Greater Sydney Regional Plan sets a 40-year vision (to 2056) and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters. (NSW Greater Sydney Commission, 2018a) It identifies three key cities in Greater Sydney, including the *'Eastern Harbour City*' centred around Sydney CBD, including Riverwood (p.6, NSW Greater Sydney Commission 2018).

The site is located in the suburban area to the west of Sydney Airport. It is not identified as a strategic centre or part of a Transit Oriented Development site; and it is not within the Riverwood Urban Renewal Area ('Riverwood renewal precinct').

The plan recognises the '*dual function of streets as places for people and movement'* as being '*paramount'* to the design and management of '*great places*' (p.73). The Plan also prioritises amenity, including '*safe, direct and comfortable pathways for all people*' (p.74) with the '*protection of the amenity of public spaces from overshadowing is also important'* (p.101, NSW Greater Sydney Commission 2018).

The region's '*green infrastructure*', including street tree plantings, are identified as valued assets for Greater Sydney (p.156). '*Expanding urban tree canopy in the public realm*' is a priority for Greater Sydney

along streets, in parks and other public spaces, and on privately owned land, in Strategy 30.1 (p.164, NSW Greater Sydney Commission 2018).

3.1.3. South District Plan, NSW Greater Sydney Commission

Greater Sydney's three cities, identified in the *Greater Sydney Regional Plan: A Metropolis of Three Cities* (NSW Greater Sydney Commission, 2018a), extend across five districts, including the South District, which is a part of the Eastern Harbour City.

Riverwood, including the site, is located in the middle part of the South District, which is centred on the commercial centre. Riverwood is described as having '*a strong and growing community, offering easy access to public transport and the airport*' (p.39, NSW Greater Sydney Commission 2018a). '*Place-based planning'* (Page 48, NSW Greater Sydney Commission 2018a). and '*creating and renewing great places and local centres'* are key planning priorities for local centres such as Riverwood (Section 6, p.45, NSW Greater Sydney Commission 2018a). Increasing urban tree canopy cover is also a key priority in the Plan.

Riverwood also includes a major urban renewal project by the NSW Land and Housing Corporation, located adjacent to the Greater Sydney Green Grid Priority Corridor Salt Pan Creek, about one kilometre north of the Proposal site.

3.1.4. Better Placed, Office of the NSW State Government

The office of the NSW State Government Architect has prepared a suite of documents under the title of '*Better Placed*' which aims to improve the urban design quality of places in NSW. These documents include:

- Better Placed: An integrated design policy for the built environment of NSW, State Government Architect NSW (2018)
- Better Placed: Draft Good Urban Design Strategies for realising Better Placed objectives in the design of the built environment, State Government Architect NSW (2018)
- Better Methods: Evaluating Good Design, Implementing Better Placed design objectives into projects (2018).

These documents are intended to inform those involved in the design, planning, and development of the built environment in NSW. The overriding policy establishes the objectives and expectations in relation to design and creating good places.

The policy includes seven objectives for the design of the built environment, which are:

- Better fit – contextual, local and of its place
- Better performance – Sustainable, adaptable and durable
- Better for community – Inclusive, connected, and diverse
- Better for people – Safe, comfortable and liveable
- Better working – Functional, efficient and fit for purpose
- Better value – Creating and adding value
- Better look and feel – Engaging, inviting and attractive.

These objectives are expanded upon in the Strategy and Evaluation documents.

The principles identified in the *'Better Methods, Evaluating good design'* paper have generally informed the evaluation of the urban design impacts of the Proposal.

3.2. Local planning

Riverwood Station is located in the Georges River local government area (LGA). While the Proposal is not subject to local planning approval, the following planning documents contain the planning intent for areas surrounding the station and provide context to this assessment.

Relevant clauses from the Georges River Local Strategic Planning Statement 2020 (LSPS), Draft Georges River Local Environmental Plan 2020 (LEP) and Draft Georges River Development Control Plan 2020 (DCP) are summarised in the following sections.

3.2.1. Georges River Local Strategic Planning Statement 2020

The Local Strategic Planning Statement (LSPS) presents a local vision for land use within the Georges River LGA, that recognises the character of its suburbs. It is

based around five themes, with several planning priorities for each theme. Relevant priorities include:

Planning Priority 8. Place-based development, quality building design and public art deliver liveable places.

Planning Priority 17. Tree canopy, bushland, landscaped settings and bio-diversity are protected, enhanced and promoted.

The area surrounding Riverwood Station, and including the Proposal Site, is identified as Precinct Investigation Area and Centre Expansion Investigation (Jobs and/or Housing) area.

3.2.2. Draft Georges River Local Environmental Plan 2020

This Local Environmental Plan (LEP) is awaiting finalisation by the NSW Government. The LEP aims to '*promote a high standard of urban design and built form*', '*promote and facilitate transit oriented development that encourages the use of public transport*' whilst maintaining '*landscape amenity*' in Georges River (cl.1.2). Once finalised, the LEP will replace the *Hurstville Local Environmental Plan 2012.*

Land use zoning

The northern part of the Proposal site is zoned B2 Local Centre. The southern part of the Proposal site, along Webb Street, is zoned R4 High Density Residential in the Draft LEP (changed from R3 Medium Density Residential in the *Hurstville Local Environmental Plan 2012*). The objectives for these zones do not specifically include landscape and visual amenity provisions.

Potential building heights

Under the 2020 LEP the northern part of the Proposal site would be permitted to reach 13 metres and the southern part of the site 12 metres. The objectives of this clause include:

(a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality,

(b) to minimise the impact of overshadowing, visual impact, disruption of views and loss of privacy on adjoining properties and open space areas,

(c) to ensure that developments provide appropriate height transition to adjoining land use zones,

(d) to ensure that developments provide appropriate height transition to items and areas of heritage significance. (cl.4.3)

Figure 3-3 Georges River LEP Zoning

Figure 3-4 Georges River LEP Building heights

Design excellence

The objective of this clause is to deliver the highest standard of sustainable architecture and urban design and applies to the erection of a new building exceeding 12m in height on land that is located in business and industrial zones and Zone R4 High Density Residential, (cl.611.2a).

This clause requires the subject development to be peer-reviewed by an urban designer or a registered architect appointed from Council's panel of design experts against the heads of consideration listed in this clause, including:

iv) the bulk, massing and modulation of buildings

v) street frontage heights

vii) the relationship of the development with other development (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form,

viii) environmental impacts, such as overshadowing and solar access, visual privacy and reflectivity

xiii) the impact on any special character area

xvii) excellence and integration of landscape design. (cl. 611.4d)

3.2.3. Draft Georges River Development Control Plan 2020

This DCP supports the provisions of the Georges River LEP by providing additional objectives and development controls to guide and enhance development within Georges River.

Riverwood Town Centre

The northern half of the Proposal site adjacent to the rail corridor falls within the Riverwood Town Centre area (zoned B2 Local Centre). The centre generally consists of one and two storey older building stock with a recent five storey shop top development. The majority of shops are built on narrow lots but there are some larger sites such as Riverwood Plaza Shopping Centre. The centre is physically divided in two by Riverwood station and the bridge over the railway line.

Objectives of the Riverwood Town Centre include:

(a) Promote high quality architectural design.

(b) Ensure that the development is of a scale and design with a consistent streetscape, compatibility of building form, and a high level of environmental amenity.

(c) Improve the public domain through street planting, furniture and paving upgrades.

(d) Provide high quality retail, commercial and residential development to serve the needs of the surrounding local community.

(e) Ensure any future development provides active ground floor uses.

(f) Provide open space and pedestrian links through redevelopment of sites. (s.7.2.7)

Locality Statement

The Proposal site falls within the centre of the 'Riverwood' locality. Riverwood is a predominately low density suburban area with pockets of residential flat building development mostly located around the Riverwood commercial centre and railway station. Most of the southern part of Riverwood, including the

Proposal site, was developed between the inter-war period and the 1960s, containing a grid-like street pattern and does not contain any heritage items.

The future desired character for Riverwood includes:

- *'Low density residential suburban, transitioning to a mix of medium and high-density residential character towards Riverwood commercial centre.*
- *Encourage tree planting and landscaping within the front setback space to enhance the existing leafy streetscape character.*
- *Encourage the retention of treetop bushland views towards the west of the locality, overlooking Salt Pan Creek'.* (s. 5.1).

Visual Impact

Objectives of the 'views impacts' section (s. 3.8) include:

(a) Protect vistas and public views from streets and public places.

(b) Ensure views to and from the site are considered at the site analysis stage.

(c) Recognise the value of views from private dwellings and encourage view sharing based on the Tenacity Planning Principle [Planning Principle established by the Land and Environment Court in Tenacity Consulting vs Warringah Council (2004) NSWLEC140].

(d) Recognise the value of view sharing whilst not restricting the reasonable development potential of the site.

Solar access

Section 6.3.8 of the DCP refers to solar access in high density residential areas (including the southern part of the Proposal site), requiring proposed developments to '*have regard to the impact of a proposed building on the levels of solar access enjoyed by adjoining existing and future development'* (s. 6.3.8).

Objectives include:

(a) Minimise loss of sunlight to adjacent buildings.

(b) Maximise mid-winter sunlight to windows of neighbouring living rooms and to the primary private open spaces of adjacent properties.

(c) Break up building bulk to allow sunlight penetration.

(d) Ensure building design and location minimises adverse impacts of overshadowing to neighbouring buildings and primary private open space areas.

(e) Maximise solar access opportunities to the subject building (s. 6.3.8).

Building Setbacks and Street Interface

The building setbacks are important requirements which contribute to the streetscape and control the footprint and bulk of a building. Setbacks also manage the impact the building will have on the environment, neighbouring properties and the public domain. Objectives for building setbacks and street interface in high density residential areas (southern part of the site along Webb Street), include:

(a) Maintain and create a high level of amenity for neighbours with adequate access to sunlight, privacy and outlook.

(b) Establish the appropriate spatial separation of the built form to the public domain and adjoining development.

(c) Support opportunities to preserve existing vegetation including street trees.

(d) Accommodate deep soil landscaping that will enable existing plantings to be retained and augmented with new canopy trees to assist with improving the visual impacts in and around the development. (s. 6.3.3)

Façade Treatment and Street Corners

Objectives for façade treatment and street corners in high density residential areas include:

(b) Ensure well-proportioned built forms and façade treatments that minimise the appearance of building bulk from the public domain, including along the street and through-site links.

(d) Ensure that the scale, modulation and façade articulation of development responds to its context. (s. 6.3.5).

4. Methodology

4.1. Guidance for landscape and visual assessment

While there are no specific legislative requirements for the methodology of an assessment such as this in NSW, the industry typically refers to the guidance offered by:

- *Guidance note EIA-N04 Guidelines for Landscape Character and Visual Impact Assessment*, TfNSW 2020)
- *The Guidance Note for Landscape and Visual Assessment* (GNLVA), Australian Institute of Landscape Architects Queensland (2018).

The methodology used for this assessment conforms generally with the direction offered by these guidelines.

4.2. Visual Assessment

This assessment identifies the potential visual impacts of the Proposal during construction and operations, day and night.

The process involved the identification of:

- existing visual conditions
- visual sensitivity
- magnitude of change
- visual impact
- mitigation opportunities.

The potential visual impacts have been classified according to the impact significance criteria set out in this methodology.

4.2.1. Identification of existing visual conditions

The key landscape features of the site have been identified, described and located on a site plan (refer Figure 5-9).

A number of viewpoints have been selected to illustrate the visual influence of the Proposal. These views represent publicly accessible viewpoints from a range of locations and viewing situations.

Particular attention was paid to views from places where viewers are expected to congregate such as Riverwood Station and Webb Street Reserve, as well as views to and from Webb Street, to represent nearby residences, vehicle and pedestrian views.

The selection of these viewing locations aligns with the 'views impacts' section of the Georges River Draft DCP 2020 (s.3.8) which identifies the need to '*(a) Protect vistas and public views from streets and public places'* and also *(b) Ensure views to and from the site are considered.*

4.2.2. Visual sensitivity

Visual sensitivity describes to the nature of the viewer and viewing location. Locations from which a view would potentially be seen for a longer duration, where there are higher numbers of potential viewers and where visual amenity is important to viewers can be regarded as having a higher visual sensitivity. In addition, any views recognised by local, state or federal planning regulations would, by nature of their recognition in these documents, increase the sensitivity level of the view.

In order to ensure the assessment of impact is reasonable, the sensitivity of a viewpoint is considered in the broadest context of possible views, from those of national importance through to those considered to have a neighbourhood visual importance. These sensitivity levels are described in Table 4-1.

There are no views of National, State or Regional sensitivity on this project.

4.2.3. Magnitude of change

Magnitude describes the extent of change resulting from the Proposal and the compatibility of these new elements with the surrounding landscape. There are some general principles which determine the magnitude of change; these are the characteristics of the view such as distance, landform, backdrop, and contrast, and the characteristics of the development, which includes: scale, form and shape.

Change can result in an improvement or reduction in visual amenity.

TABLE 4-1 VISUAL SENSITIVITY LEVELS

Visual sensitivity	Description
National	Heavily experienced view to a national icon, e.g. view to Sydney Opera House from Circular Quay or Lady Macquarie's Chair, view to Parliament House Canberra along Anzac Parade.
State	Heavily experienced view to a feature or landscape that is iconic to the State, e.g. view along the main avenue in Hyde Park.
Regional	Heavily experienced view to a feature or landscape that is iconic to a major portion of a city or a non-metropolitan region, or an important view from an area of regional open space, e.g. an identified view corridor to a state heritage listed item.
Local	High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas, and/or large numbers of road or rail users, e.g. view from a local park such as Keppel Avenue Reserve or from Riverwood Station.
Neighbour-hood	Views where visual amenity is not particularly valued by the wider community such as views from local streets and residences.

A high magnitude of change would result if the development contrasts strongly with the existing landscape. A low magnitude of change occurs if there is minimal visual contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the development and the environment in which it is located.

In some circumstances, there may be a visible change to a view which does not alter the amenity of the view, this would be due to the visual absorption capacity of the surrounding landscape and / or the compatibility of the Proposal with the surrounding visual context. Table 4-2 lists the categories used to describe the magnitude of change.

TABLE 4-2 MAGNITUDE LEVELS

Magnitude	Description
High	A considerable change to the amenity of the view. Substantial part of the view is altered. The Proposal contrasts substantially with surrounding landscape.
Moderate	A noticeable change to the amenity of the view. Alteration to the view is clearly visible. The Proposal contrasts with surrounding landscape.
Low	A perceptible change in the amenity of the view. Alteration to the view is clearly visible. The Proposal contrasts with surrounding landscape but would not alter the prevailing character of the view.
Negligible	Either the view is unchanged or if it is, the change in the view is generally unlikely to be perceived by viewers. The Proposal does not contrast with the surrounding landscape.

4.2.4. Identifying night time visual impacts

The assessment of night-time impact has been carried out with a similar methodology to the daytime assessment. However, the assessment also draws upon the guidance contained within *AS4282 Control of the obtrusive effects of outdoor lighting* (2019).

AS4282:2019 identifies environmental zones which are useful for categorising night-time landscape settings. The following assessment will use these environmental zones to describe the existing night-time visual condition and assign a sensitivity to these settings.

These zones are shown in Table 4-3.

TABLE 4-3 SENSITIVITY LEVELS AT NIGHT

Sensitivity	Description
High	A0 / A1: Dark / Intrinsically dark landscapes – national parks, state forests etc.
Moderate	A2: Low district brightness areas – rural, small village, or relatively dark urban locations
Low	A3: Medium district brightness areas – small town centres or urban locations
Negligible	A4: High district brightness areas – town/city centres with high levels of night time activity.

The magnitude of change will consider the specific features of the lit landscape, and would be described in accordance with AS4282:2019 as:

- **sky glow** – the brightening of the night sky
- **glare** – condition of vision in which there is discomfort or a reduction in ability to see
- **light spill** ('trespass') – light emitted by a lighting installation that falls outside of the design area.

The level of impact on the precinct has been described according to the impact levels that are identified in Table 4-2.

The setting of the site is an area of **medium district brightness**, as the existing car park, shopping centre and nearby station platform and pathways are brightly lit at night. The residential areas surrounding the site are less brightly lit with streetlights and illuminated residences.

4.2.5. Assigning impact levels

A visual impact level has been assigned for each representative viewpoint, and also at night. The impact visual impact level has been determined by combining the sensitivity and magnitude level, using the following criteria, refer to Table 4-4.

TABLE 4-4 IMPACT LEVELS

		Sensitivity				
		National sensitivity	State Sensitivity	Regional sensitivity	Local sensitivity	Neighbourhood sensitivity
Magnitude of change	High	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
	Moderate	Very high adverse	High adverse	Moderate adverse	Minor adverse	Minor adverse
	Low	High adverse	Moderate adverse	Minor adverse	Negligible	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
	Improvement	Very high benefit	High benefit	Moderate benefit	Minor benefit	Minor benefit

4.2.6. Assessment of Urban Design and Landscape Character Impacts

An assessment of Urban Design and landscape character impacts has been undertaken in two steps, these are:

- a response to state and local government urban design considerations, and
- a general urban design and landscape character impact assessment including consideration of overshadowing.

The response to state and local government urban design considerations, includes a summary of how the project addresses the urban design principles set out in the *Multi-level and at-grade Commuter Car Parks urban design guidelines* (TfNSW, 2017, Interim Issue). Specifically, this guideline requires that new multi-level car parks are to … '*complement its surroundings with an appropriate built form and character*' (p.12, TfNSW, 2017).

A general assessment of urban design considerations has been undertaken, based on the themes identified in relevant national and state guidance for urban design. This includes the NSW State Government Architect's Better Placed suite of documents, the Federal Government's National Urban Design Protocol, and best practice urban design principles.

This assessment includes consideration of impacts the project would have on the urban design functionality of the Proposal, including:

- accessibility, legibility and permeability
- direct impacts on trees, open space and public realm areas
- changes to the level of shade and comfort to public areas
- access to sunlight and the effect of overshadowing.

For the assessment of overshadowing, *the State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development (SEPP 65)* has been used for guidance. The SEPP includes an Apartment Design Guide which at Objective 4A-1 (p.79, TfNSW 2017) which says:

'Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area'.

To identify the hours of available sunlight, shadow diagrams have been prepared using a 3D model of the proposed commuter car park. These diagrams show the shadows that would be cast by the Proposal at hourly intervals from 9am to 3pm. This assessment has considered the impact upon the directly adjacent residential property.

To recognise the existing overshadowing of this property by the existing building on the adjoining lot to the west, the massing of this building has been indicatively modelled based on an estimate of height as observed on site.

4.2.7. Photomontages and artists impression

Photomontages have been prepared to illustrate the massing and scale of the Proposal. These photomontages combine the 3D model provided by the architects with a photograph using a 3D digital surface model generated from LIDAR data and photo editing techniques. These are photorealistic impressions of the Proposal based on the design information available at the time of this assessment.

The photomontage locations were selected in consultation with TfNSW and illustrate typical views toward the Proposal. The photomontage locations were selected from a local park and footpaths on the adjacent streets to represent the views from commuters approaching the commuter car park and also groups of residents and recreational users.

5. Assessment of visual impacts

5.1. Existing conditions

The Proposal site includes an existing at-grade car park, and three single storey detached residential properties on Webb Street. There is a residential property adjoining the western boundary of the Proposal site, which includes a two storey detached dwelling. There are three storey apartment buildings to the west of this property and also to the south of the site on Webb Street. Surrounding this to the south are predominantly low rise residential dwellings.

To the south west of the site the Keppell Avenue Reserve is located on Webb Street and extends south along Keppell Avenue. This park incudes open lawn areas, mature trees, footpaths, a small playground.

The Riverwood Plaza shopping centre is located to the east of the Proposal site and extends to Belmore Road, the local commercial centre and main street of Riverwood. The shopping centre has a car park service entry facing Webb Street. This building has a bulky built form and presents a blank façade to Webb Street and the Proposal site.

The T8 rail corridor is located immediately to the north of the site, with Riverwood Station located to the north east of the site. The station is accessed via the Belmore Street overbridge. The station is serviced by three small linear commuter car parks, including two to the north of the rail corridor, along William Road and Morotai Avenue, and one to the south east of the station, along Thurlow Street. There are no existing/formal Kiss&Ride facilities at Riverwood Station. During the site visit, informal kiss&Ride vehicle movements were observed to the north of Riverwood Station along William Road. Bus stops and taxi zone are located along Belmore Road, south of the station.

FIGURE 5-1 VIEW TO RESIDENTIAL PROPERTIES ALONG WEBB STREET, INCLUDING THE PROPOSAL SITE

FIGURE 5-2 THREE STOREY APARTMENTS ON WEBB STREET

FIGURE 5-3 KEPPELL AVENUE RESERVE PLAYGROUND

FIGURE 5-4 VIEW ALONG WEBB STREET TO THE SITE AND RIVERWOOD PLAZA SHOPPING CENTRE

FIGURE 5-5 ENTRY TO THE RIVERWOOD PLAZA SHOPPING CENTRE ON BELMORE ROAD

The northern part of the Proposal site includes an existing at grade car park, consisting of around 50 car parking spaces. The car park contains several trees including two Brush Box (*Lophostemon confertus*), and a row of mature trees along the northern boundary adjacent to the rail corridor including a large gum tree and several Casuarina trees.

FIGURE 5-6 EXISTING TREES ALONG THE NORTHERN SITE BOUNDARY ADJACENT TO THE RAIL CORRIDOR

FIGURE 5-7 BRUSH BOX TREES WITHIN THE EXISTING CAR PARK

The existing car park is accessed via the main entry to the Riverwood Plaza shopping centre on Webb Street. Pedestrian access to the car park is via the Riverwood Plaza. There is currently no dedicated pedestrian pathway connecting the existing car park to Webb Street, with pedestrians currently using the vehicle entry to access the shopping centre and Riverwood Station or the existing loading dock driveway which is located parallel to the existing rail corridor.

The Proposal site slopes from Webb Street towards the existing commuter car park and then flattens out at the location of the existing car park. There is a brick wall separating the residential properties from the car park.

These features are shown on Figure 5-9.

FIGURE 5-8 VIEW FROM THE EXISTING CAR PARK TOWARDS THE RIVERWOOD PLAZA SHOPPING CENTRE AND EXISTING BRICK WALL

FIGURE 5-9 LANDSCAPE AND VISUAL FEATURES OF THE SITE AND SURROUNDS

5.2. Assessment of Representative Viewpoints

The following viewpoints were selected to represent the range of views to the site and the Proposal:

- Viewpoint 1: View north west from Webb Street
- Viewpoint 2: View north east from Keppel Avenue Reserve
- Viewpoint 3: View east from corner of Webb Street and Keppel Avenue
- Viewpoint 4: View south west from William Road
- Viewpoint 5: View south west from Belmore Road overbridge.

The location of these viewpoints is shown on Figure 5-10, and an assessment of each viewpoint is summarised in the following sections.

FIGURE 5-10 VIEWPOINT LOCATION PLAN

5.2.1. Viewpoint 1: View north west from Webb Street

FIGURE 5-11 VIEWPOINT 1: VIEW NORTH WEST FROM WEBB STREET, EXISTING VIEW

FIGURE 5-12 VIEWPOINT 1: VIEW NORTH WEST FROM WEBB STREET, PHOTOMONTAGE

Existing view:

This view is located at the entrance of a small surface car park, at the eastern end of Webb Street, adjacent to the commercial properties facing Belmore Road.

The southern side of Riverwood Plaza shopping centre is visible (right of view) with a blank, visually imposing concrete façade. Access to the loading dock and existing car park, including both undercover and surface car parking (on the Proposal site) can be seen in this view. In the centre of the view there is single storey detached dwellings (on the Proposal site) in the middle ground and three storey apartments in the background.

On the southern side of Webb Street (left of view), there is a variety of residential buildings, including single storey detached dwellings interspersed with more modern two and three storey apartment buildings. Some of these units and houses would have northerly views to the existing car park site. The street is generally shaded by small mature street trees.

Visual sensitivity:

This view is of **local** visual sensitivity as it is a path near to and leading from the commercial centre. It would be used by locals and visitors using the commercial centre and station.

Visual impact during construction:

A construction site will be established on the site, in the middle ground of the view, beyond the Riverwood Plaza building. Three houses along Webb Street located within the site (centre of view) would be demolished to accommodate the Proposal. The site would be secured by temporary fencing, with hoarding erected along the fence line. Construction of the car parking structure would be visible rising above the site and construction vehicles would be seen accessing the site via Webb Street.

The concrete walls of Riverwood Plaza would partially block views to the northern areas site. The two street trees beside the site along Webb Street are proposed be retained and would provide some screening and visual softening of the construction site.

Overall, while the scale and intensity of construction would contrast with the leafy suburban character of the background of this view, it would have less contrast with the back of house areas of the Riverwood Plaza and not be substantially larger than what would be expected with the construction of medium density residential development for example.

This would result in a moderate magnitude of change and a **minor adverse visual impact** to this view during construction. This impact would be for a short duration and temporary (up to 12 months during construction).

Visual impact during operation:

The new multi-level car park structure would be visible in the middle ground of this view, rising to around three storeys. The eastern end of the structure would be set down below street level, about two metres lower than the adjacent Riverwood Plaza building. The car park structure would replace views to the three detached dwellings fronting Webb Street. The mass and scale of the car park would provide a visual transition between the shopping centre and residential and unit development further west on Webb Street.

The southern façade of the car park would be prominent in this view. Articulation of the façade would be achieved by a vertical louvre system or similar architectural screening device, using varying colours. This would reduce the visual bulk of the structure and provide some screening of the vehicles located within the structure.

The entry and exit roads would be seen in the centre of the view, offset from the existing trees. There would be garden areas (subject to detailed design) along Webb Street, softening views to the base of the structure.

Overall, the building would be of a larger massing and scale than the existing residential buildings but provide a visual transition in built form along Webb Street. The height and scale of this development would also be consistent with the zoning and building height allowed in the draft Georges River LEP 2020 (R4 High Density Residential development up to 12 metres). The design of the building, including vertical louvres and landscaping, would somewhat reduce the visual bulk of the new parking structure. This would result in a moderate magnitude of change and a **minor adverse visual impact**.

5.2.2. Viewpoint 2: View north east from Keppel Avenue Reserve

FIGURE 5-13 VIEWPOINT 2: VIEW NORTH EAST FROM KEPPEL AVENUE RESERVE, EXISTING VIEW

FIGURE 5-14 VIEWPOINT 2: VIEW NORTH EAST FROM KEPPEL AVENUE RESERVE, PHOTOMONTAGE

Existing view:

This view through the trees within the park includes the three single storey detached dwellings on the Proposal site, with two and three storey apartment buildings to the west (left of view) and south (right of view) and the rear corner of Riverwood Plaza shopping centre (centre of view). Only two of the three houses on the site can be seen on the site as the third is screened by the existing street trees. The shopping centre can be seen rising above the existing houses and has some articulation from this angle. The is existing shopping centre building is partly screened by existing vegetation, but where seen, has blank walls and an overall large visual mass and scale.

Vehicles parked along and using Webb Street can be seen in the foreground, blocking views to the lower areas of the Proposal site.

This view is similar to that experienced by properties along Webb Street to the south (right view).

Visual sensitivity:

Keppel Avenue Reserve is used by local residents and visitors to this suburban part of Riverwood. Views from this park are of local visual sensitivity.

Visual impact during construction:
Three houses located in the middle ground of this view (centre of view) would be demolished and a construction site would be established in the centre of the view on the northern side of Webb Street, adjacent to the Riverwood Plaza building. The site would be secured by temporary fencing, with hoarding erected along the fence line. Construction of the upper levels of the car park would be visible above the fence line (and vehicles on Webb Street). Construction vehicles would also be seen accessing the site from the west via Webb Street. The two street trees beside the site (centre of view) along Webb Street would be retained and provide some screening of the construction site.

Overall, while the scale and intensity of construction would contrast with the suburban character of the existing site in this view, it would have less contrast due to the existing back of house areas of the Riverwood Plaza and would not be substantially larger than what would be expected with the construction of medium density residential development in this location.

This would result in a moderate magnitude of change and a minor adverse visual impact during construction. This impact would be for a short duration and temporary (up to 12 months during construction).

Visual impact during operation:

The new car park structure would be visible in the middle ground of this view, rising to three storeys and mostly obstructing the view to the rear of the shopping centre. The car park structure would contrast in scale and height to the adjacent two storey detached dwelling at 18 Webb Street. While the structure would extend about 40 metres along Webb Street, creating a continuous architectural treatment with limited articulation, the façade treatment would incorporate vertical aluminium louvers in different colours to reduce the visual scale of the structure. This form would be seen adjacent to and replace the view to the visually bulky shopping centre, and several three storey residential apartments.

The building would be partly screened by the existing street trees and trees located along the western side of the site. However, the southern façade would be prominent in this view with a simple form and continuous architectural treatment. Additional vehicles would be seen on Webb Street and accessing the proposed car park structure, adding additional movement and activity to this view.

The building would have a scale and height that is consistent with the zoning and building height nominated in the draft Georges River LEP 2020 (R4 High Density Residential development up to 12 metres high).

Overall, while the architectural screening would assist in providing some visual interest and screen the vehicles within the parking structure, the length of the car park would increase the prominence of this structure. Due to the context of the existing shopping centre and medium density residential apartments, there would be a moderate magnitude of change and a minor adverse visual impact.

5.2.3. Viewpoint 3: View east from corner of Webb Street and Keppel Avenue

FIGURE 5-15 VIEWPOINT 3: VIEW EAST FROM CORNER OF WEBB STREET AND KEPPEL AVENUE

Existing view:

This view along Webb Street includes the site in the middle to background, mostly screened by existing street trees. This is a leafy view with several large trees within the adjacent properties (left of view) and in Keppel Avenue Reserve (right of view).

The built form in this view is predominantly low and medium density residential, including a mixture of two and three storey apartment buildings and single storey detached dwellings. Riverwood Plaza shopping centre can be glimpsed in the centre of the view, among the street trees, which are trimmed to remain below the existing powerlines which occur along the northern side of the street. The rear western façade of the shopping centre building is visible in the background, glimpsed through existing street trees.

Visual sensitivity: This view is of **neighbourhood** visual sensitivity as it is located in a predominantly residential street, experienced by local residents and their visitors.

Visual impact during construction:

A construction site would be established in the background of the view, in front of the Riverwood Plaza building, and would be partly screened by the existing street trees. The works would include the demolition of three houses along the north side of Webb Street which would be able to be glimpsed between the trees in this view.

There would be site fencing and hoarding erected along the site boundary and construction vehicles would be seen accessing the site via the western end of Webb Street. Construction of the upper levels of the car park would be visible above the street trees.

Overall, the existing vegetation would partially block views to the site. The works would be in the middle to background of the view and seen in the context of the rear of the existing shopping centre. This construction activity would not be substantially larger than what would be expected with the construction of medium density residential development in this location.

This would result in a low magnitude of change and a **negligible visual impact** during construction. This impact would be for a short duration and temporary (up to 12 months during construction).

Visual impact during operation:

The new car park structure would be visible in the middle to background of the view, rising to around three storeys. While car park would be lower in height than the adjacent Riverwood Plaza building, it would largely screen the view to this existing visually bulky structure. The proposed structure would rise above the tree line formed by the street trees and the southern façade would extend about 40 metres along Webb Street, continuing the larger scale and of the commercial built form west from Belmore Road.

The architectural screening treatment of vertical louvres, with varying colours, would provide some filtering of views to the vehicles within the car park and assist with providing some texture and visual interest to what would otherwise be a simple structure with limited vertical and horizontal articulation.

The entrance and exit points would be located in the centre of the view, and there would be additional vehicles seen accessing the car park, particularly during peak morning and evening times.

Overall, while the car parking structure would introduce a large simple structure into this view, it would not contrast with the setting with the visually bulky shopping centre in the background and existing three storey apartment buildings which face Webb Street.

The architectural screening would provide some visual interest and screen the vehicles within the parking structure. The prominence of this structure would be lessened by the screening of existing vegetation and distance of the Proposal site from this viewing location. There would be a low magnitude of change and a **negligible visual impact**.

5.2.4. Viewpoint 4: View south west from William Road

FIGURE 5-16 VIEWPOINT 4: VIEW SOUTH WEST FROM WILLIAM ROAD, EXISTING VIEW

FIGURE 5-17 VIEWPOINT 4: VIEW SOUTH WEST FROM WILLIAM ROAD, PHOTOMONTAGE

Existing view:

This view is from the northern side of the rail corridor, in William Road, and represents views typically seen from adjacent single and double storey dwellings.

The existing track within the rail corridor is located on a small embankment, with trains visible approaching and departing the station (left, out of view). An at-grade commuter car park can be seen beside the rail corridor in the foreground of this view. The proposal site is visible in the background of view (centre of view), to the west of the Riverwood Plaza shopping centre (left of view).

Within the site, the existing mature trees along the northern site boundary and norther western corner of the site can be seen rising above the rail corridor. The existing buildings and car parking on the Proposal site are not visible from this location.

Visual sensitivity:

This view is located in a predominantly residential street, used by local residents and their visitors, as well as visitors accessing the Riverwood Station commuter car park. It is of **neighbourhood** visual sensitivity.

Visual impact during construction:

The construction site would be established in the background of the view, to the west of the Riverwood Plaza building (right of view). From this location, the rail corridor embankment and trees along the rail corridor would partially block views to the site, particularly the ground level construction activity.

Several trees within the site would be removed, including two mature Brush box *(Lophostemon confertus*) trees and several semi-mature Casuarina trees along the northern (centre of view) and eastern boundary of the site. Construction of the upper levels of the car park would be visible, rising above the hoarding.

Overall, the construction works would not be prominent in this view as it would be partly obstructed by the intervening landform and filtered by the existing vegetation along the rail corridor. The works would be in the background of the view and seen in the context of the rear of the existing shopping centre. This would result in a low magnitude of change and a **negligible visual impact** during construction. This impact would be for a short duration and temporary (up to 12 months during construction).

Visual impact during operation:

From this angle, the northern façade of the car park would be a large, architecturally screened structure, with only the upper levels visible.

The building would not rise above the tree line and would be partly filtered and screened by the existing vegetation proposed to be retained.

This structure would be seen at a distance of about 80 metres, in the context of the existing shopping centre, and with the rail corridor and trains seen in the foreground of view.

Overall, the building would introduce additional built form element to this view, which would be lower in height that the existing shopping centre, set back from the rail corridor and be filtered by retained existing vegetation along the northern boundary of the site. The design of the building, including vertical louvres, and potential additional landscaping along the northern site boundary, would further reduce the visual scale of the car parking structure. There would be a low magnitude of change and a **negligible visual impact**.

5.2.5. Viewpoint 5: View south west from Belmore Road overbridge

FIGURE 5-18 VIEWPOINT 5: VIEW SOUTH WEST FROM BELMORE ROAD OVERBRIDGE

Existing view:

This elevated view from the Belmore Road overbridge includes the Riverwood Station in the foreground. The low-set brick Art Deco platform building, and island platform are of local heritage significance (Georges River LEP 2020), with aesthetic values. The series of platform shelters at the western end of the station are modern additions.

There is considerable visual clutter seen along the rail corridor including overhead wires and associated equipment, light posts, fences. This view is also activated by trains intermittently approaching and departing the station.

The upper section of the visually bulky Riverwood Plaza shopping centre building can be seen in the middle ground, with rooftop vents and services visible. This building screens much of the Proposal site, located to the west of this building (centre of view). The built form on the Proposal site cannot be seen from this location, however, the vegetation along the northern boundary of the site is visible along the rail corridor, beyond the western end of the station platform. The exiting car parking and surrounding residential areas are also screened by this vegetation.

This view has a vegetated backdrop created by the mature trees along the rail corridor and within Keppel Avenue Reserve.

Visual sensitivity:

Riverwood Station is a local visual landmark, and a gathering place for residents and visitors to the local centre. Views from the station, including the overbridge, are of **local** visual sensitivity.

Visual impact during construction:

The car park construction site would be set back from the rail corridor boundary fence, and mostly screened by the existing shopping centre building. Existing vegetation along the northern site boundary, including several Gum trees and Casuarina trees, would be retained and filter views to the northern areas of the construction site.

The construction of the upper levels of the car park would be partly visible above the rail corridor, seen through this vegetation, fences, overhead wires and associated equipment, light posts, and in the context of trains approaching and departing the station.

The openness of this view would be retained and foreground views to the heritage listed train station would remain. Overall, there would be a low magnitude of change and a **negligible visual impact** during construction.

Visual impact during operation:

Part of the northern façade of the car parking structure would be seen in the centre, middle to background of this view, at a distance of over 200 metres. The structure would be over two metres lower than the adjacent Riverwood Plaza building (left of view) and the eastern façade proposed, and lift core would be out of view.

The car park would be set back from the rail corridor, it is possible that the rooftop solar panels and cars circulating and parked at the rooftop level would be glimpsed from this elevated location.

The Proposal would be seen in the context of the existing rail corridor infrastructure and existing shopping centre buildings.

Due to the limited visibility of the Proposal from this location and scale of the built form in the fore and middle ground, there would be a negligible magnitude of change and a **negligible visual impact** during operation.

5.3. Views at night

Existing conditions:

Areas in the vicinity of the Proposal site are of **medium district brightness (A3)**. This is due in part to the brightly lit streets, car park areas, shopping centre, station entrance and adjacent plazas, as well as the surrounding low to medium density residential development.

The headlights from traffic on Webb Street and Belmore Road, the main route through Riverwood local centre, also contribute to the night-time brightness of this area.

Visual impact during construction:

During construction, the work site and adjacent construction support area would be lit for security. However, it is unlikely that the site would be used on an ongoing basis for construction activity during evening hours.

Generally, the character of the construction works and support sites at night would be visually absorbed into the surrounding brightly lit environment.

This would result in a negligible magnitude of change and a **negligible visual impact** during construction.

Visual impact during operation:

During operation, the multi-storey car park would have motion sensor lighting for use at night as required. The new structure would be seen within the context of the existing lighting at Riverview Plaza shopping centre, including the ground level car park, and streetlights along Webb Street. However, it would extend this brightly lit character closer to the residential areas to the west and south of the site.

It is likely that there would be some additional skyglow seen above the site and a direct view to additional light sources from the residential buildings to the north, west and south of the site. The car park would increase the height and intensity of the light along Webb Street, where there would currently be views to relatively low-level lighting from the single storey detached dwellings.

The lighting for the Proposal would use technologies to minimise light spill (trespass) and skyglow (to be confirmed during detailed design). The design of barriers and louvres within the structure and on the façade, would also be designed to block vehicle headlights from within the structure.

Generally, the character of the proposed multi-storey car park at night would result in a moderate magnitude of change at night, resulting in a **minor adverse visual impact** at night during operation.

5.4. Summary of visual impacts

The following summarises the findings of this viewpoint assessment.

During construction there would be minor adverse visual impacts in views from Webb Street near Belmore Road, and the Keppel Avenue Reserve. This is due to the proximity of the proposed commuter car park to these locations. From other locations the visibility of the proposed construction works would be limited or viewed at a distance, and the potential visual impacts would be **negligible**.

During operation there would be a **minor adverse visual impact** in views from close range views including from Webb Street near Belmore Road, and the Keppel Avenue Reserve. The built form of the commuter car park would be large in scale with limited articulation and detail on the façade, however it would but step down from the larger scale shopping centre building, providing a visual transition to the two-storey dwelling and medium density residential development to the south and west of the site.

Table 5-1 and 5-2 summarise the daytime viewpoint assessment.

At night there would be a negligible visual impact during construction as night works would not be required. However, during operation, there would be a minor adverse visual impact due to the 24 hour operation of the proposed car parking structure, seen within an area which is relatively brightly lit urban centre (medium district brightness).

TABLE 5-1 SUMMARY OF DAYTIME VISUAL IMPACT

			Construction		Operation	
	Viewpoint number and location	**Sensitivity**	**Magnitude of change**	**Visual impact**	**Magnitude of change**	**Visual impact**
1	View north west from Webb Street	Local	Moderate	Minor adverse	Moderate	Minor adverse
2	View north east from Keppel Avenue Reserve	Local	Moderate	Minor adverse	Moderate	Minor adverse
3	View east from corner of Webb Street and Keppel Avenue	Neighbourhood	Low	Negligible	Low	Negligible
4	View south west from William Road	Neighbourhood	Low	Negligible	Low	Negligible
5	View south west from Belmore Road overbridge	Local	Low	Negligible	Low	Negligible

6. Assessment of urban design and landscape impact

6.1 Response to urban design guidelines

At a strategic level, the *Multi-level and at-grade Commuter Car Parks urban design guidelines* (Transport for NSW, 2017, Interim Issue) provides direction for the Urban design of the Proposal.

Specifically, this guideline requires that new multi-level car parks are to … '*complement its surroundings with an appropriate built form and character*' (p.12).

Table 6-1 provides a review of the car park design against the urban design objectives set out in the guideline.

TABLE 6-1 RESPONSE TO MULTI-LEVEL AND AT-GRADE COMMUTER CAR PARKS URBAN DESIGN GUIDELINES

Design objective	Response
Connect with and enhance the transport network	• The site is located to the south of Riverwood Station, and adjacent to the local commercial centre of Riverwood. It would be connected to the station via existing footpaths. • Pedestrian entries and paths to the car park would be supported by wayfinding signage and clearly visible from the public domain including Webb Street, supporting opportunities for passive surveillance. • Additional accessible parking spaces would be provided within the car park, in close proximity to the station.
Deliver quality built form that is appropriate to context	• The Proposal site is located between the commercial activities of the local centre and the residential properties to the south and west. While the scale and form of the proposed car parking structure would be taller than the adjacent two storey residential buildings along Webb Street to the west, it would be lower in height than the adjacent shopping centre building to the east and would comply with the height identified in the draft Georges River LEP 2020, which is 12 metres or 3-4 storeys. • The surrounding built form on Belmore Road is varied, with a mixture of building styles, materials and scale at the local centre to the east. The architectural treatment and colour of the Proposal façade, including use of louvres, allows for natural ventilation, screening and a degree of visual transparency. The louvres would also assist in breaking up the visual mass of the façade and the colours used would aim to glare and reflectivity. • Lighting would be designed to minimise light spill.

Design objective	Response
Include quality landscaping	• Landscaped areas would be provided around the site boundaries, particularly along the western boundary, to create a visual buffer between the car park and the adjacent residence in Webb Street (subject to detailed design). • Street trees would be retained and there would be planting along the frontage of the proposed structure, enhancing the streetscape amenity, shade and comfort for pedestrians.
Ensure a sustainable design outcome	• Rainwater tanks would be installed to allow for the capture and reuse of rainwater, including for landscaping irrigation. • The rooftop area would be utilised to install solar panels to allow on-site renewable energy generation.
Enhance the public realm	• By providing a dedicated car park, vehicles would be removed from the streets surrounding and within the commercial precinct of Riverwood, allowing for the enhancement of the public realm. • An architectural screening system to the façade and the provision of additional landscaping (subject to detailed design) would contribute to the streetscape and pedestrian environment of Webb Street. • The stairs and lift structure would be located to the east of the structure, away from nearby residents.
Crime prevention through environmental design	• Façade treatment is identified as an important consideration to improve customer safety and aid crime prevention. The louvre system along the facades would allow direct line of sight between Webb Street and the car park, increasing the opportunity for passive surveillance. • Wayfinding signage along Webb Street would also improve legibility and the visual prominence of the car park entry.

6.1. Potential for overshadowing

Overshadowing is a potential impact related to good urban design outcomes.

The consideration of solar access and overshadowing is identified as relevant in high density residential areas, including the southern part of the Proposal site, in the Georges River Draft DCP 2020.

The SEPP 65 (State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development) sets design criteria, including … *'1. Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area'.*

An overshadowing impact would be experienced by private properties, located adjacent to or in close proximity to the Proposal site. For the Proposal there is a potential for overshadowing of adjacent properties south and west of the Proposal site during winter months due to the height of the car park structure and close proximity to these dwellings.

This includes the following properties:

- 18 Webb Street; and
- 17-21, 15 and 13 Webb Street.

These properties are identified on Figure 6-1.

Shadow diagrams for mid-winter at hourly intervals from 9:00am to 3:00pm have been prepared for the Proposal and are shown in Figure 6-2.

The following section provides an assessment of the overshadowing that would be experienced by each group of residences.

FIGURE 6-1 NEIGHBOURING PROPERTY LOCATIONS

21 June - 9am

21 June - 10am

21 June - 11am

21 June - 12 noon

21 June - 1pm

21 June - 2pm

21 June - 3pm

FIGURE 6-2 OVERSHADOWING DIAGRAMS DURING WINTER, JUNE 21, 9AM – 3PM

6.1.1. Properties to the west of the site

Existing conditions:

The property at 18 Webb Street is a double storey detached building located on a lot adjoining the western boundary of the Proposal site. The house is located close to the eastern boundary and does not have a side garden in this area. As the Proposal site currently contains single storey detached buildings, located on similar ground surface levels, the ground level east facing windows of the house are likely to experience some overshadowing in the mornings due to the screening effect of the existing timber fence and existing houses on the Proposal site. The upper level windows of the dwelling at 18 Webb Street, due to their height, would not be expected to experience any overshadowing from the existing dwellings on the Proposal site.

However, this property already experiences some overshadowing during winter afternoons, from the adjacent three storey apartment building to west, at 20-22 Webb Street, after 1.00pm.

Overshadowing impact:

The new car parking structure would overshadow the dwelling at 18 Webb Street between 9.00am and 10.00am on the 21st of June, when the sun is at its lowest point in the sky. The property would however still achieve three hours of sunlight to the entire property between 9.00am and 3.00pm in mid-winter (refer Figure 6-2).

There would not be a material overshadowing impact on the property at 18 Webb Street.

6.1.2. Properties to the south of the site

The analysis shows that the shadow from the Proposal would not extend to the residences to the south of Webb Street. Therefore, there would be no overshadowing impact expected to the on the properties at 7-21, 15 and 13 Webb Street (refer to Figure 6-2).

6.2. Urban design and landscape character impacts

The following assessment considers the urban design and landscape character impacts of the Proposal on the Proposal site and setting.

Urban design and landscape character impacts during construction:

The demolition of three dwellings and a car park would introduce intense construction activity and contrast with the leafy suburban character of the site and adjacent residential area of Riverwood. Several existing trees within the site would be removed during construction, reducing the leafy character of the site somewhat. However, the street trees would be retained, maintaining streetscape of Webb Street. Elsewhere, where possible, trees which overhang the site would be retained with some minor trimming if required.

There would be excavation required to lower the level of the structure at Webb Street. This landform modification would not appreciably impact upon the character of the adjacent streetscape.

Access to the existing car park would be removed. Temporary pedestrian access arrangements and footpath diversions would potentially reduce the legibility and accessibility along Webb Street, adjacent to the site. There would also be reduced amenity and comfort for pedestrians approaching Belmore Road from the east, particularly during demolition, earthworks and installation of concrete slabs, due to the use of large-scale machinery.

Overall, there would be a moderate magnitude of change to the landscape and urban design functionality of the Proposal site. This would result in a **minor adverse landscape impact** during construction. This would be a short term and temporary impact.

Urban Design and landscape character impacts during operation:

During operation, pedestrian access along Webb Street would be reinstated and there would be improvements to accessibility of the station precinct with the increased availability of commuter car parking. The trees and gardens removed during construction would be replaced with new landscaping where possible, (subject to detailed design). Overall, during operation there would be a low magnitude of change to the landscape and urban design functionality of the Proposal site. This would result in a **minor beneficial landscape impact** during operation.

7. Mitigation of impacts

The following mitigation measures are recommended to be implemented to reduce the visual impacts of the Proposal:

- An Urban Design and Landscape Plan (UDLP) would be prepared by the Contractor, in consultation with the Georges River Council, and submitted to Transport for NSW for endorsement by the Place and Urban Design team, prior to finalisation of the detailed design. The UDLP, at a minimum, would address the following:
    - the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to:
        - site analysis
        - vision and objectives for the infrastructure
    - connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians and bicycles should be shown
    - integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown
    - integration with surrounding streetscape including street trees, entries, vehicle cross overs etc
    - integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use
    - design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal.
- A Public Domain Plan (PDP) would be prepared by the Contractor, in consultation with the relevant council, and submitted to TfNSW for endorsement by the Place and Urban Design team, prior to finalisation of the detailed design. The PDP, at a minimum, would address the following:
    - materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences
    - location and design of pedestrian and bicycle pathways, street furniture including relocated bus and taxi facilities, bicycle storage (where relevant), telephones and lighting equipment
    - landscape treatments and street tree planting to integrate with surrounding streetscape and rail corridor
    - opportunities for public art created by local artists to be incorporated, where considered appropriate, into the Proposal
    - total water management principles to be integrated into the design where considered appropriate
    - design measures included to meet *TfNSW's NSW Sustainable Design Guidelines -Version 4.0* (TfNSW, 2017) and *Commuter Car Parks: urban design guidelines* (TfNSW, 2017)
    - identification of design and landscaping aspects that will be open for stakeholder input, as required.
- All permanent lighting would be designed and installed in accordance with the requirements of standards relevant to *AS4282 Control of the obtrusive effects of outdoor lighting* (2019).
- The detailed design of the Proposal would comply with Crime Prevention Through Environmental Design principles.
- Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations.
- Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
- During construction, graffiti would be removed in accordance with TfNSW's Standard Requirements.

In addition, the following mitigation measures would be considered.

- Locate site equipment and facilities away from adjacent residential properties to minimise potential visual impact.
- Investigate opportunities for planting areas along the pathway between Belmore Road and the site to be refreshed and additional street trees to improve level of shade, streetscape amenity and comfort for pedestrians.
- Consider options for a vegetated buffer on the western façade of the Proposed car parking structure to reduce visual impact (and radiant heat effects) on nearby residences.
- Liaise with neighbours to the west (18 Webb Street) to confirm landscape treatment within the garden area to the west of the site.
- Select a neutral colour scheme and finishes for the southern façade of light tones to reflect the natural light and be visually recessive when viewed against the sky.
- The louvres or architectural screen along the western and southern façade should be designed to screen cars and headlights from nearby residential properties, as well as provide texture and shadow to reduce the visual scale of the structure.

8. References

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