30-46 AUBURN ROAD, REGENTS PARK

Urban Design Review
Canterbury-Bankstown Council

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Canterbury-Bankstown Council has received a series of submissions outlining planning proposals for the site at 30-46 Auburn Road in Regents Park.

Introduction

Canterbury-Bankstown Council received a request to prepare a planning proposal, after which the project proponent subsequently created alternative concepts based on the initial scheme. McGregor Coxall was commissioned by the Department of Planning and Environment to conduct a comprehensive urban design review of the planning proposal schemes prepared by Pacific Planning and Stanisic Architects for the site's development, and determine and recommend maximum floor space ratio and building height(s) suitable to the site, its development and its context. The assessment process has included site visits and analysis, reviews of the District Plan and Regional Plan, codes and controls, and review of objectives and initiatives contained in local development plans. Presentations were given by Canterbury-Bankstown Council and the proponents of the project, Stanisic Architects and Pacific Planning. Relevant criteria from the background documents have been compiled, and then a detailed review and assessment of the planning proposal and alternative concepts undertaken, with specific elements and attributes tested against the compiled criteria.

This report outlines the following:

- Timeline of the project's evolution, including the various submissions and assessments completed since 2014.
- Site considerations, identifying constraints and opportunities.
- Review of key controls and plans, and compilation of objectives contained therein into the assessment framework and criteria used for this evaluation. The specific documents referred to are outlined in the assessment section.
- Assessment of the current proposal against the accepted criteria.
- Summary analysis of the current proposal.
- Comparative consideration of the current and previous assessments.
- Recommendations for site development and proposed controls.

THE PROPONENT SUBMITTED A SECOND PROPOSAL TO AMEND THE LEP, FEBRUARY 2014.

Project History

The site and various proposals for its development have gone through many stages of proposition and deliberation, and been under consideration and review since 2012. This synopsised timeline is provided to establish the administrative context in which this assessment sits.

1. Current LEP controls for the site are R4 High Density Residential zoning with a height limit of 13 metres and a maximum height limit of 0.6:1.

2. 12-2012. Proponent applied to amend the LEP for the site, to achieve a maximum floor space ratio (FSR) of 3:1, with building heights up to 17 storeys. This would have resulted in a (minimum) height of 52 metres.

3. 02-2013. The former City of Bankstown Council (Bankstown Council) deemed the proposal too dense for the site and precinct within which the site is located, and resolved not to support the proposal.

4. 08-2013. The Sydney West Joint Regional Planning Panel reviewed the proposal noted above in point 2, and the positions of Council and the Department of Planning. Though the panel chose not to recommend the proposal for gateway determination, the panel did offer that the site was suitable for a denser housing solution.

5. 02-2014. The proponent submitted a second proposal to amend the LEP, seeking a maximum FSR of 2:1, and a maximum height of 8 storeys. This would have resulted in a (minimum) height of 25 metres.

6. 04-2014. Bankstown Council resolved not to support the second proposal, deeming a maximum FSR of 1:1 and height of 4 storeys (with a maximum overall height of 14 metres) more appropriate for the site.

7. 09-2014. Bankstown Council commissioned Architectus to prepare a Structure Plan for the Precinct. The report concludes the Structure Plan with site controls recommendations: R4 zoning, a height limit of 18 metres and an allowable FSR of 1.2:1.

8. 2015. Proponent submitted a planning proposal for the site, at an FSR of approximately 4:1, with a maximum building height ranging from 5 to 20 storeys (17 to 64 metres).

9. 1. 08-2015. At the request of Bankstown City Council, Architectus conducted a review of the height and floor space controls in the Structure Plan concluding with the following recommendations: heights – up to 8 storeys with a maximum height of 27 metres overall, with 6 storeys on Auburn Road and 8 storeys elsewhere, maximum FSR of 1.75:1.

10. 2016. In a pre-gateway review, the Sydney West Joint Regional Planning Panel evaluated the second proposal and the positions of Council and the Department of Planning, recommending procession to Gateway Determination, subject to the following conditions:

– Maximum FSR of 1.75:1 and maximum height provisions reflecting the plan of 6 storeys for Auburn Road and 8 storeys for the remainder of the site, with a maximum overall height of 25 metres.

– Establish a process to deliver urban connectivity to and from the site, and for improvement works to establish linkages to Regents Park Village for the benefit of the site and that these works will need to be brought forward to align with development of the site.

11. 05-2016. Bankstown Council moved to adopt the North Central Local Area Plan, and to increase the allowable FSR on the subject site to 2.25:1, subject to traffic and public domain works (including design excellence, improvements to Magney Reserve (noted only as “embellishments… to support the increased residential development on the site”), Auburn Road and local streets and footpaths and provision of a cycle link along Auburn Road).

12. 07-2016. Canterbury-Bankstown Council resolved to lodge a planning proposal to amend their LEP in regards for the subject site, nominating a maximum

of height of 19 metres on Auburn Road, and 25 metres for the remainder of the site. Nominated FSR was 1.75:1, with urban design performance conditions attached to the maximum allowable FSR.

13. 09-2016. The Department of Planning recommended support for the planning proposal (PP 2016 CBANK 001 00), with conditions:

– The Gateway left the FSR open to allow a suitable FSR to be selected for the site – 1.75, 2.25 or a more suitable alternative.

– Remove the requirement for provision of public benefits attached to FSR nominated in the proposal (design excellence, improvements to Magney Reserve, Auburn Road and local streets & footpaths and a cycle link along Auburn Road).

– Conduct flood and contamination studies.

14. 12-2016. Architectus conducted a further review to determine an appropriate FSR for the site. They concluded that 1.75:1 would be the optimum FSR for the site.

15. 02-2017. The proponent lodged a development application for the site, prepared by Stanisic Architects, seeking 137 dwellings. Building heights proposed are 2 and 3 storeys, with an overall site FSR of 0.6:1, which is the current compliant FSR for the site.

16. 04-2017. Canterbury-Bankstown Council commissioned Olsson Architects to conduct a review of the site, the Architectus Structure Plan, and the proponent's proposals for the site, with the aim of determining the most appropriate FSR. The review concluded that a FSR of 1.75:1 would be appropriate for the site, with a distribution of 6 and 8 storey buildings as indicated in the Architectus Structure Plan.

17. 06-2017. Stanisic Architects refuted the Archictectus and Olsson findings, maintaining that an FSR of 2.25:1 was suitable for the site. This assertion was made primarily on the basis that the proposed Stanisic scheme would deliver fewer apartments directly facing the rail line, while satisfying ADG open space requirements. No mention was made in the proponent's statement as to how additional population on the site might be accommodated with a corresponding increase in open space amenity.

18. 07-2017. An Independent Hearing and Assessment Panel review recommended that the planning proposal proceed with the maximum FSR of 1.75:1 for the site. The determination was made based on the following:

– 07-2017. Canterbury-Bankstown Council resolved to endorse the planning proposal to proceed with a maximum 1.75:1 FSR, consistent with the advice received from Architectus and Olsson & Associates Architects.

– SEPP65 guidelines could be adequately satisfied.

– Bankstown 2015 LEP and DCP provisions and objectives could be satisfied.

– The proposed development, if subject to conditions imposed, would have no unacceptable adverse impacts on the local environment.

19. 02-2018. The proponents sought a revised Gateway Determination, seeking an increased FSR (from 1.75:1 to 2.25:1), offering additional public benefits comprising footpath improvements and a tree survey.
20. The purpose of this project is to test and confirm appropriate FSR and building height controls for the site's future development based upon appropriate and desired urban design principles and outcomes for the site.

Project Overview

The Auburn Road Precinct is a unique island within a rapidly evolving mixed residential and light industrial area.

Site Considerations

The Auburn Road Precinct is a unique island within a rapidly evolving mixed residential and light industrial area. The precinct is completely bounded by infrastructure and associated easements, with freight and commuter rail lines on the south, west and northern sides, and a Sydney Water pipeline and easement to the northeast and east. The major local connector of Auburn Road bisects the neighbourhood, connecting directly to the nearby Regents Park and Birrong train stations. The area is well serviced by transport and shops, with Regents Park Village 500 metres away the north, and the train stations to the north and south. Half the precinct, to the east of Auburn Road, is low scale residential fabric, consisting primarily of one and two story single family homes. The west of Auburn Road is current and former industrial land, including the subject site, which is located in the southwest corner of the precinct. At the centre of the precinct is Magney Reserve, a heavily used public park that provides a much-needed green resource for the area's residents, and a spatial focus for the neighbourhood.

The subject site is bounded on the east by Auburn Road, to the south and west by the freight rail line, and to the north by existing industrial uses. These boundary conditions are both constraints and opportunities, and any proposal for the site should consider how these varying circumstances might inform any subsequent proposal. Some of these considerations are detailed below.

Auburn Road is a heavily trafficked connecting road running through the area, with associated impacts from this vehicle movement. At the same time, it is also the major movement axis for both pedestrian and cycle access into and through the precinct, as well as the major link to the nearby rail stations and shopping areas. Thus, any urban response should mediate the negative impact of the through traffic, while simultaneously enhancing pedestrian access and active transport movements along the same axis.

The rail line, some 2 to 3 metres below the existing ground level of the site, also presents corresponding complications and opportunities. The rail noise and visual impact are potential negative impacts on the amenity of ground level open space and low rise residences. However, the infrastructure easement itself offers the possibility of increased building heights with increased opportunity for district views along its edge, as the overshadowing from taller buildings could fall onto the rail lands without impact. There would still remain the potential for land use conflict between the industrial rail line and residential accommodation.

The industrial land to the north similarly presents encumbrances as well as future urban design possibilities. The current industrial zoning and ongoing uses on this site mean that residential buildings facing north along this boundary will be need to consider setbacks and spatial relationships. While there is a stated intention within the GSC's South District Plan to retain employment lands such as this wherever possible, development could take place within this use framework in which the integration of new streets, spaces and built fabric could offer opportunities to stitch together the north and south sides of the precinct.

The site is challenging in its boundary conditions and connectivity limitations – any proposition for the site needs to directly respond to these challenges in amenity and access, while also understanding the potential to use the broader neighbourhood conditions of spatial amenity and local connectivity as integral ingredients in any proposition.

Location Plan

Legend

- Site Area
- Precinct Boundary
- Road Network
- Rail Line
- Train Station
- Sydney Water Pipeline

Figure 1.0 - Auburn Road Location Plan

Assessment Framework

This assessment for proposed development at 30-46 Auburn Road in Regents Park is based on a review of the background documents and the proposed design outcomes for site and immediate area proposed by Pacific Planning and Canterbury-Bankstown Council

The objective of the following assessment is to evaluate the proposed design against a set of established performance criteria in multiple categories, compiled from strategy documents from regional to local levels. The assessment evaluates the proposal against relevant aims and objectives that have been distilled from the South District Plan and other relevant council plans and strategies listed below.

These were the principle documents consulted to compile the following assessment criteria:

- The South District Plan – Greater Sydney Commission
- North-Central Local Area Plan – Canterbury-Bankstown Council
- Open Space Strategic Plan – Bankstown Council

The NSW Apartment Design Guide has also been considered, both in terms of compiling a comprehensive catalogue of performance objectives for the site, but also in terms of the intentions of primary physical controls as applied to residential development sites. These include (at a minimum) building envelope, height and depth; floor space and open space; and building setbacks and separation. Future Transport 2056 has also been considered, in particular the Movement and Place Framework.

The vision, principles and strategies from these background documents have been organised into a comprehensive urban design framework, the criteria from which have been used to assess the final design outcome. The framework has been organised into the following six urban design criteria:

Urban Design Criteria

- **Urban Form + Structure** – spatial legibility and utility, character and materiality.
- **Public Realm + Amenity** – social infrastructure, public amenity and accommodation.
- **Culture + Sociability** – cultural activities, public art incorporation and civic flexibility.
- **Environment + Ecology** – natural resources, sustainable practices and integration of elements into comprehensive natural and man-made systems.
- **Resources + Utilities** – water and energy management, integration of infrastructure and operations.
- **Access + Mobility** – movement, connectivity and interface with surrounding context.

Each of these key criteria provides the basis of the following assessment of the planning proposal for the site at 30-46 Auburn Road, Regents Park as prepared by Stanisic Architects and Pacific Planning. Each criteria has been further defined by additional principles that have been derived from Council's and State Government best practice principles, the South District Plan and in consultation with both the proponent and Council. These principles are outlined below and provide the framework upon which the proposal's assessment has been conducted (see page 12 onwards).

Urban Form + Structure

- Ensure a built form and scale that is appropriate to the location and contributing to a positive urban design outcome, including solar access to buildings in the site as well as neighbouring properties, streets and spaces, respectful of the form and character of contributory buildings.
- Achieve a high level of accessibility and permeability within the site.
- Establish a strong formal identity, incorporating key elements, such as tectonic forms, roofs and facades to contribute to the character of the surrounding district.
- Create a distinct place character, in which all aspects of the development (architectural form, public domain offering and landscape performance) are carefully composed to provide a unified and unique urban place.

Public Realm + Amenity

- Establish an integrated open space network orienting the development to the local network of parks and open spaces.
- Create safe, attractive and vibrant urban public spaces.
- Provide urban furniture, outdoor dining and weather protection in public spaces.
- Offer enhanced user amenity, via pedestrian routes and inhabitation points integrated into the ground planes, built form and other parts of the built fabric.

Culture + Sociability

- Provide spatial opportunity for programs and events to bring creativity and cultural activity into the experience of the precinct.
- Create opportunities for the provision of child care centres, and social and cultural facilities within precinct.
- Allow for spaces within the development and associated public domain catering for informal indoor and outdoor events, with readily deployed infrastructure.
- Facilitate opportunities for public art and artistic expression in the public domain to enhance visual amenity, contribute to cultural identity and foster a sense of community.

Environment + Ecology

- Enhance connections to wider green networks through tree planting, increasing green cover, rooftop planting and continuous tree canopy, including a green boulevard along Auburn Road.
- Maximise absorptive surfaces and landscape areas, and integrate suitable mature, endemic and maintainable planting.
- Deploy elements within the landscape that positively contribute to the environmental performance of the space through shading, evaporative cooling and other environmental measures.
- Utilise recycled, sustainable or highly resilient materials and systems with low-energy, low-carbon or carbon-neutral ratings.

Resources + Utilities

- Contribute to local biodiversity, stormwater management and air quality, using vegetation, water sensitive urban design and biotic systems.
- Reduce mains water demand and sewage system loading by establishing a whole-of-development system to collect, store, treat and re-use all water entering the site.
- Incorporate renewable energy and energy-efficient technologies in the development to establish a best-practice environmentally sustainable precinct.
- Allow for sustainable performance. Lighting, ventilation, heating and landscape should be driven by the highest aspirations for natural performance, and augmented with high-performance strategies and systems.

Access + Mobility

- Encourage bicycle usage by planning for and delivering improved cycle infrastructure and additional cycling facilities.
- Reduce the car parking requirements and encourage car sharing schemes, electric vehicles and alternative forms of transport to reduce congestion.
- Prioritise pedestrian access, permeability, connectivity and safety throughout the public domain and street network.
- Integrate cycling routes, pedestrian access, shared vehicle ways and public transport nodes spatially to create “complete streets” linked to multi-modal movement spaces.
- Connect to and improve existing active transport links.

Urban Form & Structure

The following tables set out the categories for assessment (as detailed above), the specific objectives or performance criteria as applies to the subject site and, lastly, outline assessments on how the proposal meets the stated criteria.

The proposal directly considered was the option with a proposed FSR of 2.25:1. However, as all of the proponent's schemes retain the same layout, building footprints and open space offering, the commentary is equally applicable to these aspects across the various FSR options put forward by the proponents.

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Precinct Scale	The Precinct is intended to be an extension of the Regents Park Small Village Centre, generally retaining the existing low-density residential character. The desired outcomes are to be a compact urban neighbourhood that allows for a transition in scale and density that is compatible with existing low density developments to the eastern side of Auburn Road. This will ensure the precinct site integrates with the scale of the broader industrial and residential character of the neighbourhood.	The proposal, with a series of buildings at 6 and 8 storeys, is compact, urban and dense. There is a transition in height from the existing one and two-storey residential fabric, with 6 storeys along Auburn Road and 8 storeys behind this line of buildings. However, the spatial character of the development is resolutely urban in character, rather than suburban, with available open space mostly being confined to streets. The spatial character of the existing neighbourhoods is directly evident immediately across Auburn Road from the site: a dense row of built form addressing the street, with generous landscaped open spaces beyond, offering spatial release, separation from roadways and recreational amenity. Low density residential character should be addressed in both built form responses as well as in terms of open space: scale, utility, character and legibility. The proposed scheme mostly proposes open space as a secondary outcome of streets, or as marginal spaces along the edges of the development.
Built Form	The built fabric pattern of the precinct will result in a Small Village Centre, consisting of buildings creating legible overall urban form, with corresponding public spaces servicing the recreational and social needs of the residents. While buildings are expected to be generally of a similar height it is also expected that the urban neighbourhood will be composed of a diversity of building forms and corresponding architectonic expression.	The proposal IS a dense urban composition, with proposed building heights within a close range of 6 to 8 storeys. While the proposal indicates building massing only, the forms, unit layouts, ground floor uses and deployment on the site and relative to the street suggest a single typology, rather than a diversity of forms. The building layout creates a precinct focussed on narrow streets, typical of a portion of a dense urban fabric, rather than developing the spatial sensibility of a village centre, as characterised by the surrounding residential grain around Magney Reserve. This deployment of the built form results in streets as public space, which are of limited utility, while also receiving limited solar access. The shadow and solar diagrams in the Appendix illustrate these limitations.

Urban Form & Structure

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Site Permeability	The street and block pattern should integrate the eastern and western side of the precinct across Auburn Road and create greater permeability and connectivity within the greater area to open spaces, schools, centres and transport. A fine grain network of interconnected streets will provide clear addresses for residential development and increase safety, surveillance and social activation. Dead end streets should be avoided.	The main axis of the proposal is a pedestrian space running east-west, and roughly aligned with Morris Street in the existing residential area east of Auburn Road. This street connects with two other internal streets, also pedestrianised, accessible only for emergency and service vehicles. There is no car access to or parking adjacent to any of the buildings - car access is solely via basement ramps at two points on Auburn Road. The streets do not create an internal network, and terminate at the site boundary with the rail line. Pedestrian connections between streets are within and under buildings, rather than being external laneways. No future connection north to Gunya Street is possible.
Place Identity	The precinct development should prioritise a people-friendly public realm with open space amenity and hierarchy as central organising design principles. Magney Park is a well-located spatial resource in the centre of overall precinct. Surrounding developments should reinforce the Park as a focal point for the community, and provide built form and precinct connectivity to address the park and provide greater community activation.	The development does not respond to Magney Reserve in any major way, save for locating a pedestrian crossing on Auburn Road, away from the main precinct entry point, and adjacent to one of the basement carpark ramps. The corner of the development does not respond to the adjacent spatiality or amenity of the park. Internally, there is no clear hierarchy of public open space, only a series of long, thin movement spaces tightly defined by building envelopes.
Character	Community aspirations are to maintain a suburban neighbourhood feel with well-defined and tree-lined streets, and accessible and safe parks and green spaces. Attracting a diverse demographic ranging from young families to seniors, the precinct should be a "neighbourhood of homes" within a short walking distance of a wide range of local services.	Given that nearly all vehicular access to the site will take place underground, the ground plane spaces will not function as genuine "streets," but mainly pedestrian access to ground floor units. Concentrating so much access and movement in the basement runs counter to activating the ground plane. The narrowness of the streets (as little as 6 metres) will necessarily limit the scale of viable tree planting, while the open spaces seem too sequestered to encourage community interaction.
Building Footprints	Community aspirations are for a variegated built fabric of low and medium–rise buildings augmenting the social amenity and infrastructural capacity of the precinct.	While the building depths generally comply with the recommendations, the street frontages are very long, over 60, 80 and 100 metres on various blocks. While the blocks have through connections and recesses, the continuous built form of the building overhead reinforces the overall lengths. Internal street setbacks do not adhere to the standard, nor that of the requirement to minimise units directly facing the industrial land. While the ends of buildings typically face the rail line, two blocks in the southwest corner face the rail line over the communal open space.

Public Realm & Amenity

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Open Space Network	The network of open spaces should emphasise a human-scale public realm that has a strong sense of place and reinforces neighbourhood identity and availability. The development should provide a centrally located open space that offers the potential for the maximum number of apartments to have a landscape outlook, as well as maximum flexibility for community uses. Additionally, the major open space should be supplemented by small pocket parks and intimate gathering spaces.	The development provides a central pedestrian street, which is questionable in its amenity both for the development and the surrounding community, given its constricted width, its hardscape treatment, the collection of built elements within it and restricted solar access, particularly poor in the southern parts of the site. Most units face the narrow streets and adjoining buildings, rather than open space. The open space offering is a collection of small pocket parks, not a generous public space creating a singular identity.
Public Space Delivery	Development should deliver active and protected outdoor places with high quality landscape, materials and fixtures. Generous building setbacks and deep soil zones within spaces provide the opportunity for significant tree planting to create user amenity, mediate climate and mitigate outlook and noise impacts. The primary open spaces should be directly connected, spatially and visually to the majority of residential buildings. Streetscapes should be developed as part of the public open space network.	As noted, the limited width of the internal streets precludes generous tree planting and substantial landscape outcomes. There is a network of variegated spaces and elements within the main pedestrian street; however, the elevated and segregated relationship between the ground floor unit access and the public streetscape limits the function of the street and footpaths as genuine urban spaces.
Social Infrastructure	Setbacks from adjacent sites and from within buildings in the site should be configured to provide usable spatial amenity for residents and visitors. Within the network of open spaces and residential streets throughout the precinct, development should provide gathering spaces that encourage social interaction, supported by a matrix of robust and high quality social infrastructure (seating, play equipment, outdoor dining, shade structures, water features, cycling assets, etc).	As noted, the narrow streets obviate the pattern of street, footpath and active landscaped setback as suggested in the relevant open space guidelines. Gathering spaces and associated infrastructure are provided, but separated from residential units and their open spaces. As above, concentrating much residential access via the basement carpark correspondingly reduces the potentials for the streets to become active public spaces.
User Amenity	Pedestrian links in the precinct should directly connect to and enhance the footpath network on both sides of Auburn Road and along the streets around Magney Reserve. Along this movement network, provide a range of open space facilities to cater for a diverse range of community activities and cultural events, in a range of recreational settings to support those community demands (dog runs, skate parks, playgrounds, etc). Social spaces should reflect the needs of the community now, and allow for future evolution.	The pedestrian network is mainly internalised to the site, and not oriented to potential connections with the surrounding street and footpath network. The main precinct entry does not connect to this network, save by the single crossing of Auburn Road suggested at one point. The organisational network does not allow for expansion into a larger street grid if the site to the immediate north is redeveloped in future. Conversely, the proposed shared path is a closed loop until the neighbouring site is redeveloped - a cycle connection on Auburn Road would be more productive.

Culture & Sociability

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Precinct Activation	Development should contribute to the diversification of village centres, through the range of activities afforded in the precinct, accessibility and connectivity to resources within and without the neighbourhood, and through the capacity to accommodate a combination of living choices responding to changing local needs.	The development proposes a childcare centre and a café on the ground plane, concentrated around the precinct entry. An entry is indicated to a communal room, though it is unclear if this is in the basement or on an above-ground level. Communal spaces should relate directly to ground level open space.
Cultural Evolution	Development of neighbourhood precincts should take into consideration the reality that places will need to change and evolve, to accommodate different activities over time, as village centres experience changes in demographics - culturally, economically, socially and in age and family composition.	Changing demographics in the area (suggesting both an increase in older individuals and younger families) will result in more residents spending large parts of the day within the precinct. A range of spaces should be proposed to cater for the shifting needs of these likely residents.
Social Capacity	The Auburn Road Neighbourhood Precinct Structure Plan recognises the key role of Magney Reserve in bringing people and activities together in the one location, providing a strong focus for the surrounding community. Increased local development needs to add to this resource with a quality public place meeting the needs of the growing community.	The site layout proposed offers little in terms of multi-purpose, large scale communal open space that could cater for the needs of even a small fraction of the intended population increase on the site. This will necessarily lead to increased impact on Magney Reserve, as the only available open space resource locally.
Civic Interaction	Support socialising in neighbourhoods by understanding social networks, the constituents and their activities, and providing spatial and social infrastructure to support this matrix of uses. Secondary social areas such as a distinct arrival space, relaxation areas, gardening spots, entertaining areas and individual and communal work spaces should enrich the spatial offering.	There are a series of dedicated and incidental meeting spaces deployed in the central pedestrian street; other social assets are remotely distributed. The precinct entry could be enhanced with more definition, activity and connectivity, while internal spaces for residential and local use could be expanded.

Environment & Ecology

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Green Grid Connectivity	The metropolitan initiative of the Green Grid identified in the District Plan potentially links local and district parks, open spaces, bushland and sports fields with a network of walking and cycling paths, enhanced with landscape and environmental amenity. Developments should reinforce and add to this network of spaces, links and atmospheres, including increasing tree canopy and connected migratory routes for local fauna.	The wall of built form along Auburn Road precludes a clear and expansive green connection between the precinct site and Magney Reserve. The corner of the site directly opposite the Reserve should better relate to the park and its tree canopy. Associated pedestrian and cycle connectivity should reinforce this connection.
Landscape Areas	Large urban renewal initiatives should contribute to an increase in the quantity, quality and access to high quality and diverse local open space, whether new landscapes or improved spaces. Desirable qualities include significant (dense and diverse) planting, increasing tree canopy, enhancing environmental experience and creating spaces for active and passive individual and community uses.	Limitations to the public communal space outlined in the proposal include the following: limited utility of streets due to narrow width, inactive streets due to much access being underground, limited solar access for most public spaces due to site configuration, lack of a central generous public meeting space, and potential for negative impacts on main social spaces (outdoor dining, playground) from eventual development to north.
Climatic Mediation	Use building deployment, design, orientation and integration with landscape and water initiatives to mitigate the urban heat island effect and reduce the impacts of extreme heat events. Tree canopies, water and landscape elements, water management and micro-climate manipulations can make urban spaces amenable and habitable even in extreme weather conditions.	Some climatic mediation is indicated, in the outdoor dining area. Given the regular occurrence of extreme heat events in the western suburbs, a more concerted program of mediation could be developed, using planting, trees, shade structures, water courses, evaporative cooling and hyper-irrigation to mitigate extreme conditions while also providing atmospheric enhancement.
Ecological Sustainability	Encourage improved biodiversity outcomes by enhancing and increasing habitat, creating urban bushland pockets or linking to remnant vegetation areas. Integrate environmental sustainability into open space and landscape planning and minimise impact through suitable planting and water management practices.	Planting scenarios should link up to residual pockets of dense vegetation around the site, like along the railway cutting, alongside Auburn Road and within Magney Reserve. Ground cover, shrub level and canopy connectivity should be encouraged.

Resources & Utilities

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Carbon Footprint	Consider the reduction of carbon emissions by allowing for incorporation of systems to minimise energy, water and resource use, and waste and material generation. Allow for re-use and recycle activities within the precinct.	Proposal is a massing study only - no systems or principles are yet indicated within the structure of the scheme.
Water Cycle	Improve environmental sustainability through efficient water management and landscape design. To maximise water conservation, ensure that the development allows provisions to harvest, store, treat and re-use site and rainwater across the precinct, for gardens, services, laundries and WC's.	Given the amount of site coverage being proposed, the proposal should integrate a comprehensive system of water reclamation and re-use on site. This could incorporate naturalised water movement within the public domain, as well as irrigation contributions to Magney Reserve from surplus reservoir collection.
Energy	Use building design, site deployment and orientation and configuration to enhance natural lighting and ventilation to apartments, communal spaces and external areas. Investigate new technologies and incorporate facilities to encourage the use of car-sharing, electric cars and hybrid vehicles (dedicated pods, charging stations, pick up and drop off areas, etc).	Building envelopes are potentially amenable to high-performance environmental solutions; the through site connections and recesses should be used to enhance this performance. Solar access to outdoor communal spaces remains problematic. Lack of on-street parking preclude legible access to share vehicles for the district.
Performance	In planned precincts and significant urban transformation projects, support precinct-wide initiatives to expand renewable energy generation and increase energy and water conservation and efficiency, through innovations in materials, construction and building management systems.	Proposal is a massing study only - no systems or principles are yet indicated within the structure of the scheme.

Access & Mobility

Urban Design Criteria	Precinct Objectives	Evaluation of Proponent's Concepts
Active Transport Network	Major developments should increase and improve the walkability within precincts and to local centres, through a network of safe and amenable pedestrian links. A safe and fully connected cycling network should be established within the precinct and to local centres and transport nodes, including formalising a north–south regional cycleway along Auburn Road, and providing easily accessible cycling parking and storage within the precinct.	The connectivity suggested is poor, and confined simply to internal circulation within the site. The proponent has expressed their commitment to contributing to the creation of a dedicated cycle connection to the rail stations at Birrong and Regents Park - this is not indicated, nor is the integration into the movement network on and through the site. Bike storage and visitor bike parking is not incorporated into the public domain design.
Car Parking & Access	Traffic congestion along Auburn Road and intersection capacity necessarily limits growth in the precinct without longer term infrastructure improvements. In advance of these resolutions, parking and access proposals should consider site access via surrounding public transport options. Future adaptation should be considered, including opportunities for precinct-based provision of adaptable car parking and infrastructure connections in place of completely private provisions.	Automobile access has been emphasised as the primary means of accessing the site and residences. However, segregating traffic entry to the perimeter also reduces activation of the internal streets. No further detail has been provided on the parking strategy, or it's evolution.
Pedestrian Prioritisation	Building on "complete streets" initiatives, the development should prioritise opportunities for people to walk, cycle and connect to public transport. Streets and access driveways and crossing should dampen traffic movement in the neighbourhood, making streets safer, more amenable, and increasingly viable as public spaces in which to walk, cycle, play and socialise.	As noted, little emphasis has been placed on external movement networks and connections, despite the criticality of these modes in district and regional transport strategies. A "complete streets" approach to internal precinct streets has not been adopted, at the potential expense of access, activation and legibility.
District Connectivity	The local options in metropolitan rail and bus services and Auburn Road will continue to provide a high level of local and regional accessibility. However, there is an opportunity to provide improved pedestrian and cycle amenity on Auburn Road, connecting to services and amenities – particularly the railway station, shops, local schools, and local and regional open space. Developments should recognise and balance the dual function of streets as movement corridors as well as places for people.	Internal streets are proposed as public spaces only, without associated movement systems within them as well.

Summary Analysis

As noted in the assessment framework, the current proposal for the site does not fully meet the performance objectives set out in the District Plan, the Local Area Plan and the Open Space Strategic Plan, especially in terms of district connectivity, precinct integration and open space delivery. The major areas in which the proposal does not fully support the objectives noted above are as follows:

- **Urban Response**. The proposal does not acknowledge or respond to Magney Reserve, as the spatial and social heart of the precinct. The northeast corner of the site could make a more deliberate and direct response to the Reserve, visually, spatially and in terms of connection. Similarly, the urban form of the proposal does not respond to Auburn Road, as the major street running through the neighbourhood, and the critical link to the nearby train station. The proposition is insular, rather than engaging in a dialogue with the surrounding urban fabric.

- **Street Network**. The pedestrianised, dead-end streets in the site (accessible for service vehicles only) preclude any future connectivity and integration with a future street network within the sites to the north, linking to Gunya Street. Similarly, the Regents Park street network to the east of Auburn Road is not acknowledged, either as a network to intersect with, or a block pattern to replicate.

- **Open Space**. The open space proposed is not an expansive urban gesture, suiting the size and nature of the site, the development and the surrounding precinct; it is a collection of small residual spaces, many of which will achieve modest solar access. The proposal also lacks a clear spatial hierarchy on the site, with a larger multi-purpose space, linked to a series of more private, dedicated spaces at more intimate scales.

These summary assessments reflect and reinforce the conclusions reached in both the Architectus and the Olsson reviews and analyses. Both reports note similar limitations in connectivity, enhancement of an active street layout, and delivery of amenable and usable open space. Both reports also advocate in favour of the site layout illustrated in the Structure Plan, a configuration which offers the possibility of more effective precinct connectivity, a legible and active street network and a more generous open space offering, in terms of hierarchy and environmental amenity.

Given the above considerations, it is clear that most of the limitations inherent in the current planning proposal for the site derive from site layout and the disposition of buildings and associated open spaces, and not necessarily from specific attributes relating to density or height. However, the limitations noted are highlighted by the bulk and scale of the proposed built form, which create heavily overshadowed external spaces. Only considerably lower building heights and narrower building footprints would render the current layout acceptable, from a public space amenity point of view. These notional reductions would also alleviate population pressure on the limited spaces provided in the scheme.

The current proposed scheme performs poorly in the provision of open space, in terms of its scale , utility and solar access. Any suggested increases in floor space to the current scheme (which could only be realised through increased height) would further exacerbate the impacts on solar access to the public spaces, while placing additional pressures on the network of small-scaled spaces nominated within the proposal. Thus, with the existing layout, the suggested bulk and scale of the built form creates most of the poor performance, in terms of open space amenity. However, other limitations would still remain were the bulk and scale to be reduced, including the orientation of the major open space, and the limited social utility of the streets proposed as public space.

Site Considerations

Figure 2.1 - Auburn Road Consideration Diagram

Legend

- Site Area
- Precinct Boundary
- Road Network
- Rail Line
- Train Station
- Sydney Water Pipeline

Summary Analysis

Recommendations

Given the above evaluations, it seems clear that most of the limitations inherent in the current planning proposal for the site derive primarily from site layout and the disposition of buildings and associated open spaces, and not necessarily from specific attributes relating to density or height. However, the limitations noted will be exacerbated by any increase in density, which will necessarily drive increased height. This increased height could impact negatively on the amenity of the proposed open space, while adding considerable population pressures onto the network of small-scaled spaces provided within the proposal.

Overall recommendations in each urban design criteria are:

Urban Form & Structure

Develop a permeable urban order, connected to the spatial framework of the precinct, with activated streets and public spaces, and a clear spatial hierarchy that informs the development's structure plan and character.

Public Realm + Amenity

Create a network of generous, multi-layered open spaces directly connected to residential blocks, precinct spaces and local movement systems.

Culture + Sociability

Craft a series of multi-purpose areas with a hierarchy of internal and external spaces for both dedicated and flexible uses.

Environment + Ecology Propose a series of green links to, through and around the site, linking highly performative and active landscapes with the surrounding open spaces and vegetated corridors.

Resources + Utilities

Incorporate a comprehensive water management system to collect and re-use rainwater, as well as using its natural processes within the public domain.

Access + Movement

Prioritise pedestrian and cycling movement along active streets shared with low-level automobile movements.

An alternative structure plan has been prepared to illustrate the potential benefits resulting from addressing these criteria. Some of the benefits resulting from the alternate plan include a spatial framework and hierarchy comparable to that existing in the neighbourhood, and preserves and adds to that spatial order.

The central space is legible, and directly connected to the surrounding street network. Its scale and flexibility allows for a large range of uses catering to a wide variety of user groups, while the secondary network of external spaces can be linked directly to residential blocks, and offer dedicated uses.

The landscape deployment can readily integrate with surrounding green spaces and links, creating further habitat and environmental performance, while concurrently providing pedestrian and cycle paths integrated with the open space, but distinctly segregated from vehicle roadways.

The alternate structure plan and its outcomes are further outlined and assessed in the Appendix at the end of this report.

Site Recommendations

Legend

- Site Area
- Precinct Boundary
- Road Network
- Rail Line
- Train Station
- Sydney Water Pipeline
- Active Transport Network
- Green Links
- 3676m² Proposed Green Spaces
- Proposed Buildings
- Building Ends

Figure 2.2 - Auburn Road Response Diagram

Structure Plan

Reflecting on the conditions noted above in the Site Considerations, it should be possible to achieve a version of the Structure Plan that satisfies the specific urban design aims for the precinct, while also responding more directly to the opportunities inherent in the precinct and boundary conditions noted. This amended structure plan would allow for the following:

- A legible and active street network, tied into Auburn Road and responding to the fabric of urban blocks in the precinct. This network would allow more residences and building entries direct street frontage. Residential vehicular traffic would enter and leave sub-surface parking areas mainly from access points near Auburn Road, minimising commuter traffic through the shared streets within the site, with single access points for entry and egress. Secondary access points to the underground parking could be incorporated into buildings deeper in the site, using the suggested street network framing the central green. The street network would also have the potential to be extended northward in future, into the current industrial land, to eventually extend the grid to Gunya Street.
- A spatial hierarchy of open areas, with a central green as a multi-purpose "commons" for the site, with a series of smaller, more private, spaces leading off this central space, in between buildings. These spaces would be owned and maintained by the development, and could be secured from public access after-hours. The central space is oriented for maximum solar access, as well as the possibility to be enlarged or enhanced should the land to the north be redeveloped. In the interim, the layout ensures no buildings face the current industrial lands, only the short ends of blocks. The linear nature of the secondary open spaces similarly reduces their exposure to the peripheral rail line. The central open space allows a multi-purpose zone capable of being used for many simultaneous activities as well as aggregate events and activities that the population density of the development will contain. The size of the central open space has been determined in respect to several factors:
  - ADG requirements for open space, and communal open space, for residential developments. This allows for a range of programs to cater for a variety of age groups, with opportunities for deep soil planting.
  - Relationship to complementary open spaces within the greater precinct; namely, Magney Reserve.
  - Per-person size requirements for open space catering for large events. In this instance, a communal event catering for all the residents of the development 657 units or 1314 residents) at a rate of 2.5m^2 per person.
  - The usable landscape area of the central common space is 3,676m2. This compares with approximately 766m2 suggested in the proponent's scheme for the main park space.
- The location for the child care centre has been chosen based on its positioning away from traffic yet nearby to a drop-off point, privacy, solar access to the north, and good visual surveillance. Dense screen planting can be utilised along the boundaries to adjacent industrial lands and railway line to further enhance safety and privacy, whilst mitigating the effect of sun exposure, an additional benefit which we would want to provide anyway. This location is flexible, dependent on the nature of ongoing uses in the industrial land to the north.
- A potential extension of the gradation of building heights along the curve of the rail line, from the highest point at the northwest corner of the site graduating downwards in height towards Auburn Road. The boundary conditions of the rail line suggest that some additional building height might be possible towards the rail line to the west, and away from both the central open space, and the furthest away from Auburn Road. Building heights on Auburn Road would remain at 6 storeys, while the western and southern sides of the central green would be defined by 8 storey buildings. The lower levels of the notional higher buildings along the rail line could incorporate the requisite social and communal spaces for the development, eliminating the prospect of lower level residences being negatively impacted by the proximity to the rail line. This consideration reflects view sheds from the south and west, both approaching the site, as well as from surrounding residential neighbourhoods. The location nominated for potential increased height beyond 8 storeys is the furthest from surrounding residences within and surrounding the precinct, both in terms of view impacts and well as any potential overshadowing, which would be concentrated for the most part on the adjacent rail lands.

Site Structure Plan

A
AREA : 861sqm
FLOORS: 12
GBA: 10,324
FLATS: 122

B
AREA : 993sqm
FLOORS: 8
GBA: 7,944
FLATS: 93

C
AREA : 500sqm
FLOORS: 8
GBA: 4,000
FLATS: 47

D
AREA : 558sqm
FLOORS: 8
GBA: 4,464
FLATS: 52

E
AREA : 585sqm
FLOORS: 8
GBA: 5,850
FLATS: 68

F
AREA : 886sqm
FLOORS: 8
GBA: 7,088
FLATS: 83

G
AREA : 885sqm
FLOORS: 6
GBA: 5,310
FLATS: 62

H
AREA : 663sqm
FLOORS: 6
GBA: 3,978
FLATS: 46

I
AREA : 1399sqm
FLOORS: 6
GBA: 8,394
FLATS: 98

Legend

- Cycleway
- Green Links
- Shared Pedestrian Cycle Path
- Pedestrian Crossing
- Pedestrian Route
- Activation Zone
- ① Central Green
- ② Day Care Centre Playground
- ③ Secondary Open Spaces
- ④ Car Entry Points
- ⑤ Dining Garden

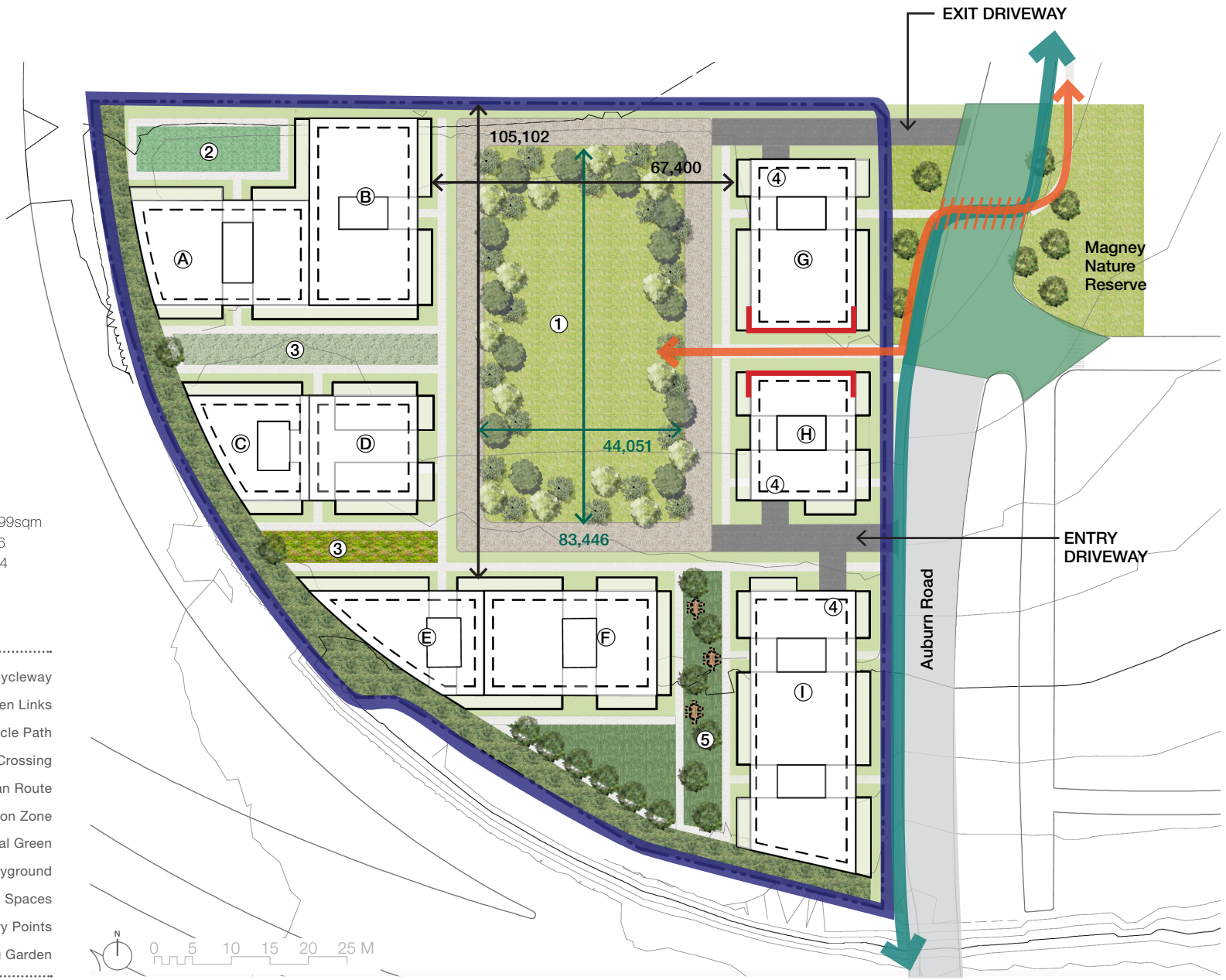


Figure 3.0 - Auburn Road Structure Plan

Structure Plan

These strategies are illustrated in the schematic plan, which also indicates secondary urban design considerations to further integrate the site development into the precinct, including movement and spatial relationships to Auburn Road and the precinct street network, pedestrian and vehicle entry points off Auburn Road, and movement, spatial and green links between the site and Magney Reserve.

Quantitative breakdown of the schematic plan. Unit numbers have been calculated based on an average area of 85m^2 per unit. Greater or lesser unit yields within the given envelopes may result from different mixes in apartment types and sizes – these changes in unit density will affect the site population, but only marginally, so absolute unit size is not a prime consideration in this instance.

The site area is 20,400 m^2. The gross building area (GBA) is 56,182m^2. These calculations adopted a factor of 0.75 to calculate net floor space, resulting in a gross floor area (GFA) of 42,136m^2 for this schematic configuration. This figure results in an overall site FSR of 2:1. The 0.75 factor is a conservative figure, which considers the proportion of structure, servicing and circulation areas to be deducted from gross floor area (in this instance, 25%). Greater efficiencies in internal

Block	Storeys	Units	GBA (m^2)
A	12	122	10324
B	8	93	7944
C	8	47	4000
D	8	52	4464
E	8	68	5850
F	8	83	7088
G	6	62	5310
H	6	46	3978
I	6	98	8394
Totals		**657**	**56182**

design and space planning may result in greater efficiencies, leading to a higher floor space ratio within the given building envelopes. This would be a product of the interior architectural design, and while it might increase the proponent's eventual yield, such changes would not increase either the building heights nor external envelope sizes

The proposed structure plan achieves an overall architectural and urban design outcome for the site that is more appropriate for the precinct. Beyond the improvements in internal performance in open space and residential amenity, the proposed structure plan also establishes clearer and more positive relationships to the surrounding neighbourhood, protecting and enhancing its current assets and future character. Some of these specific attributes are:

- **Place Identity.** The proposal would deliver a well-defined precinct, comprised of both spatial legibility and built form composition.

- **Spatial Network.** The building deployments across the site allow for a series of highly usable open spaces, servicing residents and the wider community. This includes a major multi-purpose community-scaled open space, and secondary spaces with specific uses and characters.

- **Open Space Amenity.** The proposal results in high levels of solar access through mid-winter, provides adequate separation between buildings ensuring residential privacy, and allows for significant deep soil areas, tree planting and landscape features.

- **Environmental Performance.** The proportions and orientations of the buildings will allow for good SEPP 65 outcomes in solar access, natural ventilation and internal amenity.

- **Movement and Access.** The scheme provides a clear street grid, segregating major car movements from pedestrian and cycle accessways, while allowing surface access to all buildings for deliveries, drop off and visitors.

- **Connectivity.** The site, its spatial network and its movement systems are stitched into the surrounding neighbourhood via street links, cycleways, pedestrian connectivity and green grid connections.

- **Social Interaction.** The central space, secondary spaces and street network allow for a range of accommodation and activity at many scales, from precinct-wide to small scale events and interactions.

- **Inhabitation and Activation.** The central space, secondary spaces and street network directly relate to the buildings that form them, assuring high degrees of residential use and passive surveillance.

- **Minimisation of overshadowing.** Shadows from the development will have most impact on the adjoining rail lines and other non-residential land, and will not impact adjoining existing residential development.

- **Neighbourhood Scale.** When viewed from key vantage points the maximum scale of buildings across the site are appropriate in scale to the local existing development and the site's topography (see photomontages A-D, figures 1);

- **View Catchment.** The scale of buildings as viewed along Auburn Road will contribute to the character of the site as a precinct, while not dominating the surrounding neighbourhood. (see photomontage A Figures 1, 2).

Given the potential benefits outlined above in site and precinct connectivity, open space delivery and environmental performance illustrated in the schematic layout, it is our conclusion that an FSR of 2:1 could be considered appropriate for the site. Any planning proposal seeking this potential outcome would need to be accompanied by positive responses to all of the urban design considerations outlined above.

APPENDIX

Appendix

Supporting Documentation

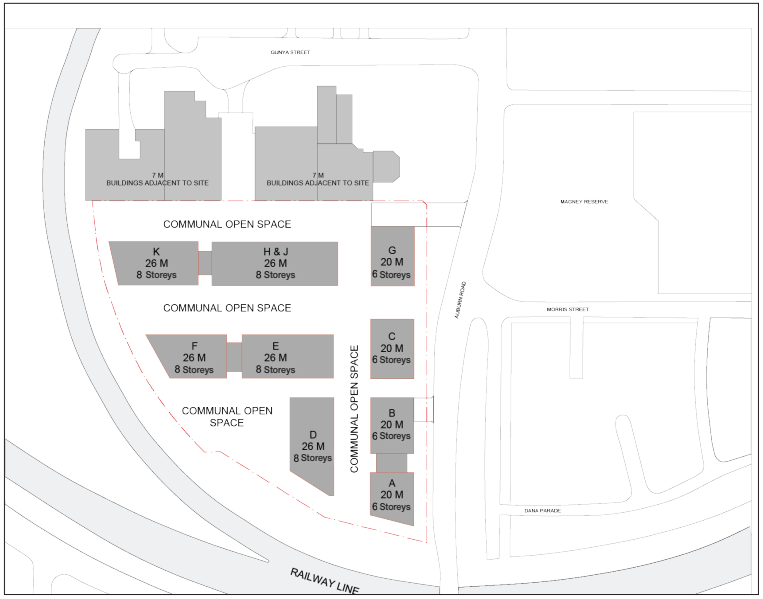
The following supporting section illustrates several structure plans for the Auburn Road Precinct, comparing them in terms of solar access to the public open space. These include the Architectus Structure Plan of 2014, with building heights from 6 to 8 storeys, the proponents 1.75:1 scheme with similar heights and the MCGC structure plan prepared for this assessment, which includes buildings of 6 to 8 storeys with a single 12 storey tower. An additional alternative is also illustrated, which shows the impacts of an alternate MCGC structure plan with additional heights along the rail line.

The shadow diagrams provided include cast shadows on June 21, at hourly intervals from 9:00am to 3:00pm, aggregate shadows showing continuous hours of sunlight on open space, and area studies showing parts of the open spaces receiving two or more hours of sunlight between 9:00am and 3:00pm.

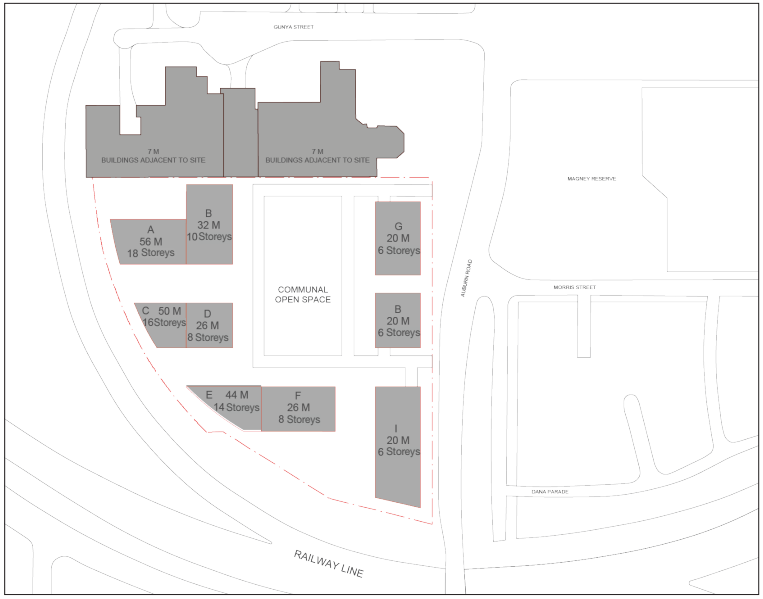
Additional information has been provided on the alternate MCGC structure plan, indicating the potential view impact of increased heights on the surrounding neighbourhood streets, compared to the recommended structure plan.

Proposed development by Architectus- Building Heights

Proposed development by McGregor Coxall- Building Heights



Proposed development by Stanisic Architects- Building Heights

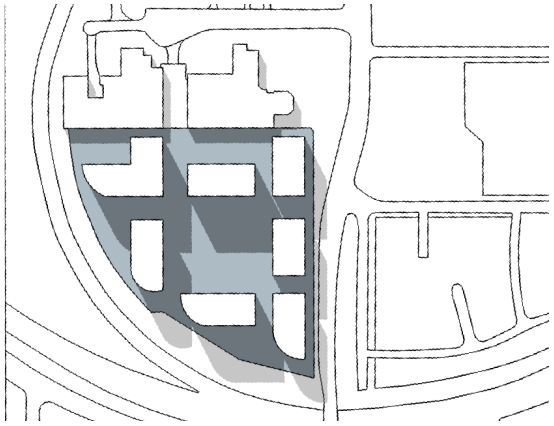


Alternative McGregor Coxall (Towers)

LEGEND

- Site Boundary
- Proposed Building Envelope
- Existing Buildings Adjacent to Site

Architectus Scheme
Cast Shadow Study



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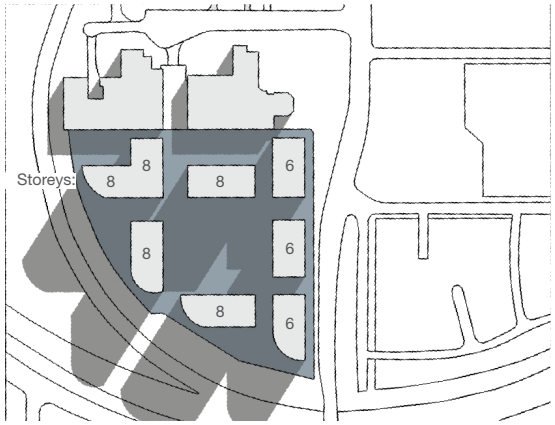

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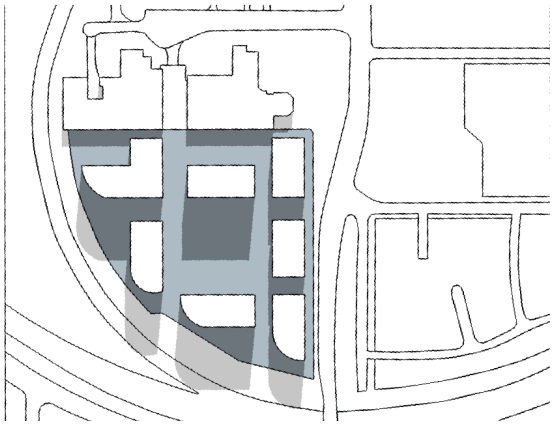

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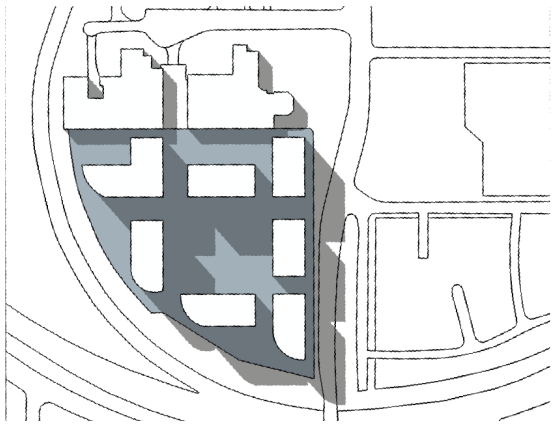

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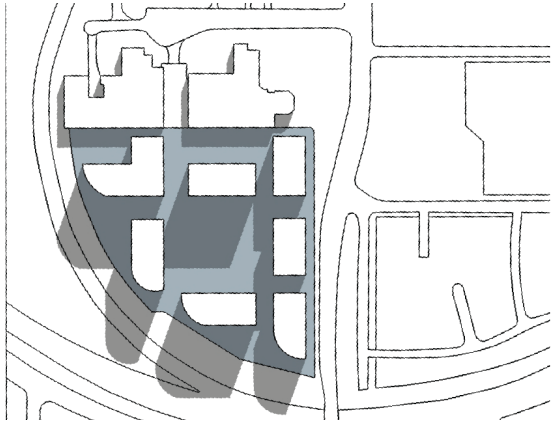

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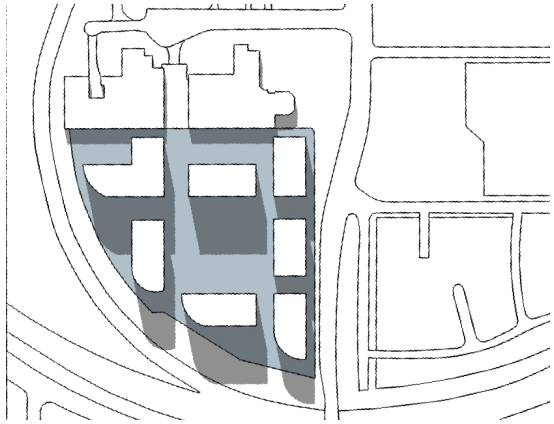

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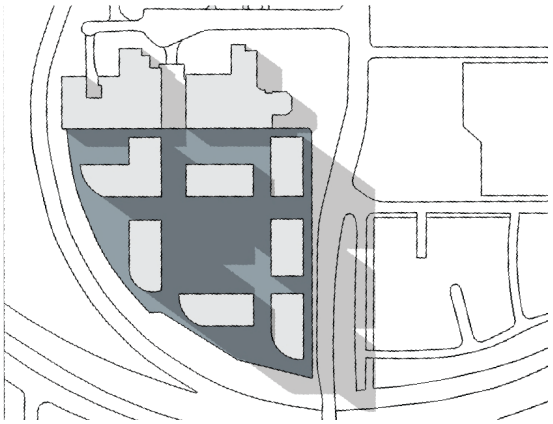

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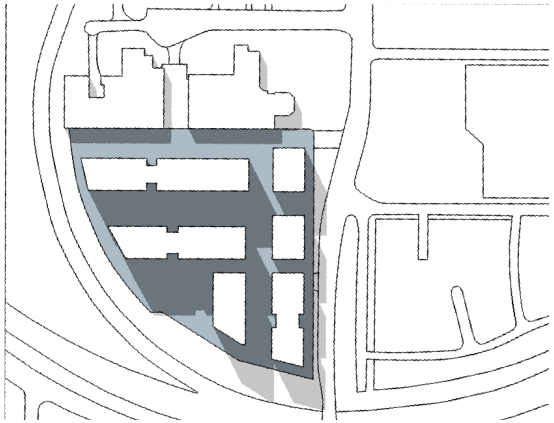
Stanisic Architects Scheme Cast Shadow Study



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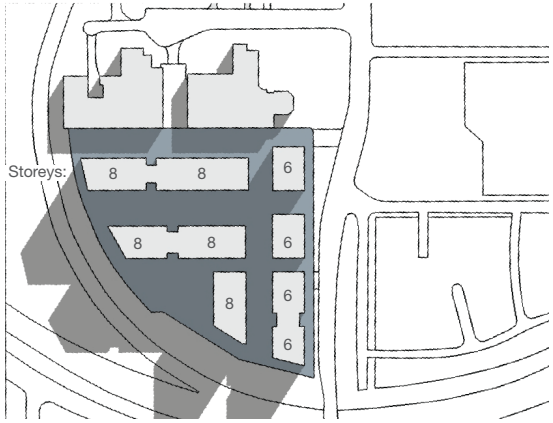

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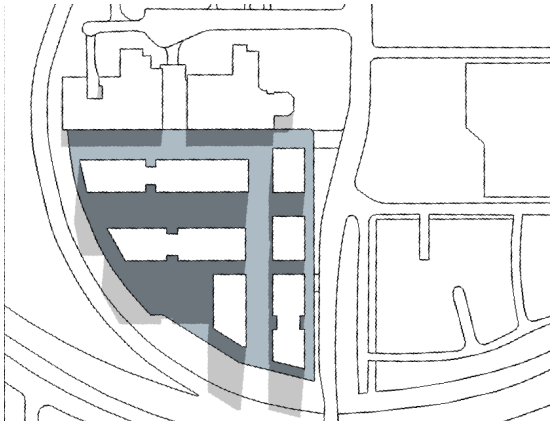

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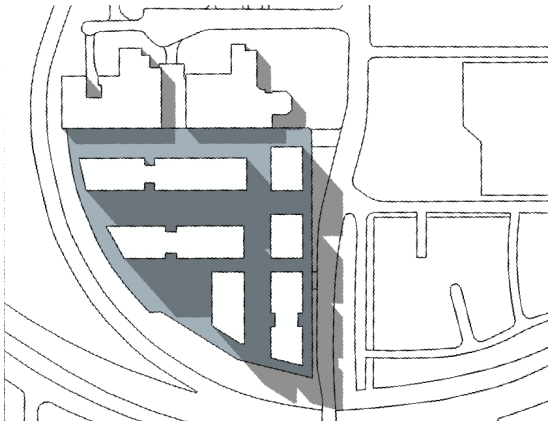

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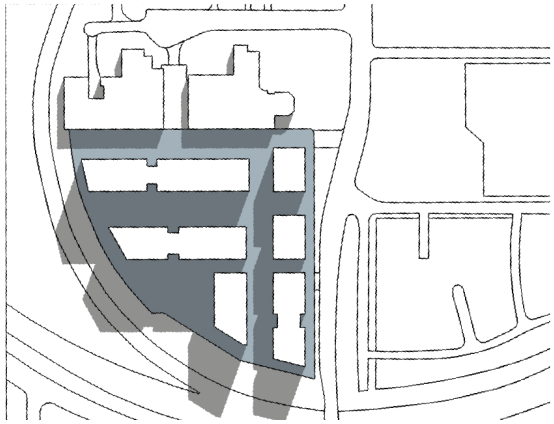

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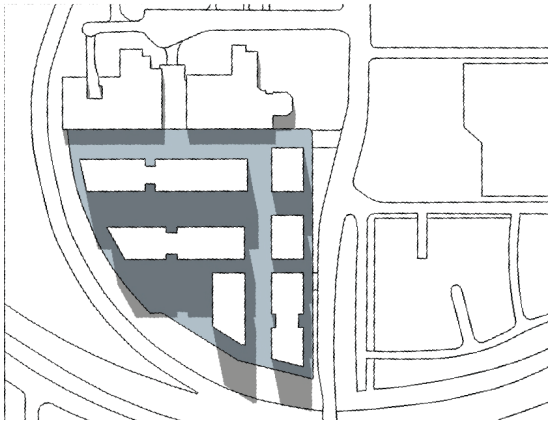

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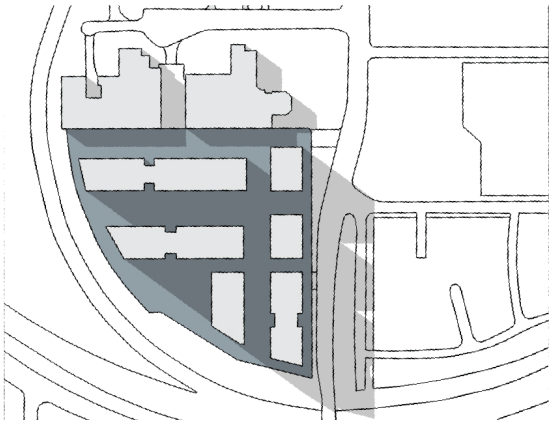

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McGregor Coxall Scheme
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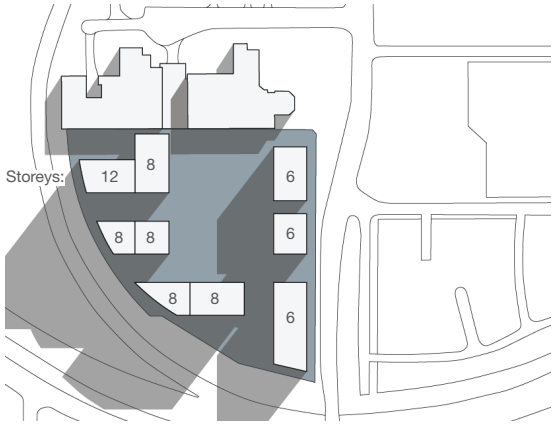

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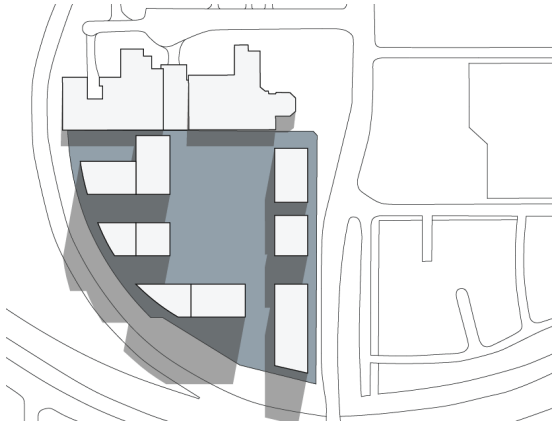

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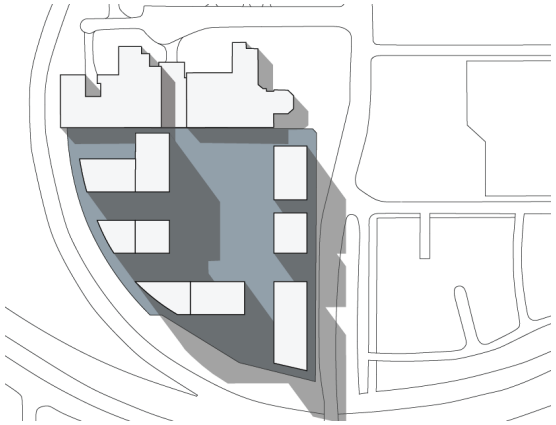

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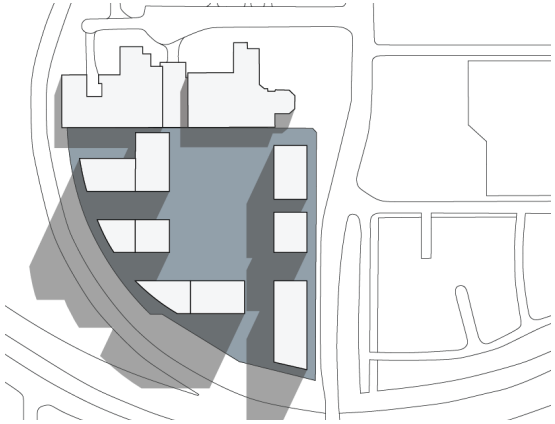

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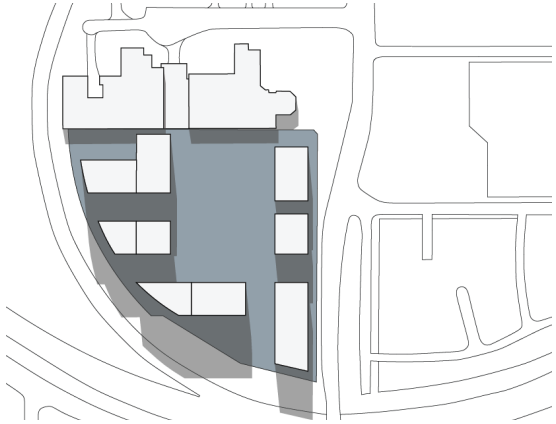

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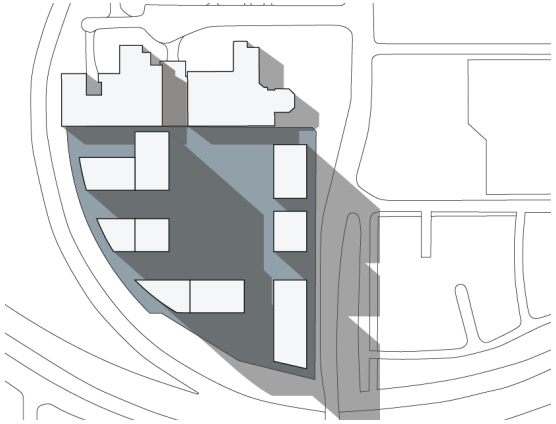

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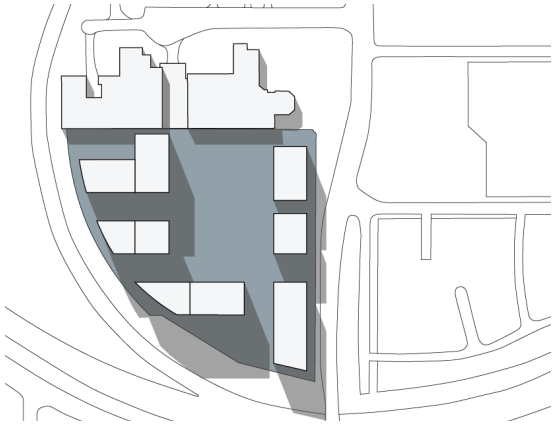

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MCGC Alternate Scheme
Cast Shadow Study

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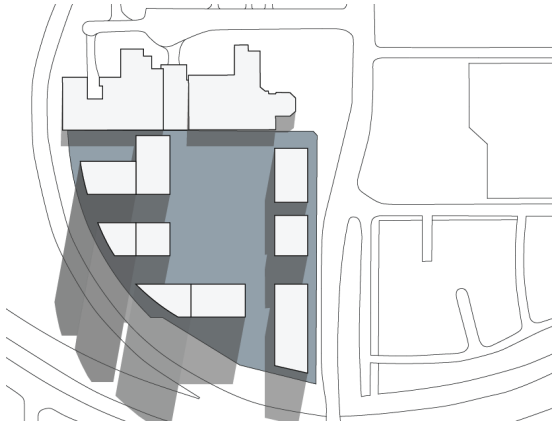
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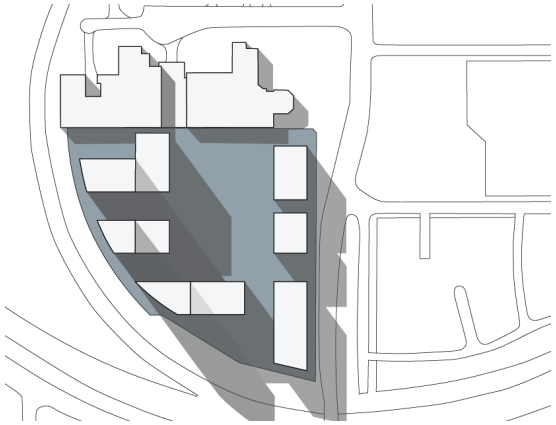
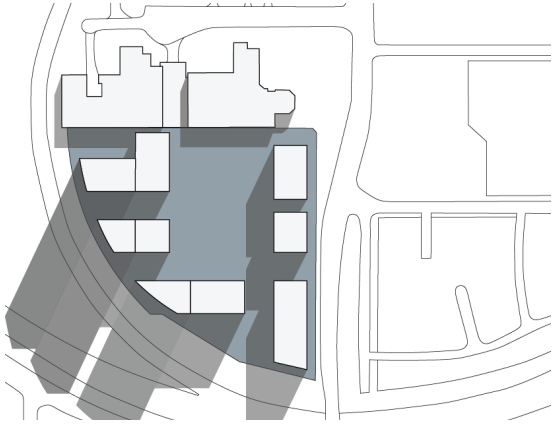
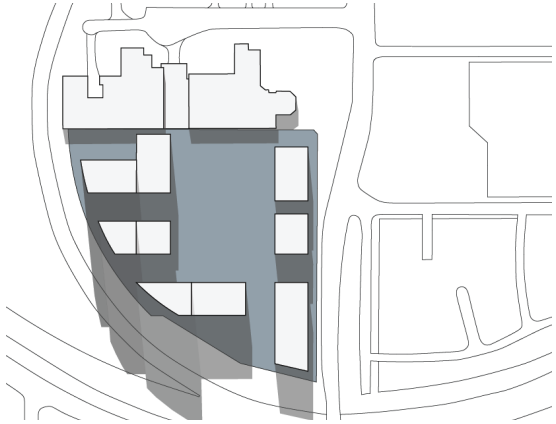
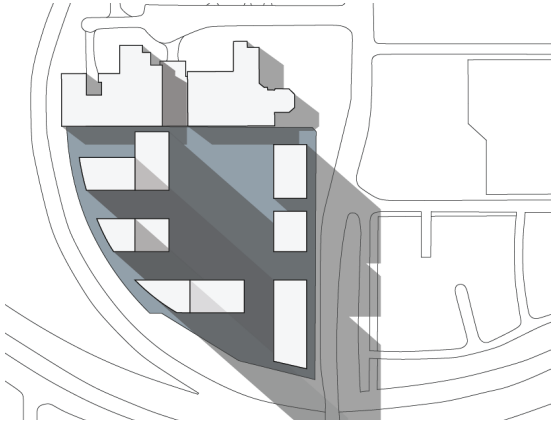
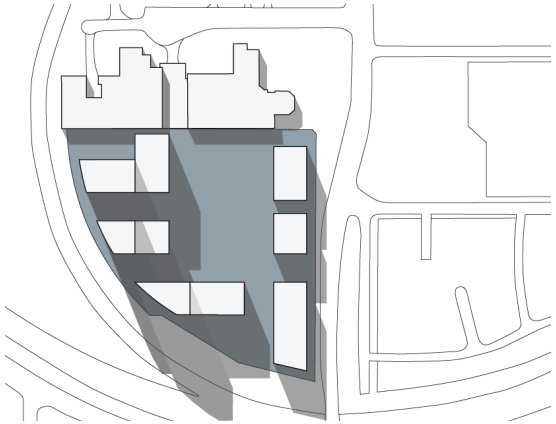

2PM on June 21st


10AM on June 21st

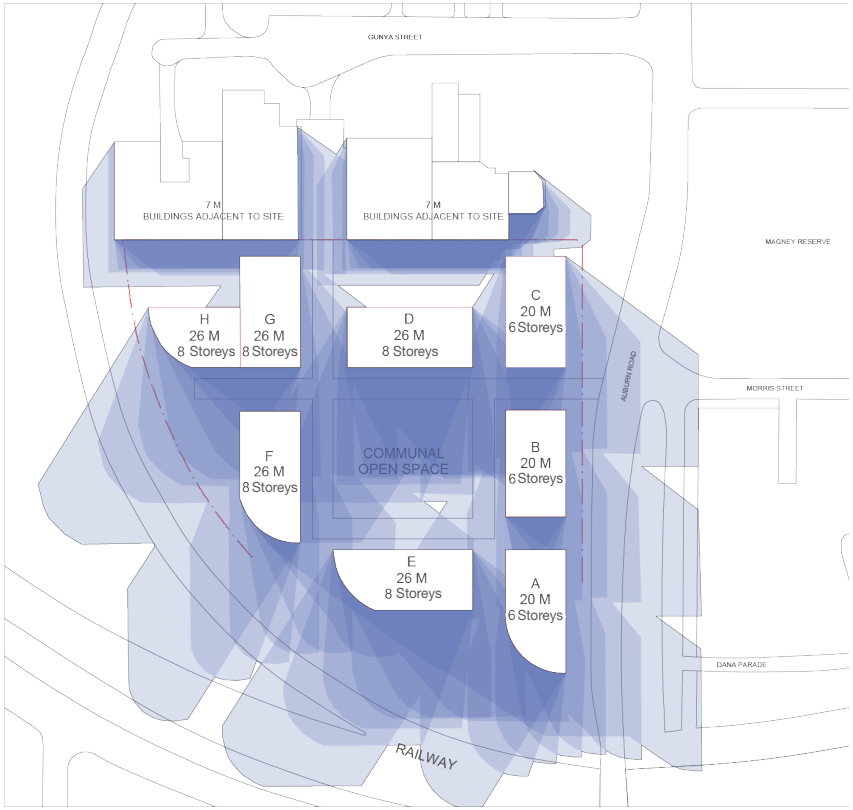

12PM on June 21st


3PM on June 21st

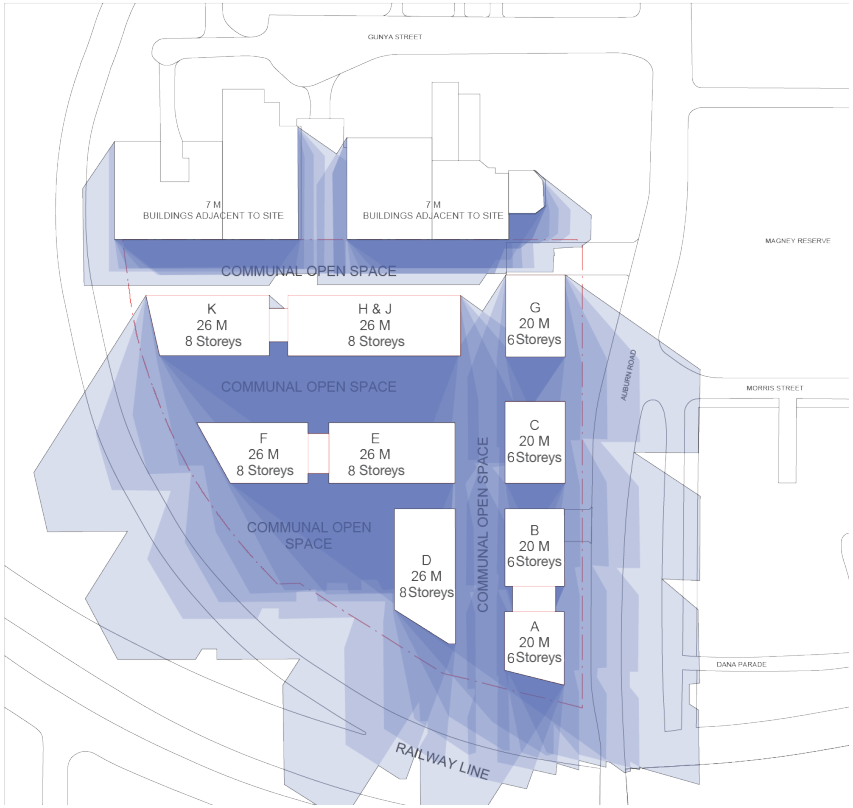

1PM on June 21st

Alternate Shadow Studies

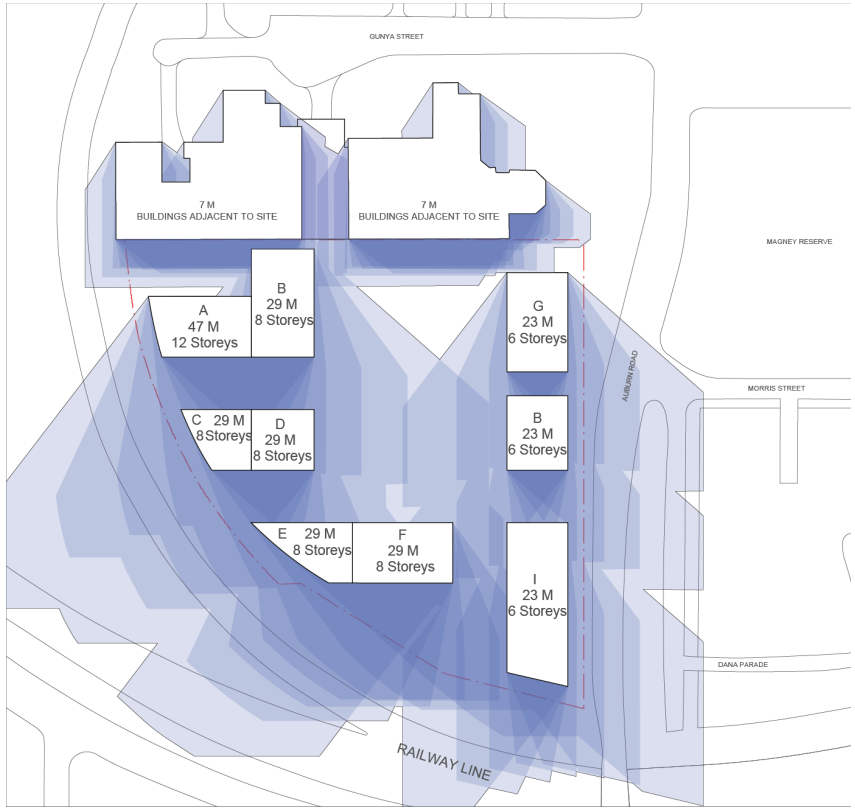
These shadow diagrams illustrate cumulative shadow impacts of the various development options, showing a range of areas across the site, with corresponding hours of sunlight. (June 21)



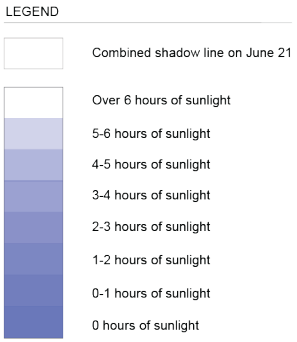
Proposed development by Architectus - Cast Shadow Study



Proposed development by Stanisic Architects - Cast Shadow Study

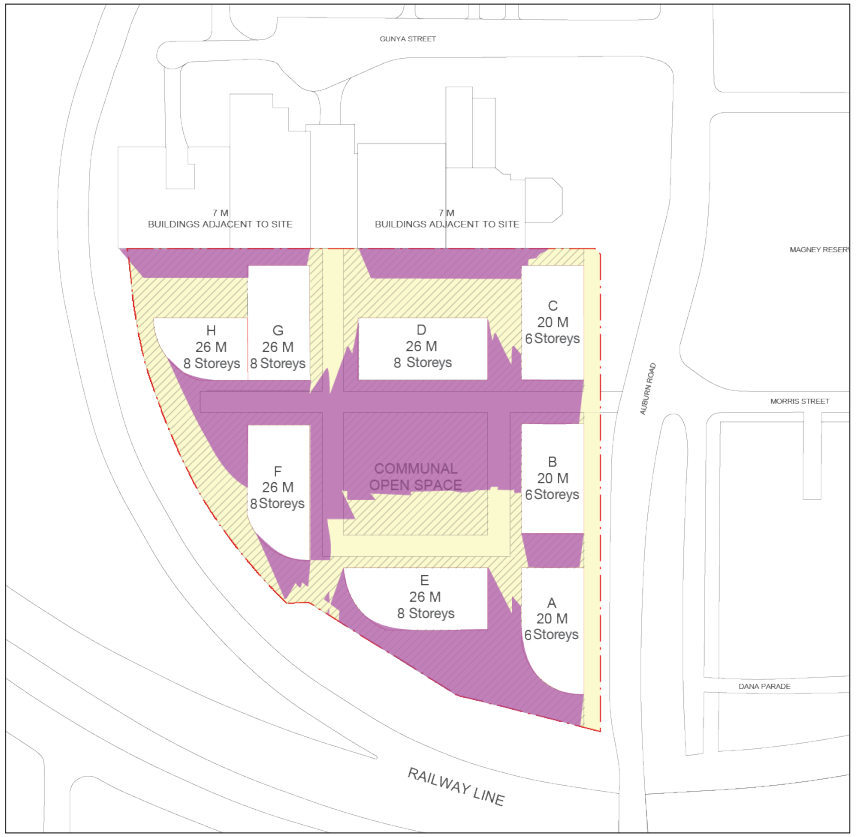


Proposed development by McGregor Coxall - Cast Shadow Study



Solar Access Studies

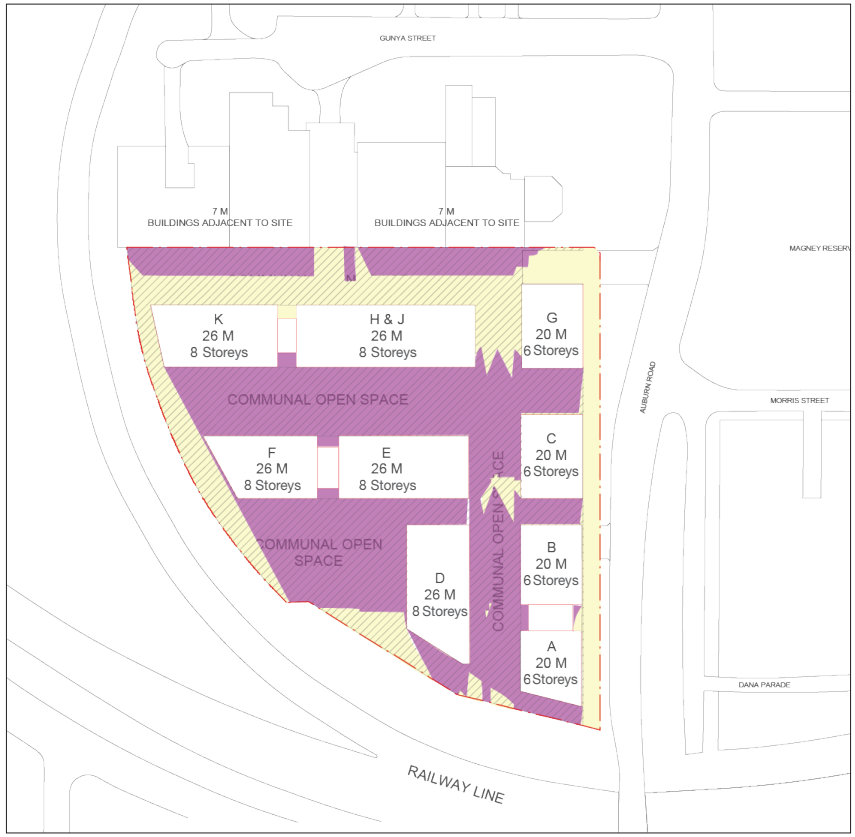
These shadow diagrams illustrate those areas of the site receiving 2 or more hours of sunlight, and tabulates these comparative areas, and the percentages of communal open space they constitute.



Proposed development by Architectus - Solar access to communal open space

Communal open space = 10772 m²
% of site area dedicated to communal open space = 52%

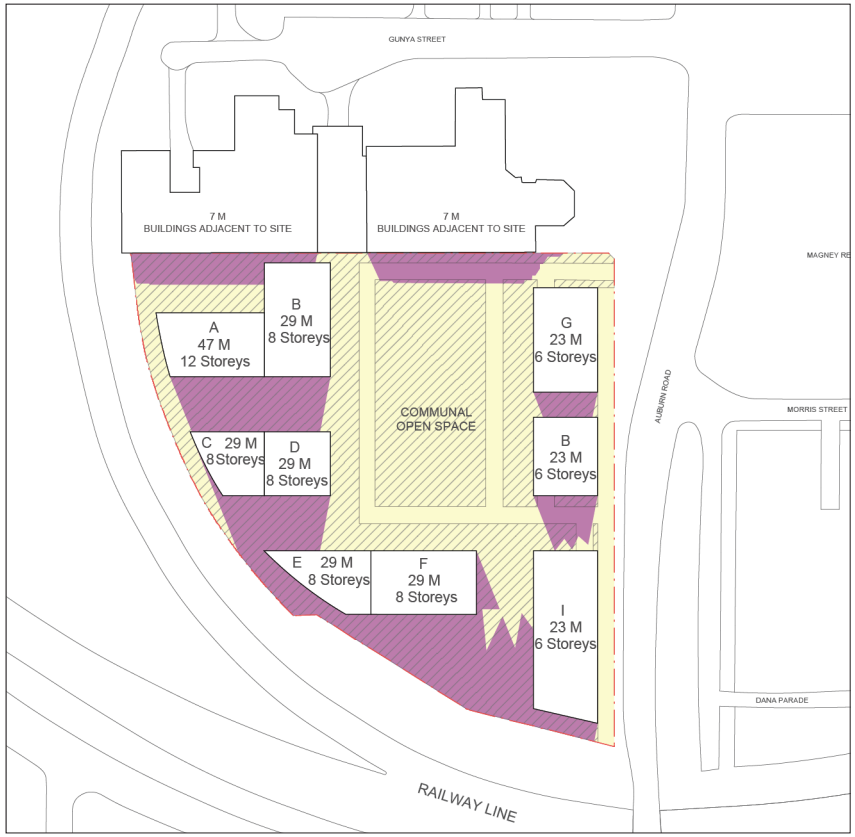
Communal open space area recieving more than 2hrs of sunlight = 4509 m²
% of communal open space with over 2 hours of sunlight = 41%



Proposed development by Stanisic Architects - Solar access to communal open space

Communal open space = 12193 m²
% of site area dedicated to communal open space = 59%

Communal open space area recieving more than 2hrs of sunlight = 3502 m²
% of communal open space with over 2 hours of sunlight = 26%



Proposed development by McGregor Coxall - Solar access to communal open space

Communal open space = 14138 m²
% of site area dedicated to communal open space = 69%

Communal open space area recieving more than 2hrs of sunlight = 8955 m²
% of communal open space with over 2 hours of sunlight = 63%

LEGEND

Communal Open Space

Area receives over 2 hours of sunlight between 9 am and 3 pm on 21 June (mid winter)

Area receives under 2 hours of sunlight between 9 am and 3 pm on 21 June (mid winter)

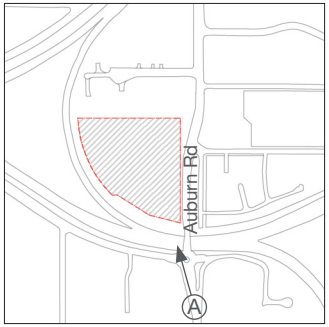
Area View Studies

MCGC Structure Plan

Ⓐ **Fig. 1** View from Auburn Rd

MCGC Alternate (Towers)

Ⓐ **Fig. 2** View from Auburn Rd

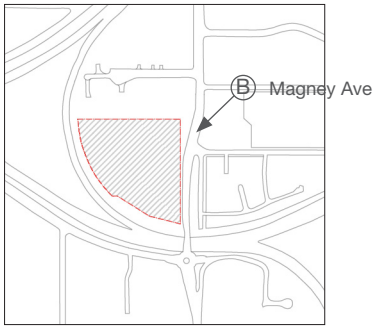


These montages illustrate the visual impact of both the MCGC Structure Plan and MCGC Alternate Tower scheme from a number of surrounding streets. Imagery is taken with a standard to narrow focal length to avoid the distortions of a wide angle perspective, whilst portraying a field of view closest to that of the human eye.

An aerial image of the surrounding area was overlaid at a 1:1 scale within the 3D CAD model of basic building masses, allowing for CAD views to be located at accurate positions, equivalent to those of the imagery. Camera positioning, angle and field of view within the CAD views were also matched with the imagery, and stitched together.

MCGC Structure Plan

Ⓑ **Fig. 1** View from Magney Ave across Magney Reserve



MCGC Alternate (Towers)

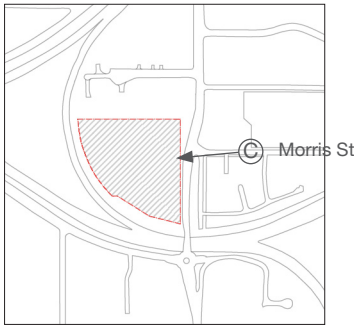
Ⓑ **Fig. 2** View from Magney Ave across Magney Reserve

MCGC Structure Plan

© **Fig. 1** View from Morris St

MCGC Alternate (Towers)

© **Fig. 2** View from Morris St



MCGC Structure Plan

Ⓓ **Fig. 1** View from Wellington Rd

MCGC Alternate (Towers)

Ⓓ **Fig. 2** View from Wellington Rd