Camperdown Medical Facility

Sustainability Strategy

FINAL
16.06.2021

INTEGRAL GROUP

ACKNOWLEDGEMENT OF COUNTRY

Integral Group acknowledges the traditional owners and custodians of the land on which it works and pays its respects to Elders past and present.

VERSION	DATE	AUTHOR	SUMMARY OF CHANGES
0.1	16 June 2021	David Arnott	DRAFT for Comment
0.2	16 June 2021	David Arnott	FINAL

VISION FOR A REGENERATIVE CITY

Our vision is for a regenerative urban place.

A place that meaningfully and materially addresses the pressing environmental, social and economic challenges facing our City, our nation and our species.

A place that sets the Inner West on a new trajectory towards long-term sustainability.

A place that moves beyond business as usual by implementing innovative strategic initiatives in the built form, in building systems and in support for- and relationship to a renewed public realm.

To implement our vision we will set the baseline at current best practice through our commitments, and seek to meaningfully contribute to a more sustainable Inner West through investment in innovative and emerging approaches to urban renewal.

INTRODUCTION

The process of urban renewal presents cities with an opportunity to address the major environmental challenges facing our society:

- Climate change;
- Resilience;
- Biodiversity loss;
- Resource depletion;
- Health and Wellbeing.

It also presents an opportunity to embed the benefits of changing technology; in digital systems, energy and transportation as well as the creation of urban places that support high quality lifestyles.

The intersection of environmental challenges, technology opportunities and creation of high quality urban places contribute to the future competitiveness of our cities.

This report presents the sustainability principles and ambitions for Camperdown Medical Facility, that give effect to this broad agenda for more sustainable, attractive and competitive cities.

It presents two frameworks for sustainability:

- A schedule of certification commitments;

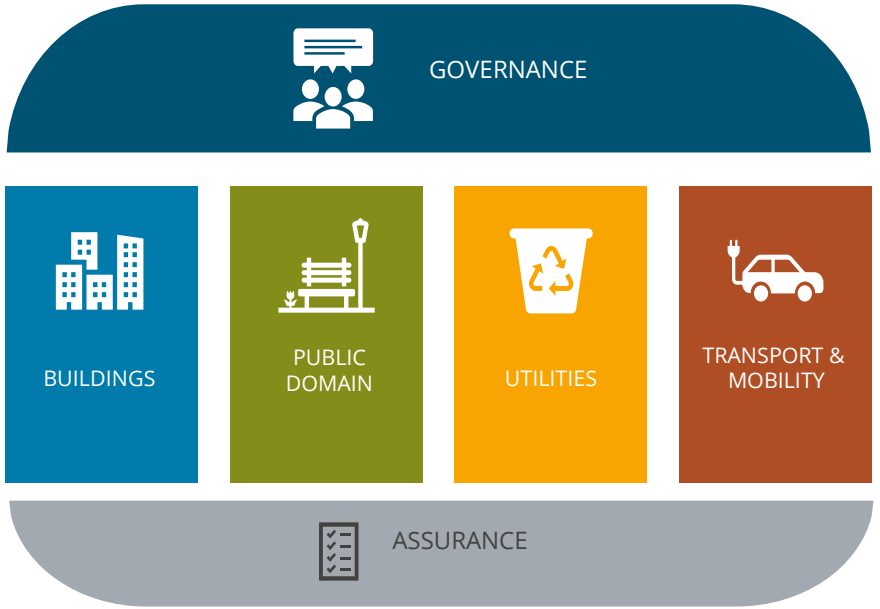
- A selection of strategic next generation initiatives in support of an ambitious sustainability agenda.

APPROACH | URBAN SYSTEMS

The delivery of sustainability principles and approaches are best understood in the context of the systems within the built environment and the planning, governance and procurement frameworks by which they are implemented.

The strategy is structured in line with the planning and delivery instruments and the specific systems which will be procured:

- ***Planning Governance*** | The framework of planning instruments and operational strategies which will be created or amended for the precinct – VPA, Tenders and Contracts.
- ***Buildings*** | The development control of individual buildings to shape design and ensure connection to better sustainability systems of the larger precinct.
- ***Public Domain*** | The public domain design and management; including amenity, biodiversity, resource intensity, green infrastructure and mechanisms for place-based reconciliation with Indigenous Australians.
- ***Utilities*** | Electricity, water, gas, sewer, and communications utilities would typically be serviced by the appropriate supply authorities; however could be procured from private precinct operators for a more innovative, long-term outcome.
- ***Transport and Mobility*** | Opportunities for how public transport, active transport, shared mobility, ticketing, digital mobility and conventional car-based transport solutions that could deliver better connection and mobility to and around the precinct.
- ***Assurance*** | Mechanisms by which the non-financial performance of the precinct can be assured within the procurement documents over the course of the program lifecycle to deliver better social license and risk management.



Urban Systems Model

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CONTEXT | POLICY & PLANNING

The project provides an opportunity to advance the comprehensive policy sustainability-related framework that exists for a global, Commonwealth, state and local government jurisdictions.

UN Sustainable Development Goals | At least seven of the UN Sustainable Development Goals are advanced through sustainability in cities and urban renewal precincts.

Commitments under the Paris Agreement | Cities are critical to the global goal to reduce GHG emissions able keep warming below 1.5°C above pre-industrial levels.

Commonwealth policy| The advancement of the City Performance Indicators under the smart cities plan.

Transport for NSW | The site is an important place in the metro strategy for Future Transport 2056 Strategy; including future mobility and the principles of movement and place.

NSW Environmental Protection Agency | The site can be an urban exemplar of the Circular Economy, giving effect to the NSW Circular Economy Policy Statement.

Greater Sydney Commission and NSW Department of Planning, Industry and Environment | The site will be a benchmark project for the Sydney Metro and Eastern District Plans.

NSW Office of Environment and Heritage | The site will give effect to the NSW climate change framework with the ambition for net zero emissions by 2050 and adaptation to a changing climate.

NSW Aboriginal Procurement in Construction | Supporting and advancing the opportunities for Aboriginal and Torres Strait Islander Australians through the procurement and design approaches to the site.

Our Place Inner West| In addition to Commonwealth and State policy, the site will give effect to the Inner West Local Strategic Planning Statement which has a significant focus on sustainability and resilience across all themes.

Resilient Sydney | the site will help build resilience for the broader city, supporting the strategic directions of the strategy for city resilience: People centred city; Live with our climate; Connect for strength; Get ready and One city.

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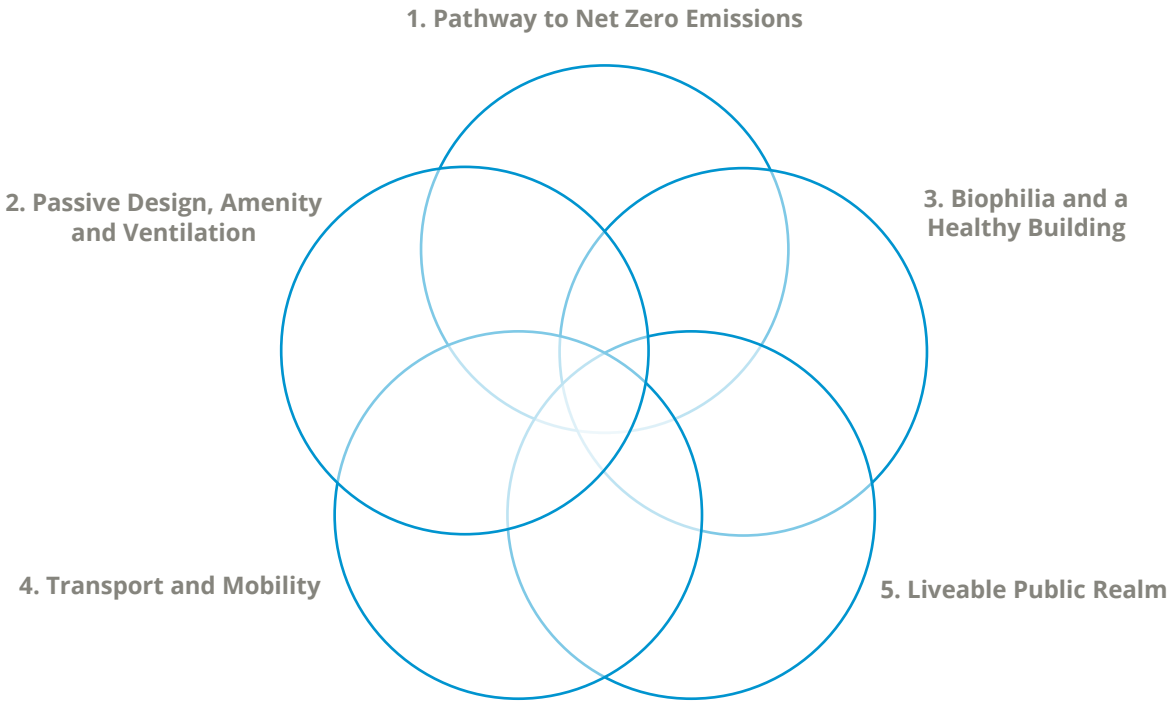
OUR OBJECTIVES

In pursuit of a renewal project that expands the horizons of sustainability performance in the built environment, several strategic initiatives that support ambitious sustainability objectives have been identified for consideration in the planning proposal.

The sustainability objectives for the Camperdown Medical Facility planning proposal are:

- To reduce GHG emissions, with the goal of net zero emissions;
- To support the health and wellbeing of building occupants, visitors and the community;
- To dramatically reduce the use of non-renewable resources and advance the circular economy;
- To support the physical resilience of assets, and the resilience of the community, to manage shocks and stresses from climate change;
- To contribute new green space to the city, supporting local habitat, connectivity for mobile species, water management, urban heat and local amenity;
- To enable movement to and from the site with non-vehicular transport, support better mobility options in the neighbourhood and support the adoption of emerging mobility options that supports sustainable outcomes;
- To mitigate the consumption of potable water resources, seek more sustainable infrastructure solutions and provide best practice water quality leaving the site;
- To embed Indigenous knowledge into the design and development process in support of our cultural heritage and recognition of the sustainability insight from Indigenous communities.



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OUR COMMITMENTS

The following certification commitments will form part of the planning proposal:

1. 4 star Green Star Buildings
2. WELL v2 Silver (Core) – aspirational only

Furthermore, the project will seek to achieve Net Zero Certification from the Green Building Council of Australia, once the Net Zero program for each organisation has been released.

STRATEGIC CONCEPTS | 1. Pathway to Net Zero Emissions

Climate change is among the most urgent challenges of our times, with deep emissions cuts required by 2030 and net zero emissions by 2050 required to keep temperature rise below 1.5° C.

A net zero emissions pathway for the built environment is an important aspect to the overall transition of the economy.

Camperdown Medical Facility will investigate a suite of strategic concepts to target net zero emissions over the life of the project. The objectives to achieve net zero emissions are aligned with industry best practice:

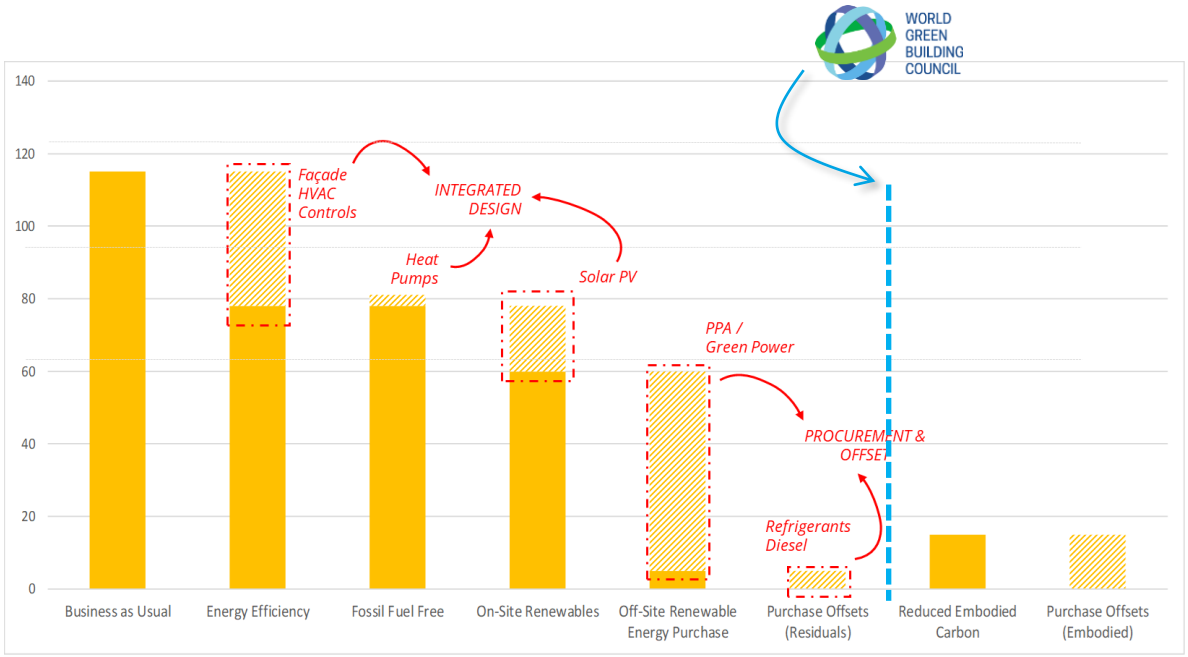
- Electrification of all normally-operating systems;
- Best in class energy efficiency;
- Procurement of 100% renewable energy (on-site and off-site);
- Offset all residual emissions (scope 1, 2 and nominated scope 3) from construction and operation with nature-based solutions, supporting regional carbon projects

DEFINING NET ZERO

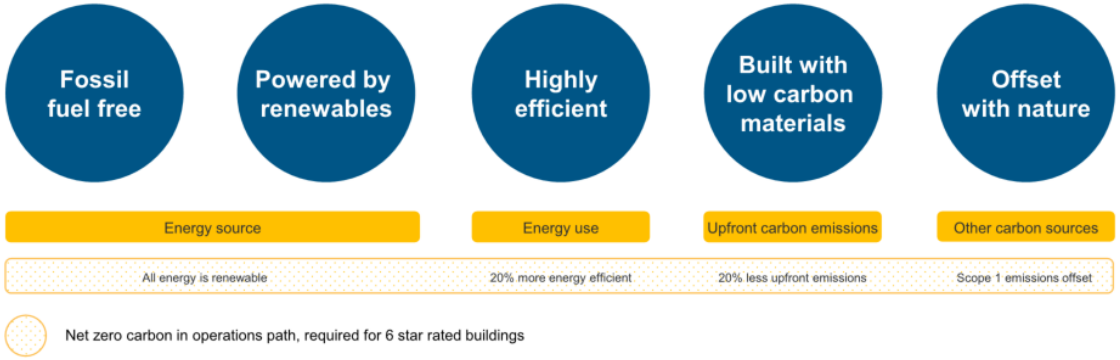
The World Green Building Council defines Net Zero Carbon for operating emissions as “highly efficient with all remaining energy from on-site and/or off-site renewable sources.

The Green Building Council of Australia has defined ‘climate positive’ in preference to ‘net zero’ and breaks this down is the following way (see right);

- Fossil fuel free
- Highly efficient
- Powered by renewable energy
- Built with low carbon materials
- Offset with nature



Pathway to Net Zero Emissions



Green Star definition of Net Zero

STRATEGIC CONCEPTS | 2. Passive Design, Amenity and Ventilation

There are a range of passive opportunities to reduce the resource consumption of the dwellings, provide healthy and comfortable homes for occupants and enable high-efficiency systems.

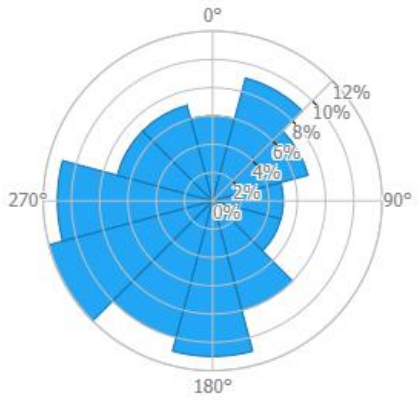
Natural ventilation – The Sydney climate provides an ideal environment for effective natural ventilation and making use of prevailing wind patterns should form part of design development. Ceiling fans. Night-time flushing to reduce cooling loads. Daytime natural ventilation to reduce HVAC loads and increase thermal comfort + amenity.

Building Fabric – High performance building fabric is critical to low energy and comfortable buildings. This includes the minimisation of the thermal bridges in construction. Best practice benchmarks: *Rt3.2 walls, Rt5-6 roof*, *double-glazing*, *low-E glass* and *thermally broken framing.*

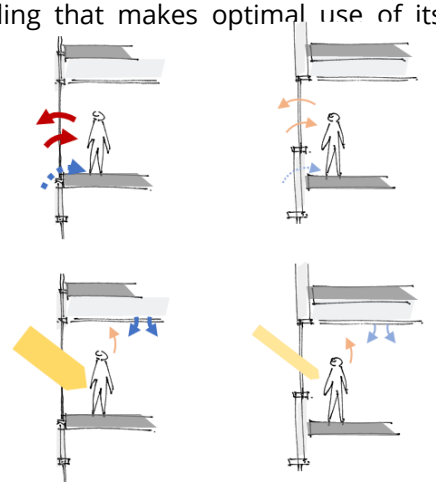
Solar access – Buildings should aim to exceed the minimum solar access requirements for winter-time solar access at mid-day. Building geometry has been carefully considered to maximise solar access in the context of the site. Good daylight access to improve dwelling amenity.

Shading – Shading or window screening as an integral part of building design for thermal comfort and cooling load reduction. Horizontal shading to the north and vertical shading to the east and west are most effective.

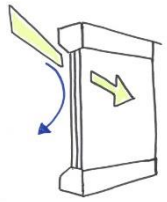
The goal is to create a high performance, passive building that makes optimal use of its climate and supports high efficiency building systems.



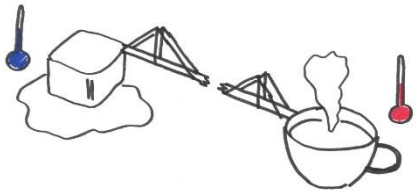
Annual wind rose (frequency) of location



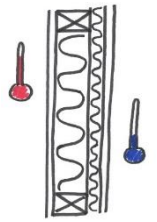
Design priorities - managing Winter heat loss and summer solar gain



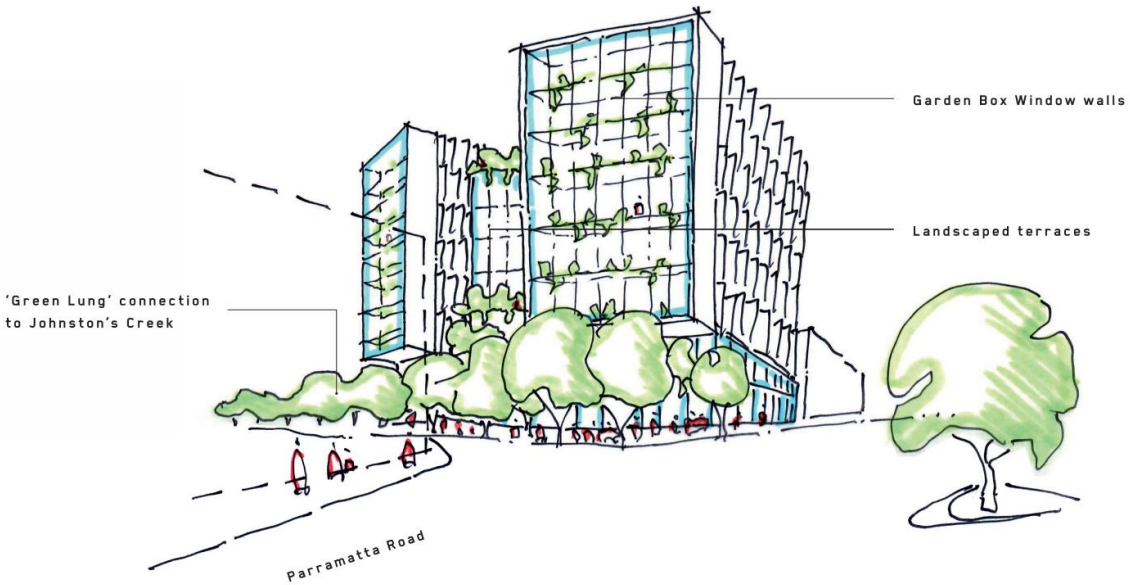
High Performance Glazing



Reduced Thermal Bridges



High Level of Insulation



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STRATEGIC CONCEPTS | 3. Biophilia and a Healthy Building

Biophilia is the innate affiliation that people have for the natural world.

Biophilic design is an approach to the built environment that can reduce stress, improve cognitive function and creativity and improve well-being.

For urban renewal in a growing city centre, and particularly in a post-COVID world, these qualities are increasingly important.

The Camperdown Medical Facility will embed biophilic design principles throughout the proposal:

- Rooftops – wind-sheltered garden roof terraces;
- Façade – green walls and biomorphic forms in façade;
- Podium – integration of green terraces into podium levels improves green connectivity to the park tree canopy.

Opportunities for community urban agriculture aligned to organic waste management and integrated water cycle management will also be explored.

The building will also include initiatives to support broader health and wellbeing: air, water, nourishment, movement, comfort, sound, materials, mindfulness and community.

The design will give explicit consideration to infection control in pandemic situations such as COVID-19, including: hand-hygiene, contactless systems, ventilation and UV filtration.

WELL rating categories

Connection natural systems, presence of water and biomorphic forms

Biophilia through form, finish and contact with nature

14 Patterns of Biophilic Design

Nature in the Space Patterns
1. Visual Connection with Nature
2. Non-Visual Connection with Nature
3. Non-Rhythmic Sensory Stimuli
4. Thermal & Airflow Variability
5. Presence of Water
6. Dynamic & Diffuse Light
7. Connection with Natural Systems

Natural Analogues Patterns
8. Biomorphic Forms & Patterns
9. Material Connection with Nature
10. Complexity & Order

Nature of the Space Patterns
11. Prospect
12. Refuge
13. Mystery
14. Risk/Peril

Principles for biophilic design (Terrapin Bright green)

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STRATEGIC CONCEPTS | 4. Transport and Mobility

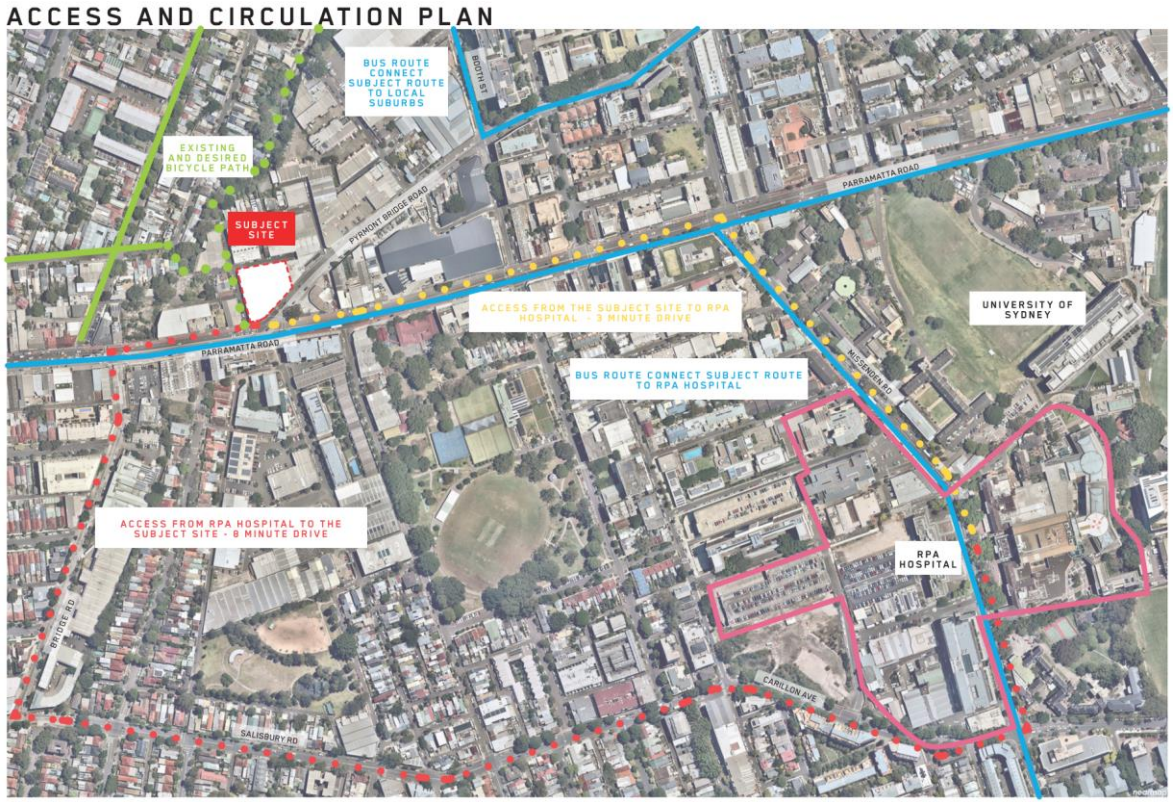
The future of Greater Sydney will be shaped by the relationship between land use and mobility. As the mobility sector changes – through public investment in projects like Sydney Metro and technology changes allowing for electric vehicles or connected and autonomous vehicles - the relationship between projects and mobility must change too.

The design should consider the relationship of movement priority and place priority for the project. The place-making should enable and encourage mobility options along a hierarchy of sustainability:

- Active mobility
- Public transport
- Future mobility – shared, autonomous & electric
- Private mobility

The sustainability mobility implementation approach should seek to embed key sustainability objectives in the project and possibly engage with future mobility providers. Opportunities to be pursued in the project include:

- Promotion of pedestrian amenity – walkable neighbourhoods and immediate public transport access
- Active transport: End of trip facilities and secure bicycle storage
- Electric mobility: EV charging infrastructure and parking incentives
- Shared mobility: car sharing and ride-sharing providers;
- Connected and Autonomous Mobility: ride share, tech company or vehicle manufacturer providers;
- Flexible Parking: Designing for a future where any existing parking must be able to be re-used for higher and better uses (e.g. considering separate strata titling for parking and units).



TfNSW Future Mobility Trends

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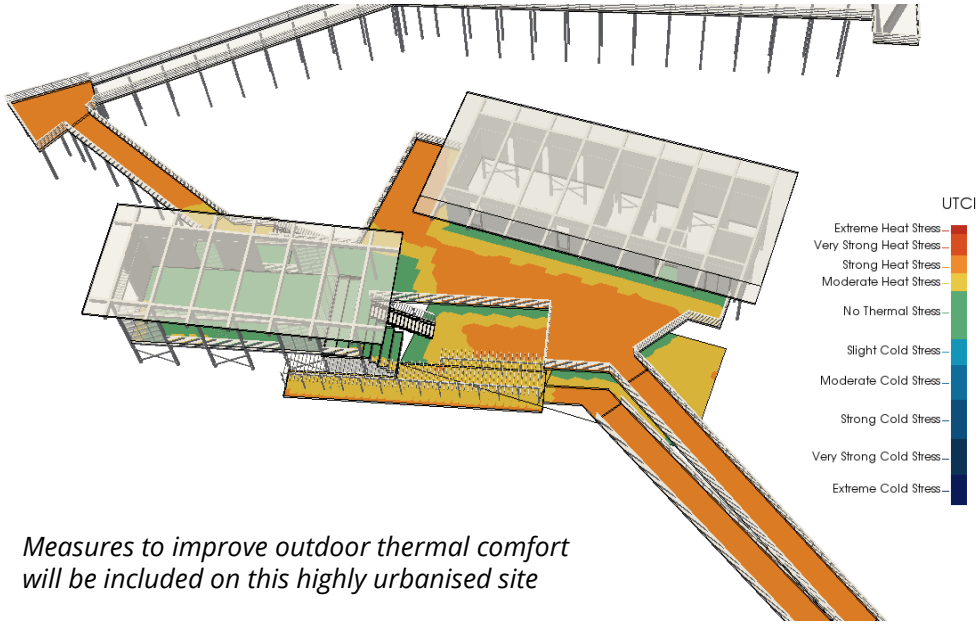
STRATEGIC CONCEPTS | 5. Liveable Public Realm

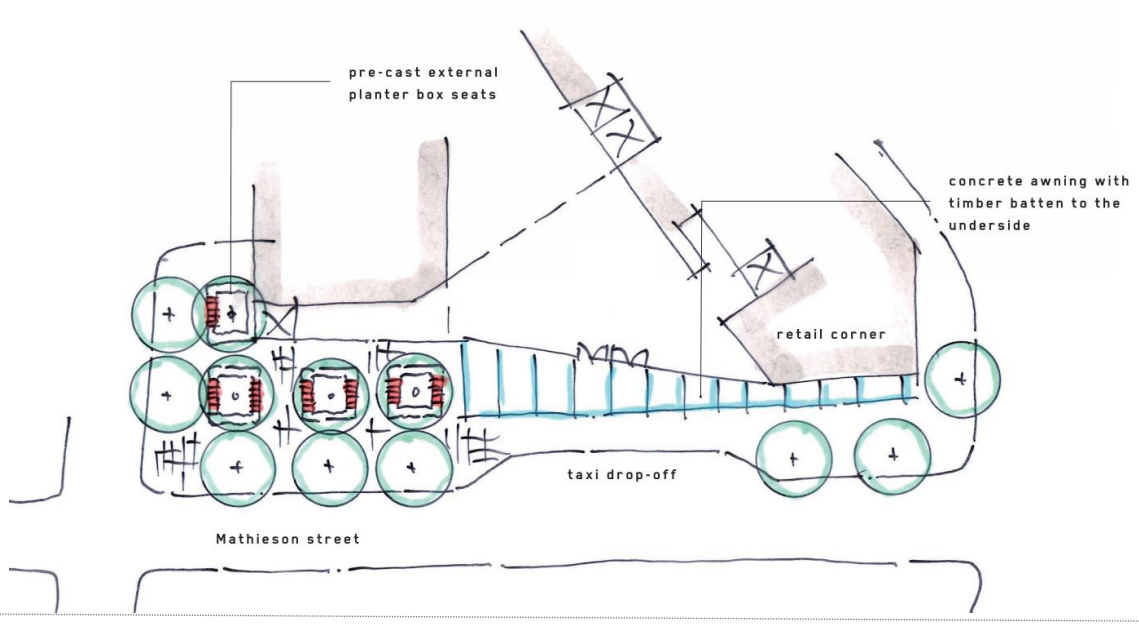
The design for a liveable public realm is at the heart of supporting a new urban place that is active, healthy and resilient.

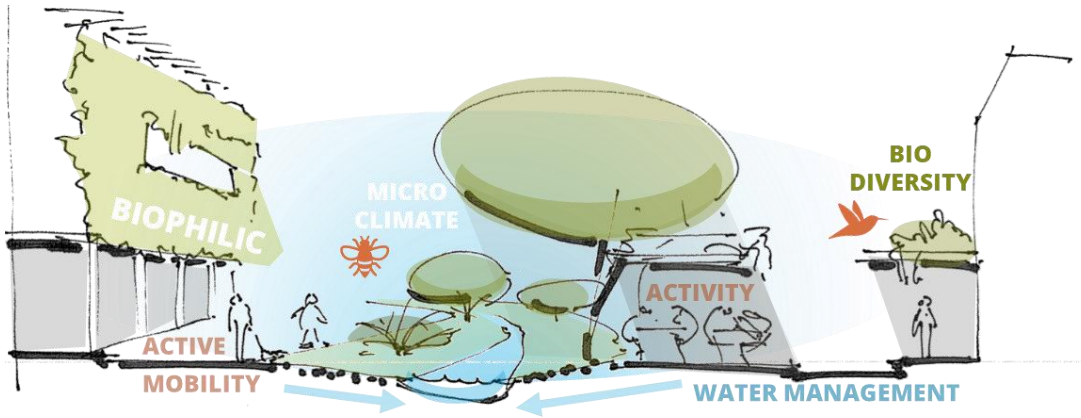
The attributes of the public realm that can deliver on this ambitious vision are:

- Balancing solar access in winter, shading in summer, wind impacts and the longer term urban heat island effect;
- Exploring green infrastructure opportunities on the site that support urban water management as well as habitat for resident avifauna and other native mobile species;
- Stormwater management system on site that captures surface water for re-use in irrigation and heat rejection;
- Biodiversity considerations, such as nesting boxes, bee hives and other habitat provisions;
- Surface finishes with high SRI values to reflect solar radiation back into the atmosphere and mitigate urban heat risk;
- Biophilic design and connection to place aligned to health and wellbeing.



Measures to improve outdoor thermal comfort will be included on this highly urbanised site





Water management is a planning priority for sustainability.

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PATHWAY TO GREEN STAR

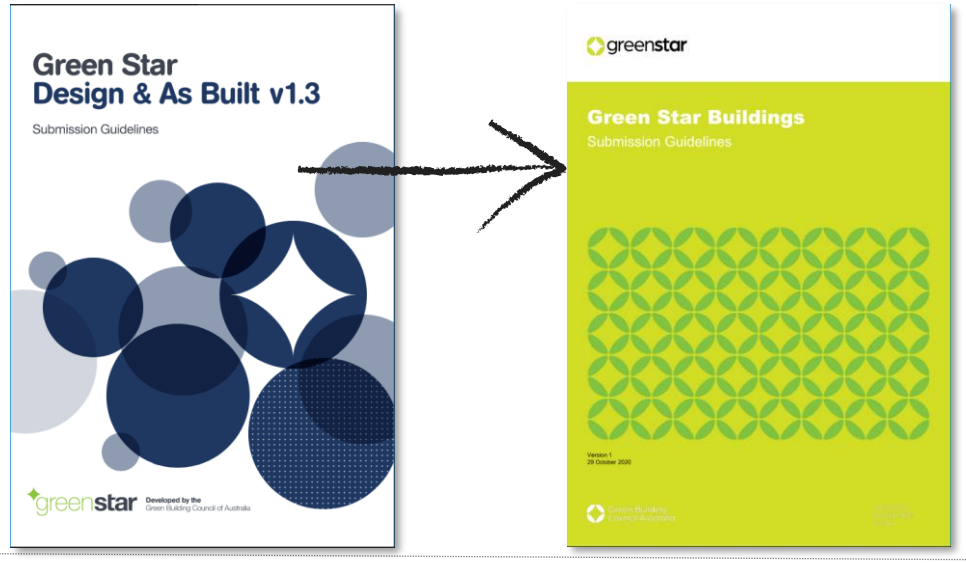
A 4-star baseline certification pathway under Green Star Buildings sets the floor for our strategy.

Green Star Buildings is the new tool developed by the Green Building Council of Australia (GBCA) and it will replace Green Star Design & As-Built as part of the GBCA Future Focus program. The development of this new tool represents the biggest overhaul since its creation.

One of the most notable changes in Green Star Buildings is the introduction of 15 Minimum Expectations. These credits can be thought of in the same way as Conditional Requirements under Design & As-Built i.e. they must be satisfied. A summary of these minimum expectations can be seen on the following page.

The adoption of this new Green Star tool and commitment to the 15 minimum expectations (plus an additional 15 points) sets a holistic ambition for the project and aligns with the Inner West Local Strategic Planning Statement; particularly the following initiatives shown below.

1. Climate Change Resilience
2. Upfront Carbon Emissions
3. Energy Use
4. Energy Source
5. Water Use
6. Movement and Place



greenstar 4 Certified

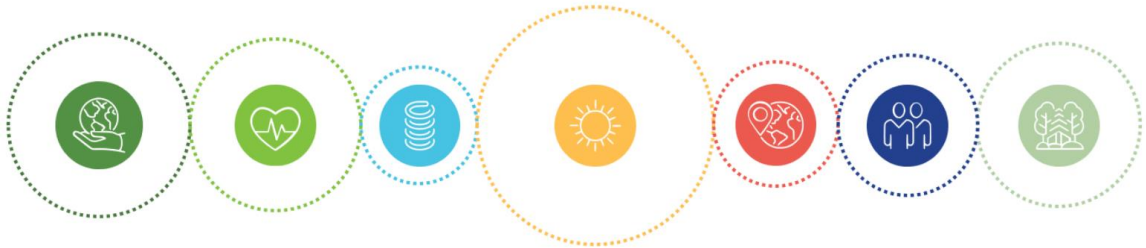
A 4 Star rated building is a *Best Practice* environmental performer.
Its focus is on either being net zero in operations *or* in a higher performer in energy, water, and health related issues.

Meets minimum expectations

+

Net zero in operations (15 points) OR 15 points**

Composition of categories in new tool .



Responsible	Healthy	Resilient	Positive	Places	People	Nature
17%	15%	8%	29%	8%	9%	14%

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PATHWAY TO GREEN STAR – MINIMUM EXPECTATIONS

Credit	Criteria Requirement
Responsible Construction	Environmental management system (EMS certified) Environmental management plan (EMP) Construction and demolition waste diversion of 80% Sustainability training provided to 95% of all sub/contr at least 3 days
Verification and Handover	Metering and monitoring for energy and water Commissioning and tuning from prior to construction to after PC. Building Information to be provided to building owner and relevant staff
Operational Waste	Separation of waste streams at least 3 Dedicated waste storage area to account estimated waste and collection Signoff by waste specialist and/or contractor
Clean Air	Ventilation systems attributes: Separation from pollutants-cleaning ductwk Provision of outdoor air: 50% > min AS1668 OR maintain CO2 levels <800ppm Exhaust or elimination of pollutants
Light Quality	Lighting comfort: Flicker-free, required CRI, illuminance, uniformity & MacA E Glare addressed in nominated areas Daylight access to building occupants
Acoustic Comfort	Acoustic Comfort Strategy addressing how design delivers comfort to occ
Exposure to Toxins	Paints, adhesives, sealants, and carpets; 95% (volume) meet TVOC limits Engineered wood products; 95% (area) meet formaldehyde limits Lead, asbestos and PCBs; hazardous materials survey, best practice removal
Climate Change Resilience	**Climate change pre-screening checklist and communication to stakeholders**
Upfront Carbon Emissions	**Upfront carbon emissions are at least 10% less than reference building**
Energy Use	**Energy use is at least 10% less than reference. No PV & NCC-compliant façade**
Energy Source	**The building provides a Zero Carbon Action Plan**
Water Use	**Efficient water fixtures or 15% less potable water compared to a ref. building**
Movement and Place	**Showers and changing facilities for building occupants**
Inclusive Construction Practices	Gender inclusive facilities and protective equipment during construction. Also policies on-site to raise awareness, reduce discrimination, racism & bullying.
Impacts to Nature	Building was not built on, or significantly impacted, a site w/ high ecological value; and manages light pollution impacts and has a wetland management plan

PATHWAY TO WELL FOR HEALTHCARE

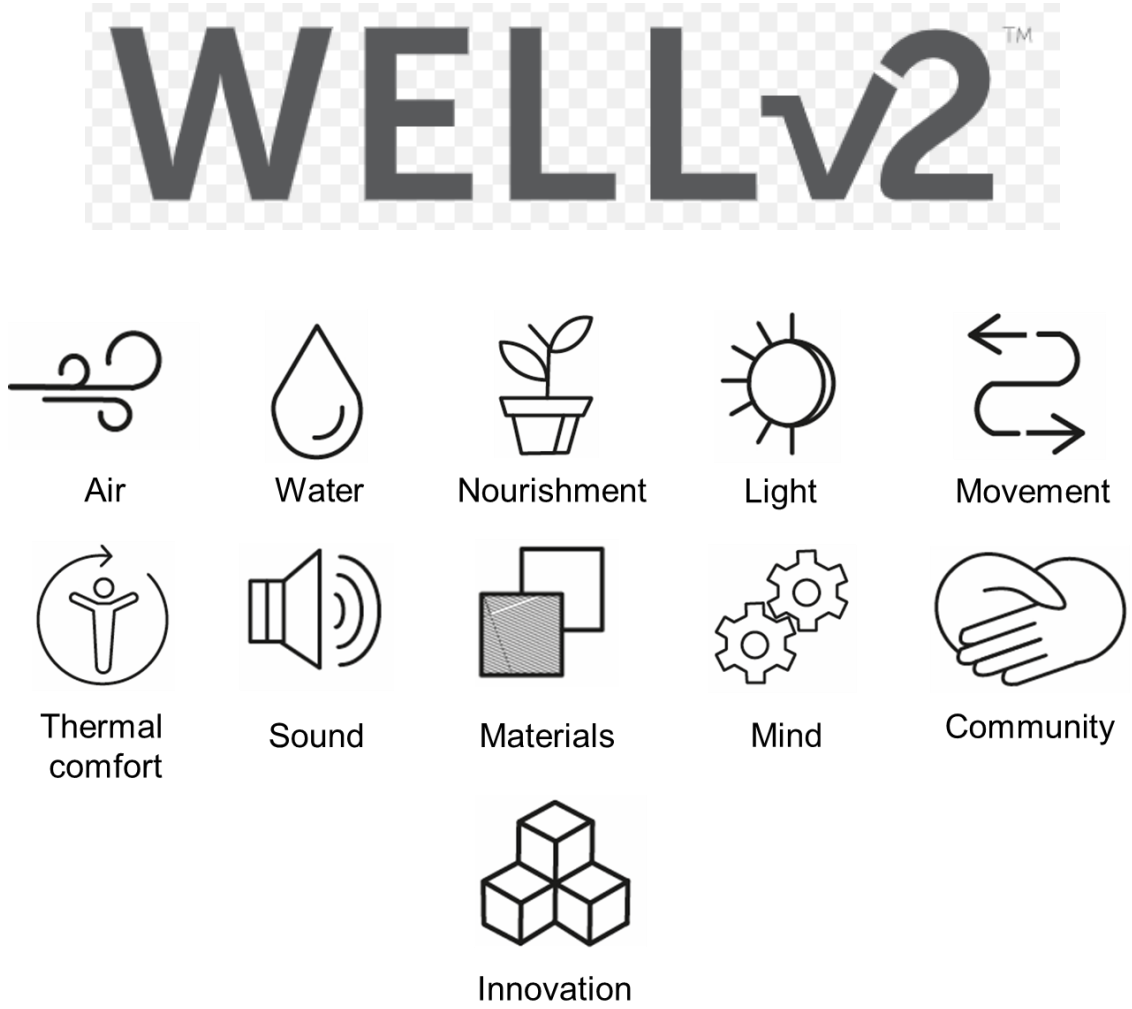
As described by the International Well Building Institute "*The WELL Building Standard™ version 2 (WELL v2™) is a vehicle for buildings and organizations to deliver more thoughtful and intentional spaces that enhance human health and well-being. WELL v2 includes a set of strategies—backed by the latest scientific research—that aim to advance human health through design interventions and operational protocols and policies and foster a culture of health and wellness. Built upon the pioneering foundation of the first version of the WELL Building Standard (WELL v1), WELL v2 draws expertise from a diverse community of WELL users, practitioners, public health professionals and building scientists around the world.*"

WELL v1 was created for commercial projects exclusively. However WELL v2 can now be applied to a variety of sectors. WELL v2 is comprised of 108 features within the ten key concepts shown to the right + an innovation category. There are three available ratings and similar to Green Star there are also certain pre-conditions that must be met. It should also be understood that for a number of credits post completion on site testing is required to validate certain points.

Pre-conditions		
Silver	Gold	Platinum
50 points	60 points	80 points

To date there has not be a large up-take of the WELL building standard in the healthcare market. As such, the pursuit of WELL could be used as a mechanism to demonstrate beyond best practice for the project. The achievement of the WELL rating would clearly set this development apart from it's peers, particularly in the post COVID environment with an increased focus on health and well-being.

A pathway to WELL certification for this project would need to be carefully considered in order to achieve the right balance between an improved project outcome and the cost associated with achieving this. For this reason we would proposed the pursuit of the silver rating, with a view to consider gold as a stretch ambition, acknowledging that the achievement of any WELL rating for a healthcare development is already market leading.



CONCLUSIONS

The challenges of environmental sustainability in the built environment are material and projects such as Camperdown Medical Facility have an opportunity to change trajectory with non-BAU innovation.

This proposal demonstrates three key areas of innovation that address pressing needs in our city;

- The need to decarbonize the City;
- The need to make better use of our favourable climate;
- The need to create places that are amenable and resilient in a changing climate.

The proposal also provides a foundational assurance framework that embeds leading sustainability ambition at its heart: deep emissions reduction, social and environmental sustainability and health and wellbeing.

This combination of ambition, innovation and assurance provides a strong basis for Camperdown Medical Facility to be a leading renewal project for the broader Inner West LGA.

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