CUNDALL

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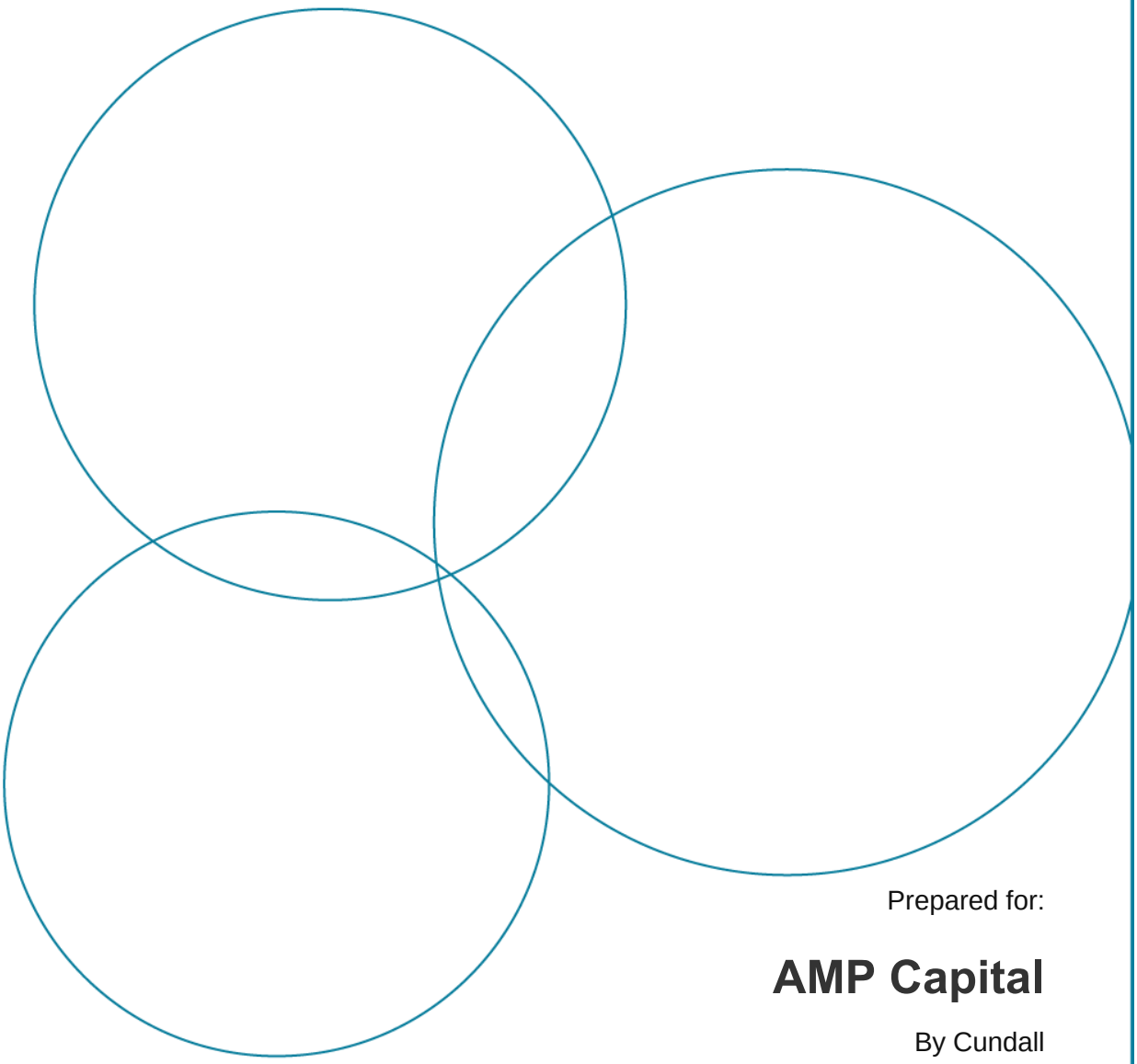
ESD Report for Stage 1 Concept DA

1012408 AMP Macquarie Centre Redevelopment



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A	Draft for review	23/11/2015
B	Updated with comments from Urbis	30/11/2015
C	Updated with comments from AMP Capital	02/12/2015
D	Issue for Stage 1 Concept DA submission	10/12/2015

The success and realisation of the proposed initiatives will be dependent upon the commitment of the design team, the development of the initiatives through the life of the design and also the implementation into the operation of the building. Without this undertaking the proposed targets may not be achieved.

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1 Introduction

This report has been prepared, on behalf of AMP Capital (AMPC), in support of a Stage 1 Development Application (DA) to be submitted to the City of Ryde Council. The Stage 1 seeks concept plan approval for the redevelopment of Macquarie Centre (Macquarie Centre) by establishing:

- Building envelopes and design parameters for future development on the site, including the proposed uses within the podium and tower components.
- The distribution of floor space across the site.
- Future pedestrian and vehicle connections to and within the site.

This report supports the proposed future Macquarie Centre redevelopment in relation to ESD (Environmentally Sustainable Development), as the future redevelopment will incorporate a range of environmental attributes to minimise the impact of the development in line with AMP's sustainability goals and the City of Ryde Council's planning framework and expectations.

The key measures incorporated into the development include:

- A 5 Star Green Star – Design and As-Built rating for the office;
- A 5.0 Star base building NABERS Office Energy rating;
- A Green Star – Retail v1 – 4 Star design equivalency rating with an aspiration of 5 stars;
- A Green Star – Multi-Unit Residential v1 – 4 Star design equivalency rating with an aspiration of 5 stars.

The key purpose of this document is to provide an overview of the approach and identify the proposed strategies that will be investigated to achieve the respective ratings that have been identified.

This document will then inform the design at this early stage and assist in addressing anything which has an impact on the envelope.

2 Sustainability Approach

It is important that a comprehensive pathway is provided in order for a sustainability vision for any project is to be achieved.

The following section outlines the approach that Macquarie Centre redevelopment will enter into to ensure the sustainability vision is upheld throughout the process.

The following sets out the sustainability framework to be taken:

1. Setting the vision
2. Sustainability Objectives in order to achieve the vision
3. Sustainability Strategy setting
4. Sustainability Management framework

The high level targets in terms of ratings and equivalency ratings have been identified in this report, however it is still early in the project's life to understand all the objectives for the project. The sustainability objectives will be identified in the next stage.

The vision and objectives will be revisited at various hold points through design, construction and implementation of the project to ensure that the sustainability management framework still upholds this vision. These hold points will allow for any deviations from the objectives to be identified, reviewed and addressed appropriately.

The image below sets out the approach that the project will follow:

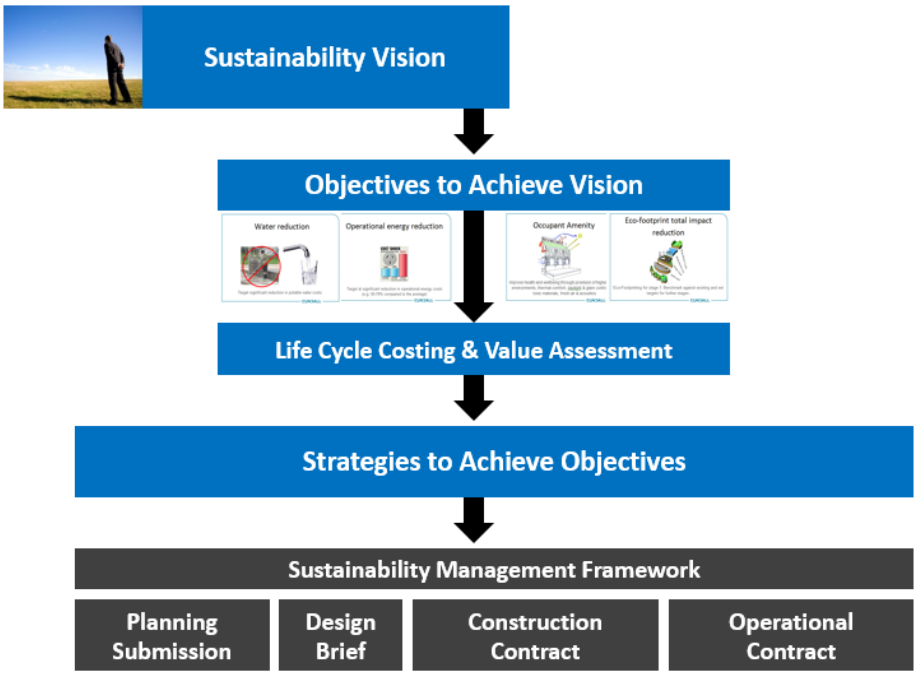

Figure 1 – Sustainability Approach for Macquarie Centre redevelopment

3 AMP Capital Sustainability Vision

AMP Capital is committed to making responsible investment decisions on behalf of its clients.

AMPC ESG and responsible investment philosophy is centred on delivering sustainable, long-term performance by ensuring our clients' investments remain relevant and adaptable to changing life cycles, markets, client and customer expectations.

AMP Capital's approach to ESG management has its foundations in the following principles:

- Delivering investment performance for their clients. This is their central focus and driving motivation, and
- AMP Capital's fiduciary duty to act in the best interest of their clients.

3.1 AMP Capital commitments

As a leader in ESG and responsible investment, AMP Capital are:

- a signatory to the United Nations Principles for Responsible Investment (UNPRI)
- registered under the Energy Efficiency Opportunities Act (Commonwealth of Australia) as a commitment to greater energy efficiency in business operations, and
- registered under the National Greenhouse and Energy Reporting System (Commonwealth of Australia) to monitor and report on greenhouse gas emissions and energy production and consumption.

3.2 Global benchmarking

In 2014, AMP Capital secured membership of the Global Real Estate Sustainability Benchmark (GRESB) organisation. GRESB is highly regarded, engaging in independent evaluation of sustainability performance of real estate portfolios and is backed by many Australian superannuation

funds and international investors. AMP Capital successfully submitted selected core and separate mandate Property Funds for benchmarking in 2012 and 2013.

AMP Capital strive to continue delivering long-term sustainable returns for our clients, with a strong focus on identification and management of Environmental, Social and Governance (ESG) risks and opportunities, in accordance with our ESG and responsible investment guidelines.

3.3 Community

Throughout AMP Capital's long history, they have been closely intertwined with the community through their customers and clients, planners, staff and shareholders. For AMP Capital Property, their approach connects their teams with the communities through major partnerships with national charities, shopping centre initiatives supporting local charities and community organisations, as well as Connect Days enabling our staff to support AMP Foundation activities.

3.4 Sustainability Vision for Macquarie Centre redevelopment

AMP Capital's long term sustainability vision for the Macquarie Centre is currently being developed and will be provided during the next design phase so that it appropriately addresses all the relevant stakeholders of the centre.

4 ESD Targets

Green Star is Australia's leading suite of environmental rating tools for buildings. Developed by the Green Building Council of Australia (GBCA), they benchmark the environmental achievements of a development through the following nine environmental impact categories:

- Management;
- Indoor Environment Quality;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology;
- Emissions; and
- Innovation

Each category groups a number of issues related to an environmental impact; these are known as credits. Within a particular category, credits are weighted in relation to each other based on the number of points allocated to each within the category and the perceived environmental importance of the category for the building type and location.

4.1 Target

The AMP Macquarie Centre redevelopment will be designed for 4-5 Star equivalency ratings under the GBCA's suite of Green Star tools for the various building classes that sit within the proposed development.

The following targets have been proposed:

- A 5 Star Green Star – Design and As-Built rating for the office;
- A Green Star – Retail v1 – 4 Star design equivalency rating with a stretch to 5 stars;
- A Green Star – Multi-Unit Residential v1 – 4 Star design equivalency rating with a stretch to 5 stars.

5 ESD strategies

This section outlines a summary of the ESD strategies that are being investigated for various parts of the development in order to achieve the sustainability targets identified.

5.1 Holistic design

The following architectural initiatives are being investigated and will assist in motivating the users to embrace and respond to the surrounding environment:

- Activation of local street area by providing public street furniture, gardens and pedestrian amenity;
- Reduced reliance on car usage and promotion of the use of public transport, walking and cycling, as per Section 4.4 of Part 4.5 Macquarie Park Corridor of RDCP 2014;
- Improving linkages to the centre from public transport;
- Ensuring the design is in line with the Green Travel Plan;
- Safe pedestrian access;
- Enhanced pedestrian outdoor thermal comfort by assessing building mass form;
- Special acoustic and fresh air treatment;
- Design to encourage a safe environment, reduce crime and encourage positive interaction between residents/visitors and other local people using the area.

5.2 Management and operations

The following initiatives are being investigated to minimise resource consumption during construction and operations:

- Ensuring the contractors have ISO 14001 and adhere to a strict environmental management plan;
- Contractual obligations reducing construction and demolition waste;
- Comprehensive commissioning including quarterly tuning, overseen by an independent commissioning agent ensuring efficient operation and practical completion;
- Provision of metering for energy and water;
- Building users' guides for users to understand the design and efficiency measures included;
- Designing for and operating with minimal operational waste;
- Provision of easily accessible waste sorting and recycling spaces within project to divert waste from landfill;
- Develop a comprehensive Waste and Recycling Management Plan for the reduction in the amount, by weight, of the retail centre's overall operational waste.

5.3 Minimise greenhouse gas emissions and provide low carbon energy sources

The following energy efficiency and low carbon initiatives are being investigated to achieve the design outcomes:

- Efficient car park ventilation systems with carbon monoxide monitoring system and variable speed fan mechanical exhaust system for car park;
- Efficient hot water systems;
- High efficiency air conditioning systems;
- High efficiency lifts to be machine room less and have LED lighting;
- Long life lamps and high efficiency fittings (T5 fluorescent and LED);
- High efficiency external lighting such as LED;
- Smart lighting design ensuring reduced lighting zones;
- Lighting system to be controlled utilising appropriate sensors and efficiency controls;

- Back of house area lighting to be controlled via a combination of local dimming, manual switches and appropriate sensors;
- LED emergency and exit lighting;
- Sub-metering for appropriate plant and equipment in base building common areas connected to a central BMS/EMS and monitoring system;
- Sub-metering for light and power for all tenancies and common areas connected to a central BMS/EMS and monitoring system;
- Provision of a photovoltaic (PV) systems.

5.4 Reduce potable water consumption

In order to maximise efficiency of potable water provide the following initiatives are being investigated:

- High performance flush toilets/urinals and low flow fixtures;
- Rainwater capture and reticulation for non-potable uses;
- Reduction in cooling tower potable water consumption;
- Water meters are to be installed for major water uses in the building linked to the BMS and be capable of providing leak detection monitoring.

5.5 Reduce environmental impact from building materials

The following materials selection initiatives are being investigated and will assist in minimising the environmental impact of the commercial section of the project:

- Material selection to be based on a consideration of durability, embodied carbon and toxicity;
- Consideration of material sourcing with locally produced materials being favoured over similar quality ones from elsewhere;
- Use of low emission paints, sealants, adhesives and floor coverings where feasible;
- Use of low formaldehyde E0 rated engineered wood products (including exposed and concealed applications) where feasible;
- Use of PVC content sourced from an ISO 14001 certified supplier where feasible, meeting Best Practice Guideline;
- Structural timber which is AFS (Australian Forestry Standard) or FSC (Forest Stewardship Council) accredited where feasible;
- Furniture, fixtures, equipment and finishes with high recycled product where feasible.

5.6 Improve indoor environmental quality (IEQ)

The following design initiatives are being considered and will drive the project to achieve a high level of IEQ and improves occupant's health and wellbeing:

- Optimised façade design to improve on the requirements of National Construction Code (NCC) Building Code of Australia (BCA) Section J through JV3 verification, daylight, glare control, thermal comfort and energy efficiency;
- Use of non-toxic and low emissions materials;
- Acoustically treated glazing design;
- Optimised thermal comfort;
- Maximised right to light including daylight levels, appropriate glare control and access to external views.

5.7 Transport initiatives

The following transport initiatives are being investigated:

- Provision of small car spaces for fuel efficient cars;

- Provision of bike parking and facilities for building occupants and visitors;
- Low emission vehicle infrastructure for various new and emerging technologies in transport.

5.8 Minimising emissions

The following emissions reduction initiatives are under investigation:

- Use of zero ozone depleting refrigerants and thermal insulants;
- Ensuring refrigerant leak detection and automatic pump down is provided;
- Reducing flow to sewer;
- Minimising inefficient external lighting and eliminating light spill to the night sky.

5.9 Reduce construction waste and operational waste from site

The following waste reduction initiatives are being investigated and will minimise the construction waste and operational waste of the residential project:

- Demolition and construction waste will be recycled or reused where possible with a target 80% to be diverted from landfill;
- Provision of easily accessible waste sorting and recycling spaces within the project to divert operational waste from landfill.

5.10 Improve existing biodiversity

The following enhanced biodiversity soft landscape initiatives are under investigation and will improve the existing site's biodiversity:

- Provision of the an area of the roof top level dedicated to communal open space including a garden of hardy species;
- Locations within the site allocated for deep (terra firma) planting;
- Reduced heat island effect by incorporating heavily landscaped courtyards and providing interesting green space to the community;
- Provide a mix of fast and slow growing species.

Appendices

Appendix A - References

Office of environment and Heritage – NABERS

Green Building Council of Australia – Green Star

Section 4.4 of Part 4.5 Macquarie Park Corridor of RDCP 2014 – Environmental Performance

Section 9.0 of Part 4.5 Macquarie Park Corridor of RDCP 2014 – Sustainable Transport

Part 7.1 of RDCP 2014 – Energy Smart, Water Wise

Part 6.6 City of Ryde Local Environment Plan(LEP)

Department of Planning and Infrastructure - BASIX