Ecological Footprinting Wollongong Central's West Keira

CASE STUDY

Using the Ecological Footprint to reach our environmental performance targets at Wollongong Central's West Keira development.

ECOLOGICALLY SUSTAINABLE DESIGN IS AT THE CORE OF GPT'S WOLLONGONG CENTRAL'S WEST KEIRA DEVELOPMENT. AS ONE OF THE WORLD LEADERS IN THIS FIELD, ENVIRONMENTAL SUSTAINABILITY IS A KEY CONSIDERATION IN GPT'S DESIGN PROPOSITION AND DEVELOPMENT PLAN.

What is the Ecological Footprint?

The Ecological Footprint is an objective methodology used to quantify and report impacts of economies, businesses, buildings and their individual products. It is based on International Footprint and Life Cycle Assessment Standards providing confidence in its validity and robustness. It is not a rating scheme – rather, it provides quantitative estimates of life cycle impact associated with land use; materials; transportation; energy and water use for base building and tenancies.

Ecological footprint results represent the physical area of productive land theoretically needed to support the development and operations of the building. When expressed in terms of Planets, it means that if all of the world's buildings were built and operated in the same manner proposed, then the equivalent number of Planet Earths would be required to support the world's built environment. That is, if all of the world's buildings were built and operated with the same impact as a traditional retail centre, for example, the ecological footprint of the world's built environment would be 3.3 Planet Earths. Hence, to achieve a truly 'sustainable' state, the ecological footprint of all developments should be 1 Planet, or less.

Ecological Footprinting at Wollongong Central

GPT has used the Ecological Footprint as one of the methodologies to set targets for and measure the centre's ecological impact with regards to energy, water, material use, transport and land use. In addition to this we proactively work with our retailers to improve their ecological performance in these areas.

The consideration of environmental sustainability is integrated to the design philosophy of West Keira.

West Keira will engender sustainability pride in the community whilst delivering significant environmental sustainability outcomes, compared to a traditional shopping centre.

The project aims to reduce its ecological footprint by 30% as compared to a standard NSW regional shopping centre. This is equivalent to 2.3 planets worth of productive resources as indicated below. While the quoted design has achieved a total ecological footprint of 2.7 planets at concept design, the project team is investigating design opportunities to help achieve the 2.3 stretch target outcome.

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The following aspects form part of West Keira's ecological footprinting:

Biological Value - The existing site area is fully developed, providing limited potential for on-site ecology improvements.

Construction Materials - The materials used to construct buildings make up about 40% of a building's footprint. Materials are often hidden from view; however a considered approach to the use of materials will enhance the ecological footprint performance of West Keira. Reductions in the ecological footprint will be assisted by the following principle initiatives:

- Recycled content to be incorporated in construction materials including concrete and steel
- Bondek has been selected over timber formply as it has a substantially lower ecological footprint
- Sustainably sourced material selection via a materials strategy that considers fit-for-purpose, maintenance/operations and lifecycle assessment.

Energy - Energy efficient designs, including performance targets and innovative engineering solutions will be a key component in West Keira, including:

- A considered approach to passive design combined with Intelligent building systems allowing the mall and dining areas to operate in a passive ventilation mode when the weather conditions permit
- High efficiency mechanical systems such as chillers
- Parking efficiency improvements through electronic parking management
- Metering and monitoring all major energy uses in the building
- Robust commissioning program to ensure systems operate as designed.

Water - A proactive approach to water management will be taken to ensure all components of the system are integrated and to enable the project to manage local water systems in harmony with regional water systems, maximising benefits to the community and the environment. Initiatives include:

- Water efficient fixtures and fittings in amenities
- Metering of key water uses throughout the building
- The capture and storage of rainwater for re-use in the cooling towers.

Transport - Through the incorporation of appropriate infrastructure and the provision of information about sustainable transport options for commuters, the aim is to encourage transport modal shifts. An important initiatives to support sustainable transport is the provision of cyclist facilities and shower amenities for tenant and building staff.

Retailers - Retailers represent approximately 37% of the overall ecological footprint of West Keira. Their engagement, which is essential to ensure a robust design and delivery process to maximise the ecological impact potential, is supported by:

- A tenant requirement to complete an ecological footprint assessment as part of their fitout approvals process
- Work with West Keira tenants to assess and where required, propose strategies to reduce the ecological footprint of their tenancies
- A requirement for tenants to adopt minimum energy (lighting and power) and water fixture and fitting requirements in their fitout designs.

Summary of Planet Indicators

Goal: 1 Planet		To achieve a true "sustainable" state, the ecological footprint of the development is equal to 1 Planet.
2011 Concept design: 2.7 Planets		The agreed contract price design and ESD initiatives have an impact equal to 2.7 Planets
Baseline: 3.0 Planets		The original concept design had a 3 Planet footprint which was reduced through a variety of energy and materials initiatives.
Average: 3.3 Planets		Average traditional retail shopping centre estimated impact.

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