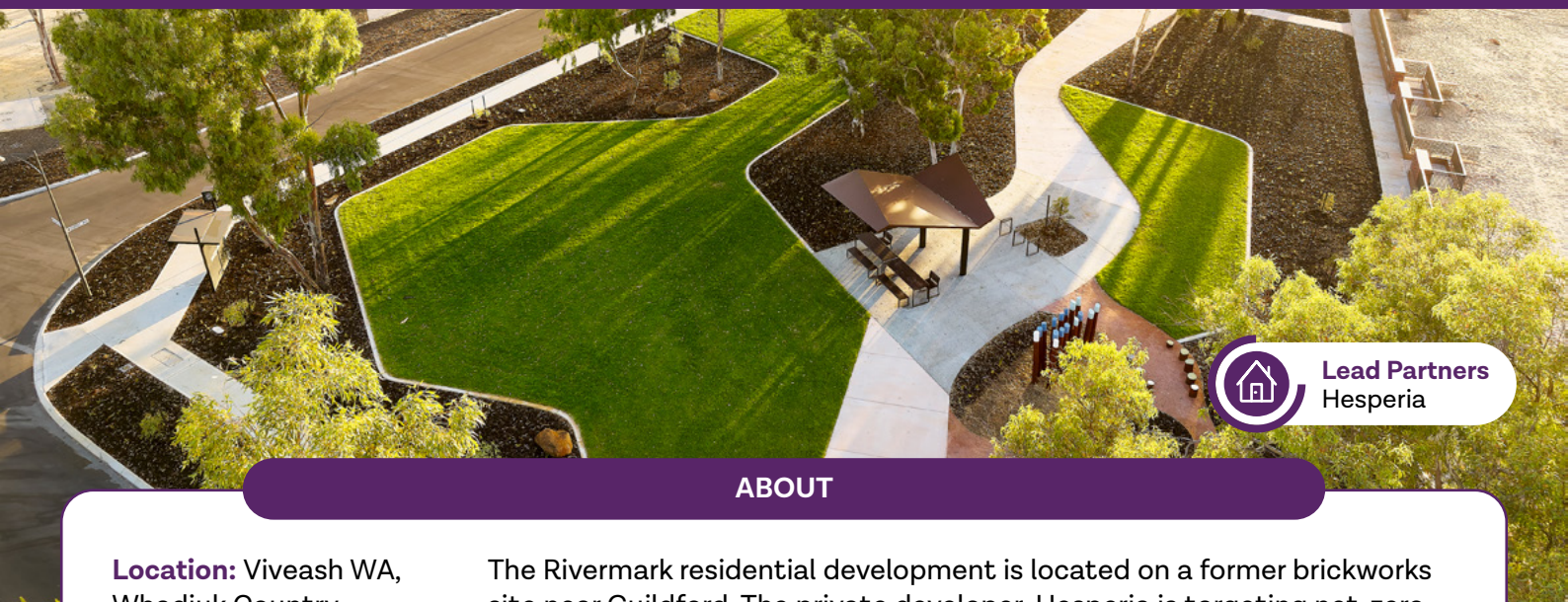




Lead Partners
Hesperia

ABOUT

Location: Viveash WA,
Whadjuk Country

Size: 52ha
(approx. 650 dwellings)

Typology: Residential

Status: In development

The Rivermark residential development is located on a former brickworks site near Guildford. The private developer, Hesperia is targeting net-zero status for its land development of this site, using low-carbon materials in its civil and landscape works to support these efforts, as well as measuring and offsetting residual emissions. They have focused on ecological placemaking at the site through strong Aboriginal engagement, creation of public green space and mature tree retention. Key initiatives to support and advocate for uptake of low-carbon technologies and behaviours by builders and home owners include house design guidelines supporting energy efficiency and the inclusion of PV systems. Incentives for customers have included electric bikes made available to residents, and a novel developer-led behind-the-meter battery leasing service called *Solar Maximiser*, now simplified to a single incentive to install a Battery Energy Storage System (BESS).

HIGHLIGHTS

01

The as constructed upfront carbon for the land development of the project is 19,600 tonnes CO₂e-, all of which were offset by purchasing verified carbon offsets.

02

Building a sense of place, including through strong Aboriginal engagement, has been an important part of the development of Rivermark.

03

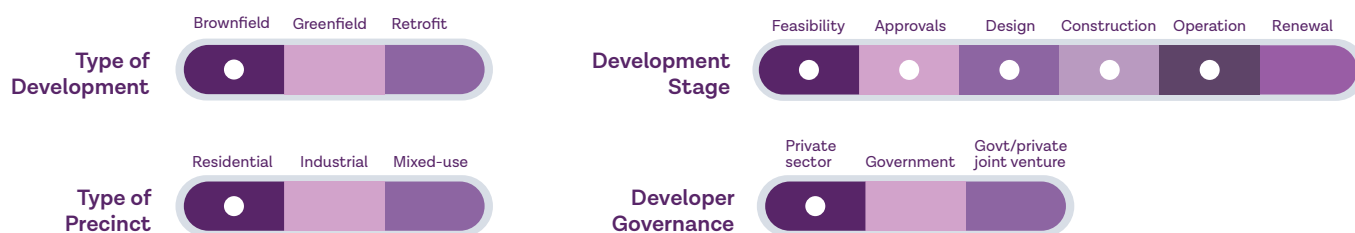
Incentives were offered for residents to take up low-carbon initiatives, including behind-the-meter solar and battery systems and e-bikes.

KEY RESEARCH QUESTIONS

What are the data, learnings and recommendations from the experience of offering net zero attributes to home builders and residents? What were the enablers or barriers to the success of uptake of these initiatives?

What insights can be gained from the initial roll out of the *Solar Maximiser* program to maximise the uptake and repeatability the model, and how has the program adapted to align with the objectives of subsequent Federal and State (WA) battery incentive rebates?

CASE STUDY FEATURES OF INTEREST



1. A CULTURE OF SUSTAINABILITY

Hesperia has a strong commitment to sustainability. As signatories to the World Green Building Council's Net Zero Carbon Buildings Commitment, they make efforts to reduce, compensate for, and report on the emissions produced in their land development activities, as well as advocate and influence the actions of other stakeholders involved in their developments. This not only formed the core principles for the Rivermark development but also allowed them to adapt to barriers to net zero that arose during the development process.



2. AVOIDING UNNECESSARY CARBON EMISSIONS IN UTILISING LAND

Redeveloping an existing disused brickworks site, which had the additional benefit of unlocking 1.2km of the Swan River for public use, avoided some of the GHG emissions that would have resulted from a greenfield land development.



3. SHIFTING TO LOWER CARBON EMISSIONS IN DEVELOPMENT PROCESSES

To reduce and compensate for the emissions produced during development (under their direct control), recycled and low carbon materials (e.g. low-carbon concrete) were used in civil and landscape works. All residual emissions were calculated and offset with verified carbon credits.

Plans to power the precinct with renewable energy through the installation of a microgrid faced regulatory and business case barriers. Responding to this, Hesperia came up with an innovative alternative offering a *Solar Maximiser* program, a developer-led behind-the-meter battery leasing service to enhance the utilisation of locally generated solar energy for households. The uptake from residents was lower than hoped for and future research activities may seek to understand the reasons for this low uptake, and how the program can be redesigned to complement Federal and State residential battery incentive schemes.



4. IMPROVING PERFORMANCE WITH LOWER CARBON TECHNOLOGIES

Being a land-only development site for Hesperia, they have limited control over the build and operation of the dwellings of private residents. In efforts to influence the uptake of low-carbon technologies and behaviours by builders and residents of Rivermark, Hesperia have implemented a number of net zero-aligned initiatives. Alongside the previously mentioned *Solar Maximiser* program, house design guidelines supporting energy efficiency and the inclusion of PV systems are given to all builders and home owners. Through a sustainability incentives program, residents can choose a number of low carbon options including e-bike/e-scooters; acoustic upgrades; waterwise landscaping and irrigation; energy and utilities upgrades such as heat pump hot water system to include in their land package.

INITIAL LEARNINGS

DEVELOPMENT STAGE	INSIGHTS FROM THE CASE STUDY
Overall	- For the achievement of Net Zero outcomes in precincts there needs to be alignment of the net zero ambitions of the developer, mature net zero technologies, enabling legislation/policies and net zero literacy and behaviours from precinct residents/tenants. - Strong corporate leadership through a commitment to net zero outcomes can be a driving force able to overcome barriers faced and enable innovation and creative thinking to find new solutions.
Feasibility/ Business Case	The leadership commitment to sustainability was important to approve marginal business cases for net zero attributes (like water sensitive design, battery storage, biodiversity) in precincts.

DEVELOPMENT STAGE	INSIGHTS FROM THE CASE STUDY
Approvals/ Planning	- Decisions by regulatory bodies can be a significant barrier to developers committed to net zero outcomes. - The leadership commitment to sustainability was important to create alternatives to original designs when faced with barriers. - When projects face approval and planning delays, they cost developers and investor money, adding additional financial risk to the project, which can reduce risk appetite for pursuing future net zero outcomes. - There is a lack of structured forums where government, utilities, and developers can collaborate on priorities and practical barriers to net zero precincts.
Design	It is difficult to replicate successful CER deployments due to bespoke, site-specific contracting, lack of scalable delivery platforms, and varying technical standards.
Construction	- Investing in energy efficient design guidelines, low carbon incentives and setting up good processes upfront can reduce inefficiencies and compliance problems in the long-term for net zero outcomes. - Net zero education, training and buy-in from builders is important to achieving net zero goals during construction.
Operation	- Stakeholder trust, education and behaviour change interventions with residents is important to achieving operational net zero goals. - Low uptake of alternative offerings of solar/batteries appears to be partially due to widespread lack of energy market literacy among purchasers, leading to risk aversion and inertia due to complexity and perceived risk. - The timing and payback period of net zero enabling technologies, services and incentives is critical to their success. For example, solar power is well understood with a quick payback but the battery payback period is currently perceived as too long by residents. - Microgrid installation for residential developments currently faces legislative and policy barriers. - Reviews of tariff setting, metering rollout timelines, and investment in infrastructure should be based on deliberative collaborative governance to bring evidenced based decision making to benefit the whole community through weighing multiple concerns (e.g., net zero goals, cost of living pressures etc).

FURTHER INFORMATION

[Pathways to Net Zero Precincts Website – Rivermark Case Study](#)

[Hesperia Rivermark Website](#)

[Hesperia's Net Zero Carbon Report – Rivermark](#)

[Rivermark's Solar Maximiser Flyer](#)



Curtin's support includes the CISCO Curtin Centre for Future Networks

Image by J Wyld

The preliminary findings set out in this document are part of ongoing research and are not final. No liability is accepted for any actions taken based on them.