

Lead Partners
DevelopmentWA

ABOUT

Location: Alkimos WA,
Whadjuk Country

Size: 198ha
(approx. 2,500 dwellings
and 20ha of commercial)

Typology: Mixed-use

Status: Planning

Alkimos Central is a new build city-centre precinct, planned by DevelopmentWA, that will be delivered over the next 20–30 years. Located in Perth's northern coastal region, Alkimos Central will include mixed-use commercial and residential development, with a focus on sustainability outcomes to create a liveable, connected and lower carbon built environment.

DevelopmentWA has undertaken extensive work to evaluate Alkimos Central as a net zero-aligned project, and to consider precinct-scale certification options. This work includes cost-benefit analyses of decarbonisation options for the precinct, and life cycle assessment (LCA) of pathways to net zero for operational carbon and for upfront carbon in civil works.

At the planning stage, Alkimos Central demonstrates how mitigation and adaptation can be integrated, with a focus on active and low carbon transport options, green infrastructure (trees) to reduce urban heat island effects, and design guidelines to enable more efficient and lower carbon buildings and infrastructure.

HIGHLIGHTS

01

Alkimos Central is being designed as a net zero-aligned precinct, with actions planned to enable a built environment that supports low or zero carbon transport, generates less waste, uses less water, requires less embodied carbon, and is fossil-fuel free and energy efficient.

02

A planning aim is to create a green, cool, shaded urban retreat through the planting of 20,000 trees (about 1 tree for every 10 m² of land area) across the precinct, and the retention of regionally significant parabolic dune system as a coherent landscape element.

03

DevelopmentWA is aiming to achieve a 6 Star Green Star rating for Alkimos Central under GBCA's *Green Star – Communities* rating tool.

KEY RESEARCH QUESTIONS

What decarbonisation actions can feasibly be considered for implementation at a precinct-scale, and what are the challenges (including costs) associated with their adoption?

How can life cycle assessment be used to evaluate decarbonisation options for new build precincts?

What are the challenges and possibilities for precinct-scale net zero certification?

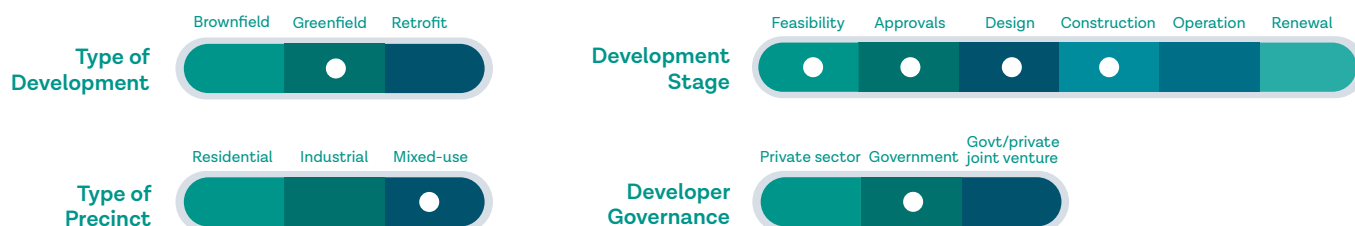
¹ See Alkimos Central Precinct Plan, available at <https://www.wanneroo.wa.gov.au/consultations/1019-alkimos-proposed-amendment-no-1-to-the-alkimos-city-centre-activity-centre-structure-plan-no-89>

² <https://developmentwa.com.au/projects/residential/alkimos-central/sustainability-innovation>

Image: Draft render subject to final details and updates, Image provided by DevelopmentWA

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.

CASE STUDY FEATURES OF INTEREST



1. A PRECINCT THAT IS MASTERPLANNED TO ALIGN WITH THE NET ZERO TRANSITION

DevelopmentWA has evaluated a range of decarbonisation options for the precinct and has integrated sustainability, mitigation and adaptation objectives into the Alkimos Central Precinct Plan.



2. USE OF LIFE CYCLE ASSESSMENT AND COST-BENEFITS ANALYSIS TO INFORM DECISION-MAKING

Life cycle assessments and cost-benefit analysis are being undertaken to characterise emission sources, evaluate decarbonisation and sustainability options, and map a pathway toward precinct-scale certification.



3. A SHIFT AWAY FROM CONSIDERING CLIMATE ACTIVE CARBON NEUTRAL CERTIFICATION AS A PRECINCT TOWARD SEEKING GREEN STAR COMMUNITIES CERTIFICATION

DevelopmentWA shifted toward aligning with GBCA's Climate Positive Pathway and certification under the GBCA Green Star – Communities V1.1 ratings tool after considering the feasibility and cost associated with achieving and then sustaining Climate Active Carbon Neutral Precinct Certification as a Precinct.



4. A TREE PLANTING STRATEGY IS PLANNED TO ESTABLISH A DENSE URBAN FOREST

The strategy includes a target of achieving 20,000 trees within the precinct plan area to create a cool and shaded environment.

INITIAL LEARNINGS

DEVELOPMENT STAGE	PRELIMINARY INSIGHTS FROM THE CASE STUDY
Overall	DevelopmentWA is the State Government's central development agency, making it a key enabler of the net zero transition for the built environment in WA, particularly at a precinct scale. Alkimos Central is being planned and implemented as an 'exemplar of sustainable development', making the challenges and successes encountered so far instructive to other developments considering how to align to the net zero transition.
Feasibility/ Business Case	A life cycle assessment (LCAs), supported by cost-benefit analyses, have been undertaken to guide the design and early stage construction of Alkimos Central, and to inform decision-making around certification. This LCA and analyses provide a unique perspective on the mitigation benefits and costs of a range of decarbonisation actions and certification options, within the bounds of what a land developer can control or influence.
Approvals/ Planning	The City of Wanneroo is the development authority for Alkimos Central and a precinct plan has been developed to support planning decision-making. Design guidelines will be developed, but there are limits to the built form requirements that can be imposed. Alkimos Central provides examples of how upfront carbon can be reduced in precinct features that are under the control of the developer, such as civil infrastructure.
Design	The precinct has been masterplanned. Passive environmental design measures, such as shaded, wind- and sun-protected, and pedestrian-friendly streetscapes, and integrated transport options are integral to the aim of creating a cool, liveable and connected built environment.

INITIAL LEARNINGS

DEVELOPMENT STAGE	PRELIMINARY INSIGHTS FROM THE CASE STUDY
Construction	An upfront carbon materials analysis for Stage 1 civil works demonstrates key challenges in reducing embodied carbon in urban development – particularly when accounting for civil works, landscaping, and the clearing of native vegetation.
Operation	The Alkimos train station opened in 2024 and sits at the heart of an integrated transit network for Alkimos Central and surrounding urban areas.

FURTHER INFORMATION

[DevelopmentWA's Alkimos Central webpage](#)



Draft render subject to final details and updates, Image provided by DevelopmentWA



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