



East Village Knutsford

One Planet Living® Leadership review
March 2024



Contents

<u>Report overview</u>	03
<u>Bioregional and One Planet Living</u>	05
<u>About this Leadership review</u>	09
<u>Review summary and highlights</u>	11
<u>Overall Leadership qualities</u>	17
<u>Appendix: Detailed review</u>	20

Report overview

Report overview

Scheme:

East Village Knutsford, Fremantle, Western Australia

Developer:

DevelopmentWA

Project type:

Real estate

Description:

East Village at Knutsford (EVK) is a 1.5ha residential precinct within the broader 'Knutsford' urban redevelopment area in Fremantle. EVK is an ambitious sustainable development, recognised as a One Planet Living Global Leader by Bioregional in 2019. It includes an apartment site and two townhomes development sites with shared water and energy infrastructure, connected via landscaped areas to the surrounding neighbourhood. DevelopmentWA is delivering the 36 townhomes on Lot 3, with OP Properties contracted as the successful developer to deliver Lot 1 (Montreal Terraces) and Lot 2 (Montreal Commons), with all developments guided by the One Planet Living philosophy and sustainability aspirations.

Reviewer:

Phil Donaldson, Bioregional Australia Foundation

One Planet Living Board sign-off and quality review:

Sue Riddlestone, Bioregional Development Group (UK)

Date of review:

March 2024

Leadership status:



Bioregional and One Planet Living

The Bioregional family

About Bioregional Australia

Bioregional Australia Foundation (BAF) is a for-purpose organisation dedicated to the challenges raised by the UN Sustainable Development Goals and the global climate and ecological emergencies. Bioregional Australia works with partners to create better, more sustainable places to live, work and do business.

Formed in 2014, Bioregional Australia has been involved in promoting One Planet Living in Australia. In 2021 Bioregional Australia signed a 10-year collaborative agreement with Bioregional to facilitate the delivery of One Planet Living across the Oceanic and Australasian region.

About Bioregional

Bioregional is a UK-based, purpose-led, international sustainability consultancy. It has worked in over 20 countries on sustainable development, working with local communities, cities, and companies.

Bioregional devised the One Planet Living framework, based on our experiences creating the multi-award-winning BedZED in South London, the UK's first large-scale sustainable community. One Planet Living has guided the development of real estate across the world, shaping exemplar communities that enable sustainable living.



One Planet
Living®

| A framework
by Bioregional

One Planet Living

About One Planet Living

One Planet Living® is a vision of a world where it is easy and attractive to live happy, healthy lives within the limits of our Earth's resources.

We need this vision because if everyone lived like the average Canadian, we would need nearly five planets to support us. The measure of this is called 'ecological footprinting'. Meanwhile, many lack what they need for a good life, and wildlife is being pushed out to make room for our demands.

The One Planet Living framework consists of 10 principles which cover the activities that drive resource consumption, and the elements that form the basis of a good life for everyone. The principles are used to identify the needs in a local area, to relate these to the planetary bottom-line, and then to structure responses to those needs.

	Health and happiness	Encouraging active, social, meaningful lives to promote good health and wellbeing
	Equity and local economy	Creating safe, equitable places to live and work which support local prosperity and international fair trade
	Culture and community	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
	Land and nature	Protecting and restoring land for the benefit of people and wildlife
	Sustainable water	Using water efficiently, protecting local water resources and reducing flooding and drought
	Local and sustainable food	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
	Travel and transport	Reducing the need to travel, encouraging walking, cycling and low carbon transport
	Materials and products	Using materials from sustainable sources and promoting products which help people reduce consumption.
	Zero waste	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
	Zero carbon energy	Making buildings and manufacturing energy efficient and supplying all energy with renewables

What is a One Planet Living Leadership review?

One Planet Living Leaders are outstanding projects that showcase the very best use of our One Planet Living framework and a gold standard in placemaking. There are hundreds of One Planet Living projects around the world, but only the very best achieve Leadership recognition.

A Leadership review involves opening your action plan to scrutiny from a suitably qualified expert from Bioregional, or Bioregional Australia, (or one appointed by us). It will include:

- Reviewing the action plan as a whole and providing advice and suggestions on how it might be improved.
- Evaluating it against several criteria including impact, systems change, ambition and delivery.
- Assessing the action plan against the One Planet Living goals and guidance and local industry best practice.
- You can then discuss whether your action plan could be a candidate for leadership recognition.



About this Leadership review

About this Leadership review

This document reviews the East Village Knustford's One Planet Living Action Plan.

It is a review update based on the previous action plan that achieved Global Leader recognition in 2019, however, due to Covid-10 and other external issues, the update has been necessary to ensure the intentions in the original action plan are still relevant today, prior to construction completion.

Reviewer recommendation

The outcome of this review is that EVK retains its Global Leadership recognition. Having been through difficult times, they have been able to keep to the original intent and the ambition of the project.



One Planet
Living®

Global
Leader 2024

Comment from Naomi Lawrance, Senior Development Manager, DevelopmentWA



East Village Knutsford is progressing its aims to be a globally recognised sustainable residential precinct in Fremantle, guided by the One Planet Living philosophy.

Since One Planet Living Global recognition in 2019, the civil construction, innovative water and energy services and the majority of the public realm landscape have been completed. After delays in townhome construction due to skill and material shortages and disruptions amplified by the COVID-19 pandemic; momentum is now returning.

Review summary and highlights

Leadership review summary and highlights

This review has been conducted through two site visits and conversations with the OPL Integrators Melissa McGrath and Josh Byrne, and DevelopmentWA the project developers. After delays with the construction of the townhomes due to skill and material shortages and disruptions amplified due to COVID19, the project was in a state of flux, so we have reviewed this as an update of the previous action plan noting that some aspects of the connected infrastructure have been installed.

As such it is pleasing to see that the original intent of the project has continued and that the project is now moving ahead with an updated construction timeline for the 36 town homes with new builders currently on site.

Since Global Leader recognition in 2019, the civil construction, innovative water and energy services and the majority of the public realm landscape have been completed, however the construction of the townhomes has been delayed. This is mostly due to skill and material shortages and disruptions amplified by the COVID-19 pandemic.

Significant sales have occurred, and construction has started on some lots. A display home has been built and all homes will now be timber constructed with certified sustainable timber products. All homes are likely to be completed by June 2025. The modular research living lab on site has been extended to 2026 and will provide a benefit to research and development as well as an initial meeting place for new residents and places for education with the local community and industry.

The action plan provides a great overall coverage of the 10 principles of One Planet Living with a commitment to develop a variety of flexible sustainable housing options. While the property market has changed significantly in the last 4 years with increased demand and pressures on the building supply chain, Development WA continues to commit to ensure that the precinct delivers on its original intent.

Townhomes will be built to at least a 7-Star NaTHERS rating, which is ahead of regulatory requirements in Western Australia, with the National Construction Code (NCC) minimum 7-Star requirements for houses and apartments which has been deferred until 2025.

With greater emphasis on the approach to accounting for embodied greenhouse gas emissions in the construction and materials through use of Life Cycle Analysis

(LCA) and trialling of Carbon Trace in design of some of the townhouses, it will provide an opportunity to demonstrate the results and learnings from East Village Knutsford to other projects. There is continued sharing and support with the other projects in the Precinct - Montreal Commons and Montreal Terraces to demonstrate the benefits of a One Planet Living Community.

An example of this shared infrastructure approach is the three significant features that demonstrate innovation and creativity to create greater sustainability outcomes in line with One Planet Living framework for this project and the precinct more widely.

1/ The capture, storage and reuse across the whole site of stormwater/rainwater occurs through a precinct wide managed strata bore scheme. The water is pumped into an aquifer and then reclaimed to supply groundwater to the public verges, landscapes and as well the private courtyards in the townhouses. This has benefit by decreasing emissions using a co-localised water source rather than the centralized water system. The evidence of the maturity of the current landscaping on site is testament to the use of this approach.

2/ The current race to zero carbon emissions especially in the built environment is necessary if we are to avoid significant climate change impacts. Through localised systems such as the aspiration for an innovative solar micro-grid with each house being fitted with a 6.6kW solar PV system and the integration with battery storage technology to create **100% renewable energy** for the 36 townhouses through a community energy model will provide an example of the future of micro grids in new developments. Any backup grid energy is also to be derived from renewable sources. There is the potential to link this with the Montreal Commons apartment and Montreal Terraces developments and demonstrate the connected shared battery scheme to demonstrate the supply of **shared renewable energy, a first for Perth.**

3/ Innovative technology approaches to community development through an online portal and individual water and energy metering and management via a dashboard are planned. When implemented, it will be important to see the benefits of this to demonstrate a One Planet Living community.

Leadership review summary and highlights

The desire for an integrated cool environment to tackle the heat island effects prevalent in the built environment with quality urban green space provides a connection to nature that will encourage a liveable, walkable community resilient to future impacts. The overall landscape design, some of which is currently mature, is climate appropriate, waterwise and robust. It is designed to minimise long term irrigation requirements. The WSUD approach with swales, rain gardens and permeable paving contributes to the heat resilient landscapes.

The 36 townhomes on Lot 3 are targeting an 80% reduction in mains water consumption, with each dwelling having a 7kL underground rainwater tank internally plumbed for toilets, washing machines and hot water heat pump systems. Rainwater tanks were installed during civil construction. A carefully managed strata bore scheme supplies groundwater for irrigation of shared public space landscaping and verges, as well as private courtyard gardens.

Groundwater use at EVK is a locally available water source, resulting in a lower cost and lower emission source than mains water supply. It is designed to be replenished via landscape approaches that facilitate at-source infiltration of stormwater. Groundwater is delivered via a highly efficient irrigation system and is carefully monitored to ensure water use does not exceed the allocation.

EVK just won Water Corporation Platinum Waterwise Development of the Year (Read more [here](#)).

The lease for the L3 Legacy Living Lab has been extended until 2026 to continue to provide a place for research, collaboration, and knowledge sharing. Research projects have been supported by the City of Fremantle, Cooperative Research Centre for Low Carbon Living, Curtin University's Sustainability Policy Institute, and the Cooperative Research Centre for Water Sensitive Cities (now Water Sensitive Cities Australia).

Research is a critical outcome for the project and the precinct overall and will also be a case study site in the recently awarded RACE for 2030 Cooperative Research Centre project 'Pathways to Net Zero Precincts' in partnership with Curtin University.

More info on net zero precincts can be found here: <https://racefor2030.com.au/project/net-zero-precincts/>




Video which features EVK: <https://www.youtube.com/watch?v=-htHZSsx3wg&t=4s>

The implementation of community development activities when the residents move in will be the real indicator of this project embracing One Planet Living in operation.

The research and activities that are occurring at East Village Knutsford integrating with Montreal Commons and Montreal terraces will demonstrate EVK's Australian and Global Leadership attributes.

Action plan summary

Bioregional uses a simple red/amber/green traffic-light approach to indicate how well the action plan addresses the One Planet Living principle and their goals. More detailed comments and recommendations are in the 'detailed review' section.

-  OPL goals well addressed
-  OPL goals adequately addressed
-  OPL goals not addressed



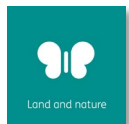
The project team has designed a place that includes integration with the Montreal Commons and Montreal terraces. The infrastructure creates connection to place, and the Living lab provides space for community forums. The landscapes are well established, and community interaction is encouraged via edible streetscapes and the provision of walking and cycling connections through the site and with facilities outside the precinct.



Local Builders have been employed for the dwelling construction and criteria to include indigenous engagement is a conscious criterion for contractors involved in the site. A liveable housing design criteria for several townhouses has been confirmed and the 10% of the houses will be suitable for wheelchair users. There is a commitment to prioritise local contractors and consultants. Flexible design characteristics enable work from home options in final design and construction. The mixed building typologies enable a variety of demographics options for new residents.



The shared BBQ space with a central spine through the precinct will enable a sense of community with linkages to recreation fitness equipment and circuits provided to residents when occupied. An online community forum will enable connections between respondents and access to facilities at Montreal Commons will provide wider community benefits for connections and relaxation. The Living Lab provides a space for learning about the sustainability initiatives of the precinct and One Planet Living. Several industry tours have been conducted to demonstrate progress and learning opportunities.






The site provides green spaces designed to provide habitat for native fauna as well as restoration of tree canopy and landscaped area that was absent from the former industrial site. Shared spaces comprise hydrozoned exotic and native gardens and small turf areas are distributed throughout the Public Access Ways (PAWs), streetscape and verges. Design has included space for private gardens. The streetscape around the site includes native edible plants enhancing traditional landscape approaches and providing opportunities for residents to connect.



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The project is pioneering an application of 'fit-for-purpose' water supply not seen previously in WA where rainwater supply is connected to the hot water system, as well as toilets and washing machines. 7Kl rainwater tanks are installed below ground in all 36 townhouses. The WA Department of Health has approved this application of rainwater in a strata development for the first time in WA at East Village.



A strata bore scheme will provide low cost, low energy, fit for purpose source of water for irrigation of all townhouses, apartment lots and public open space including street verges managed by the City of Fremantle.

The project will achieve an 80% reduction in mains water consumption that will also result in a reduction in the greenhouse gas emissions associated with the mains water service as water systems onsite will be powered by renewable energy. High water efficiency products will be installed in all dwellings.

Stormwater infrastructure has been developed using water sensitive urban design principles and have been connected through the other 2 building lots on the site



Residents have access to locally grown food via productive plants, including fruit trees, planted throughout verges and streets. The future development of a community garden integrated with Montreal commons and Montreal Terraces will provide a seasonal supply of food grown on site. Local cafes are within walking distance, including 'Montreal Local' restaurant located on the ground floor of Montreal Commons.






Dwellings include flexible spaces, providing an option to work from home. Cycling is promoted as a sustainable transport option via provision of bike racks within the precinct, bike storage included in townhouse design and cycle paths connecting residents to Fremantle and WGV One Planet Living Community. The public EV charging station on site is installed, future charge points options are included in the townhouse design and options for future car sharing within the precinct to be implemented with residents. The shared zones for different transport options provides for priority of a walkable cycling neighbourhood over cars. The online community portal will assist in creating linkages between residents to assist in the future to contribute to sustainable transport options with the precinct.



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With a recycling centre in walking distance and an online portal to contribute to the development of a sharing economy, the project has potential to contribute to sustainable lifestyles. The project has embraced recycled and responsible sourcing of materials, including recycled concrete in the road base, sustainably sourced timber in townhouse construction and the modular construction of the living lab, allowing it to be deconstructed and reused. Tender packages include requirement for use of ESD principles to guide landscaping material choices, as well as the requirement for low VOC produces and low emissions concrete, targeting a 30% reduction from typical Perth construction. Working with Carbon Trace to determine embodied energy opportunities provide further evidence of the commitment to deliver less greenhouse gas intensity developments through design reviews creates a pathway to the future.



Housing design offered a range of typologies promoting fit for purpose rather than oversizing. The aspiration was for zero waste to landfill, with a reduction of construction waste as compared to BAU. The Civil construction company had an 85% waste recycle target. They were able to achieve ~97% reduction of waste to land fill and recycled this amount by weight. There are conditions for Monthly Instant Waste Reports to be issued during construction - to achieve minimum 90% recycling through building construction. All residents will be part of a food and garden organic recycling systems as per City of Fremantle best practice waste management.



7 – 7.5-star NatHERS rating which is above industry standard in WA and well above industry standard when the project was first reviewed in 2019. Houses are designed for solar access and blower tests are to be conducted on 14 of the houses to demonstrate thermal performance outcomes. 6.6 PV and 5kw inverter to be included on all 36 townhouses and connected to the microgrid precinct shared battery (670kW). A public EV fast charger is already located with the precinct and all homes to be EV ready charging. Public lighting to be LED lighting and sensor controlled.



Overall Leadership qualities

Overall leadership qualities

	Highlights	Opportunities
Scope	<p>All principles addressed and the majority are addressed well.</p> <p>Zero carbon, sustainable water, local and sustainable food, culture and community and the approach to travel and transport to be commended.</p> <p>The action plan shows the high level of commitment to the addressing the scope of One planet living in design and in implementation</p>	<p>Demonstrate opportunities for reduction in embodied emissions in materials through design interrogation.</p> <p>LCA of built form will assist with this as will the work with Carbon Trace.</p>
Transformation	<p>Learnings are shared via Building Industry forums and site tours.</p> <p>WSUD initiatives and green heat resilient landscapes.</p> <p>Shared infrastructure such as strata bore scheme and Renewable Energy and Battery Storage micro grid system.</p> <p>Research projects to demonstrate leadership of the project.</p>	<p>Update the Sustainable urbanism paper @ 2020 linking research back to the One Planet Living Philosophy and principles.</p> <p>Acknowledgement on site of Local Indigenous groups.</p> <p>EVK fact sheets to include One Planet Living principles and logo.</p>

Overall leadership qualities

	Highlights	Opportunities
Ambition	<p>Very high ambition in majority of the principles.</p> <p>Shared infrastructure between projects across the precinct such as water and energy supply systems, productive landscaped verges and streets, walking and cycling linkages and EV charging shows ambition of integration and supporting connections between principles.</p> <p>Community garden to be progressed when residents have moved in.</p>	<p>Integration of the Community online systems to create a sense of a One Planet Living linked community across the townhouses and the whole precinct site. Development WA to take leadership of this approach.</p> <p>Demonstration of local food and employment.</p>
Implementation	<p>Action plan appears to be on track to be constructed as planned.</p> <p>Considerable progress in implementation of public and shared infrastructure.</p> <p>Research projects that provide evidence of the ambition of the project in implementation.</p>	<p>Signage outlining One Planet Living aspirations and outcomes.</p> <p>Maybe an electronic dashboard of progress and outputs across the site.</p> <p>Joint household surveys across the project consistent across the precinct.</p>