



# WGV

## One Planet Action Plan 2017 Review







# Contents

<b>MESSAGE FROM THE CHIEF EXECUTIVE</b>	<b>4</b>
<b>WGV</b>	<b>5</b>
<b>KEY ACTIVITY IN 2017</b>	<b>6</b>
<b>SUMMARY OF ACTION PLAN</b>	<b>8</b>
<b>ONE PLANET ACTION PLAN</b>	<b>10</b>
Health and Happiness	11
Equity and Local Economy	12
Culture and Community	13
Land Use and Wildlife	14
Sustainable Water	16
Local and Sustainable Food	17
Sustainable Materials	18
Sustainable Transport	21
Zero Waste	22
Zero Carbon	25
<b>BIOREGIONAL COMMENT ON THE ANNUAL REVIEW</b>	<b>26</b>





## Message from the Chief Executive

LandCorp aims to deliver land and infrastructure development which has a lasting and positive impact.

At WGV, located in the suburb of White Gum Valley, we achieved a Western Australian first with the estate accredited as the first internationally endorsed One Planet Community.

WGV's design demonstrates the very best in modern, sustainable living and is well on the way to creating a community where it is easy and affordable for people to adopt a lifestyle that makes smarter use of the earth's resources.

As one of our 'Innovation through Demonstration' projects, WGV is the focus of a four-year 'living laboratory' research program with the Cooperative Research Centre for Low Carbon Living. The program involves monitoring building typologies and technologies, particularly the Gen Y Demonstration House, to ensure the innovations undertaken at WGV are robust and replicable. Importantly, it will provide the platform to share the WGV findings with industry and the wider community and

We look forward to translating WGV's many One Planet framework initiatives into real world innovative development across as many of our regional and metropolitan projects as possible to ensure our development legacy is one of which future generations can be proud.

## WGV

This new, boutique, residential estate has redeveloped the Kim Beazley Special School site and provide a diverse range of housing styles and living options, including; apartments, townhouses, maisonettes, and single dwellings, providing more than 80 dwellings.

Sited on Stevens Street, opposite Booyeembara Park and Fremantle public and private golf courses the two hectare site is being transformed into a residential estate which is sympathetic to the community and environmental aspirations of the surrounding suburb.



# Key Activity in 2017

Project component	Type of units	2016	2017
SHAC	12 x 1, 2 and 3 bedroom apartments plus 2 artist studios	Broke ground: August	<ul style="list-style-type: none"><li>Completed: July</li><li>Opening event: August</li></ul>
Gen-Y	3 x 1 bed Apartments	Broke ground XX	<ul style="list-style-type: none"><li>Completed: Oct 2016 open till Feb</li><li>290 visitors to WGV most including GenY</li><li>Released for sale April 2017</li></ul>
Evermore WGV	24 x 1,2 &3 bedroom apartments	Planning application made	<ul style="list-style-type: none"><li>Under construction.</li><li>Due for completion third quarter 2018</li></ul>
Single lots	Share house - Vince 6 bedrooms	First meetings	<ul style="list-style-type: none"><li>4 completed and occupied</li></ul>
	Gen-y comparison - Martin Anda	All lots sold	<ul style="list-style-type: none"><li>Lot 4 nearing completion</li></ul>
Other	Baugruppen		<ul style="list-style-type: none"><li>Advertising and sales</li></ul>
	Multi residential lot 11		<ul style="list-style-type: none"><li>ReDesign and re-subdivision application lodged in 2018 for 6 town homes</li></ul>

## Housing

- Six detached residential houses under construction, several nearing completion, 4 completed and occupied
- Sitewide initiatives included the connections of the first home to the WGV community bore for all garden irrigation and the installation of sub metering

## Awards and Media

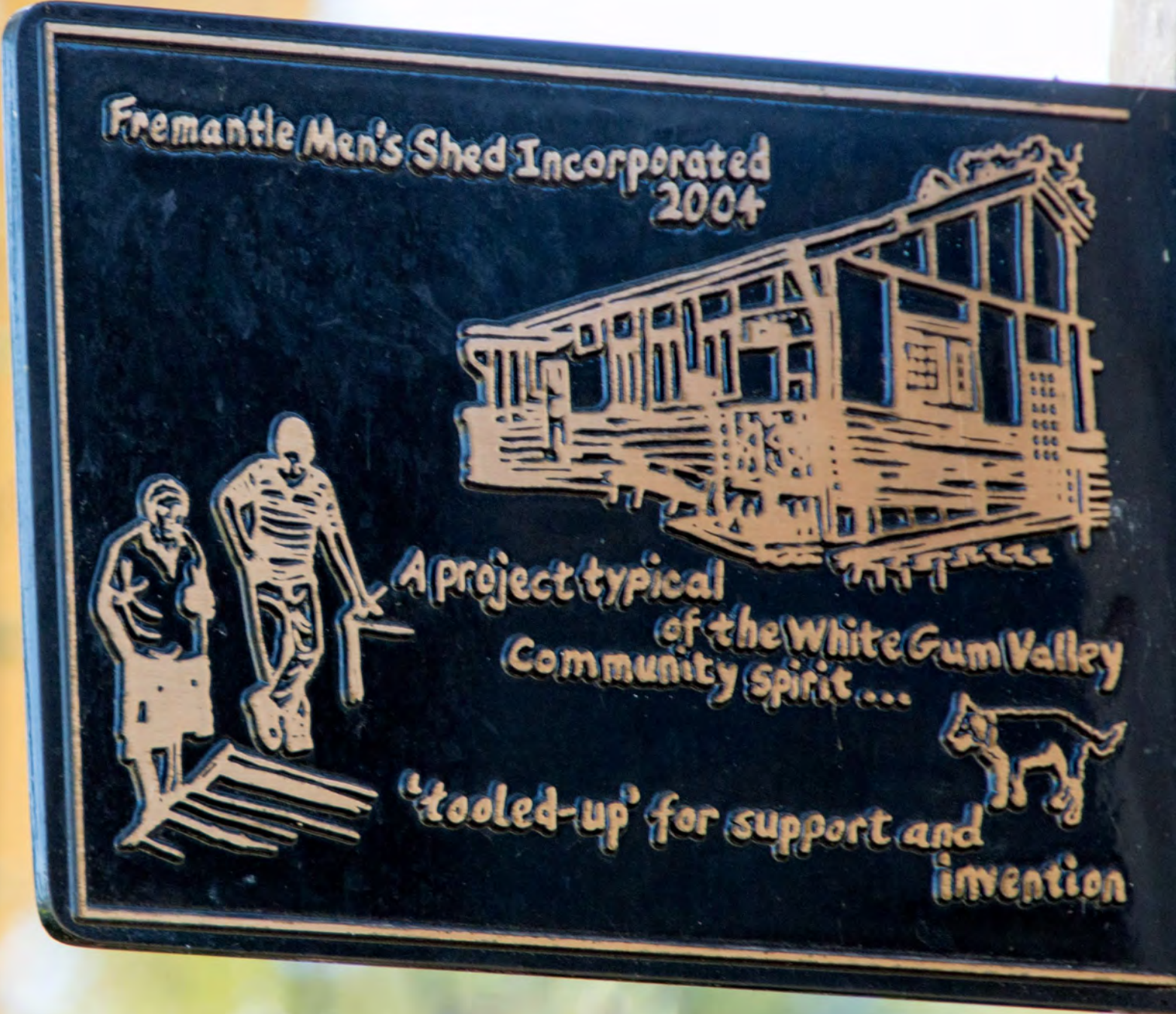
- WGV Waterwise Development Certification
- Australian Water Association Water Sensitive Urban Design Award
- Winner 2017 UDIA WA Sustainable Urban Development Award
- Gen Y Housing project winner of multiple Architecture awards and commendations at State and National level
- Lot 4 Djildit (little fish) achieved a Platinum e-Tool performance rating
- WGV Featured in CRC Low Carbon Living/Density by Design webisodes





# Summary of Action Plan

One Planet Principle	Headline goals and targets	2017 Status and progress
Health and Happiness	Foster a strong sense of community	On Track
	Foster a healthy community	On Track
Equity and Local Economy	Ensure a diversity of housing type and tenure	Cooperative Housing (SHAC), Gen-Y house, self-build all completed. SHAC (12 units) and Gen-Y (3 units) affordable
	Encourage residents to engage in fair trade and local economy programmes.	Information on fair trade purchasing included in Residents Guide.
Culture and Community	Create a culture of sustainability	10 people visited CODA
	Create a culturally vibrant community	More than 6 events
Land Use and Wildlife	Create two new habitats	Sump Park complete, green link to be completed at end of project
	Contribute to an increase in biodiversity	16 nesting boxes installed and being monitored
Sustainable Water	Reduced potable water use by 75%	4 rainwater tanks installed and 8 connections to the community bore
	Reduce flooding risk - 100% of stormwater treated onsite	Underground drainage infiltration cells and Sump Park completed
Local and Sustainable Food	Access to food growing space (% of dwellings)	100% of units completed to date
	Edible landscaping (30% of landscape trees)	30% planted species of Lemon and Bay Laurel trees
	Encourage sustainable and healthy purchasing habits	Information included in Residents Guide
Sustainable Materials	Reduced embodied energy of construction	eTool Lite session offered with Design Workshop Gen-Y achieved E-tool Gold star, Lot 4 achieved Platinum
	Sustainable materials in operation	Information in the Resident's Guide
Sustainable Transport	Enable a sustainable transport carbon footprint	EV Car Share installed at SHAC development which is available to all residents
	Reduced private car ownership	The car share reduces the requirement for private vehicles
Zero Waste	Maximise construction waste recycling (95%)	90% recycling on houses using the centralised waste system
	Reduction in household waste in operation (30 per cent)	Data for 4 sites from ECR 197.5m3 material was recycled (ave of 89.1% recycled)
	Recycling rate of household waste (70%)	On track
Zero carbon	Maximise energy efficiency (34% reduction)	All completed buildings met this
	Renewable energy generation (100% renewable energy)	50 kW plus 50Kw battery storage kW installed - on track to meet 90-100%





# One Planet Action Plan



As the Land developer LandCorp will not ultimately be constructing the buildings, but nonetheless has made every effort to make it possible for home-owners and developers to create a community where it will be possible to live a One Planet Lifestyle. The key mechanisms that LandCorp have utilised include:

### Design Mechanisms

- Design Guidelines for both the single lots and the apartment sites including:
  - Mandatory inclusions (DG-M)
  - Suggested considerations for buildings and gardens, in guidance and free design workshops (DG-S)
- Developer brief and engagement (DE): the brief for developers of the apartment sites and LandCorp

partnerships with CUSP and ARENA on how to best achieve objectives

### Incentives and guidance

- WGV Sustainability Upgrade Package (SU):
  - Detached lots: An enlarged PV system to cover annual energy consumption, a rain tank plumbed into the house, mandatory 3rd pipe system for garden irrigation, a mature shade tree
  - Apartments: Funding application for PV and battery system in place
- Design Workshops (DW): both group and 1-on-1 sessions with buyers

### Community engagement

- Guide for Residents released
- Links to community groups provided in Residents Guide as an alternative to an intranet
- Partnership with City of Fremantle to maximise community engagement (CoF)
- Curtin University Sustainability Policy (CUSP): CRC Low Carbon Living - Living Laboratory research project, a three year monitoring and engagement project

# Health and Happiness

	Goal	Target	Baseline	2017 status
HH1	Foster a strong sense of community	> 9 neighbours known by name	n/a	On track
HH2	Foster a healthy community	> 50% of people taking regular exercise	n/a	On Track

### Action Summary

- More than 6 event events for industry and community stakeholders and over 300 people visited WGV



# Equity and Local Economy

	Goal	Indicator	Baseline	2017 status
EQ1	Ensure a diversity of housing type and tenure	> 5 housing types > 10% affordable	1-2 predominate housing types	Cooperative Housing (SHAC), Gen-Y house, self-build all completed. SHAC (12 units) and Gen-Y (3 units) affordable. Evermore Apartment under construction.
EQ2	Encourage residents to engage in fair trade and local economy programmes	Percentage of residents considering this in purchase decisions		Information on fair trade purchasing included in Residents Guide.

## Key developments

- 15 affordable dwellings constructed
- Other initiatives including; Contempo Sharehouse, innovative multi-res (Lot 4 Djildit duplex)

## Case Study - Focus on affordability

WGV addresses the lack of diverse and affordable living options in Perth through a range of dwelling typologies and inclusion of 15 per cent affordable housing stock. The partnership facilitated by LandCorp between Access Housing and SHAC came together to deliver a community housing development specifically for local artists and their families at WGV. This initiative aims to support the local creative industry and encourage greater diversity and culture within the community. The SHAC artists pay a membership fee and then a rent fixed at 30 per cent of their wage. A communal art studio space in the SHAC development was crowdsourced funded.

Along with SHAC WGV is home to the Gen Y Demonstration Housing Project, which is a practical demonstration of compact, sustainable cost-effective housing to suit the 21st century lifestyle. Three cleverly designed one bedroom apartments are interlinked with both private and communal shared open space on a small sized suburban house lot. Gen Y also a shared 9kW PV, 8kW battery storage and 10,000 litre rainwater tank.

Other building demonstrations are planned including a Baugruppen, which is a multi-residential housing development based on the German model of privately funded housing co-op.



# Culture and Community

	Goal	Target	Baseline	2017 status
CC1	Create a culture of sustainability	High levels on participation rates in sustainability related events	1-2 predominate housing types	10 people visited CODA
CC2	Create a culturally vibrant community	Number of onsite cultural events per year (>5)		6 events

## Key developments

- Face book ecovillage page established
- Number of events more than 6 events and industry tours
- Over 300 visitors
- Culture of sustainability – many single residential houses built by one environmentally friendly building Company



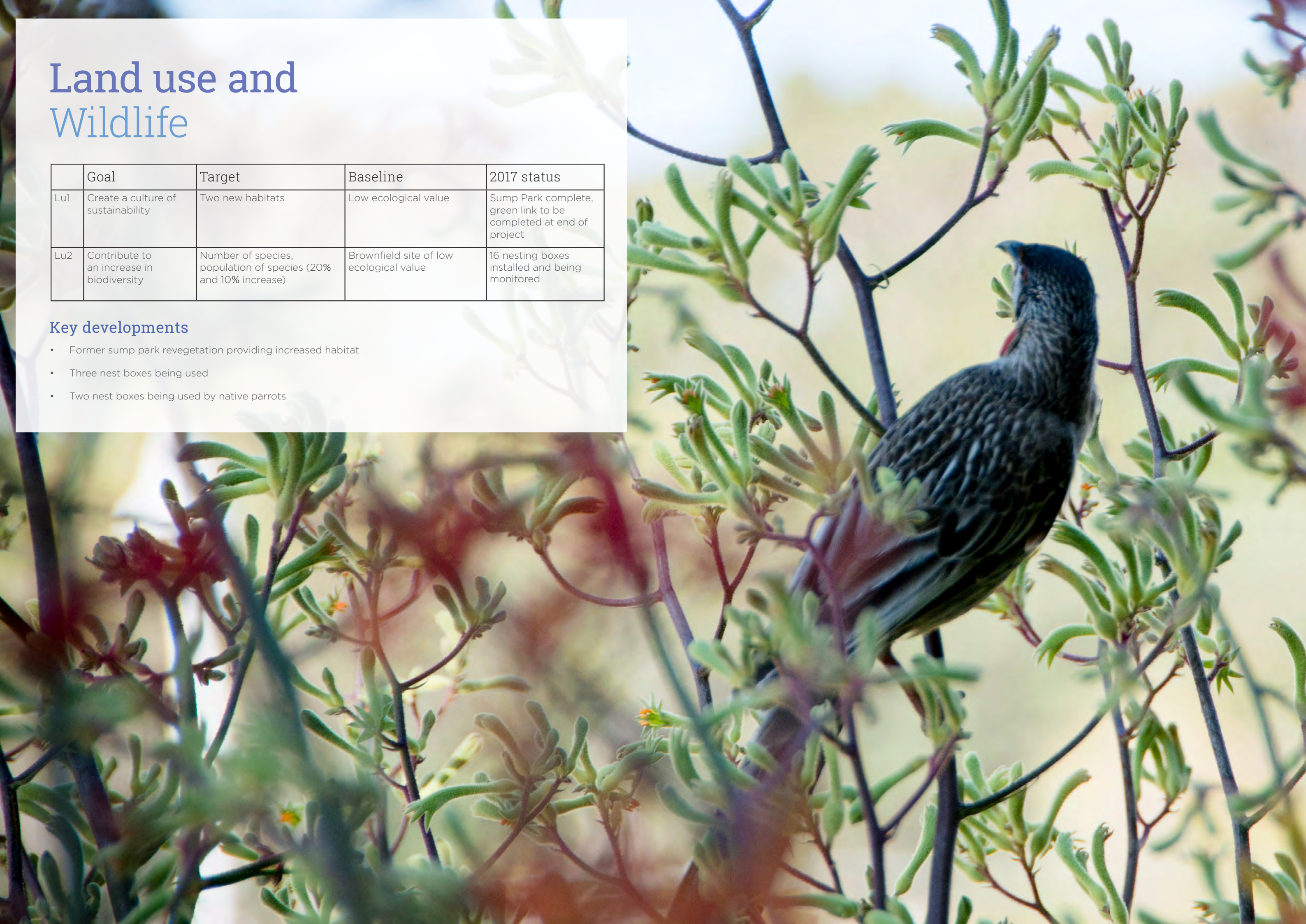


# Land use and Wildlife

	Goal	Target	Baseline	2017 status
Lu1	Create a culture of sustainability	Two new habitats	Low ecological value	Sump Park complete, green link to be completed at end of project
Lu2	Contribute to an increase in biodiversity	Number of species, population of species (20% and 10% increase)	Brownfield site of low ecological value	16 nesting boxes installed and being monitored

## Key developments

- Former sump park revegetation providing increased habitat
- Three nest boxes being used
- Two nest boxes being used by native parrots





# Sustainable Water

	Goal	Target	Baseline	2017 status
SW1	Reduced potable water use	50 l/p/day (75% reduction over baseline)	200l/p/d	4 rainwater tanks installed and 8 connections to the community bore
SW2	Reduce likelihood of flooding	100% of stormwater treated onsite	100% onsite infiltration	Underground drainage infiltration cells and Sump Park completed

## Key developments

- Running total of key points
  - o 27,000 m2 of rainwater in storage
  - o Seven Community bore connections
  - o Two waterwise front verge landscapes installed



# Local and Sustainable Food

	Goal	Target	Baseline	2017 status
LSF1	Access to food growing space	100% of households		100% of units completed to date
LSF2	Edible landscaping	30% of landscape trees edible	Nil	30% planted species of Lemon and Bay Laurel trees
LSF3	Encourage sustainable and healthy purchasing habits	High percentage of households High per centage of households		Information included in Residents Guide

## Key developments

- SHAC and Gen-Y have food growing space
- Fruit trees planted, mostly Lemon and Bay Laurel







# Sustainable Materials

	Goal	Target	Baseline	2017 status
SM1	Reduced embodied energy of construction	30% reduction over baseline (Tonnes CO2eq)	16,900 Kg CO2 per occupant/yr	e-Tool Lite session offered with Design Workshop Gen-Y achieved e-Tool Gold star, Lot 4 achieved Platinum
SM2	Sustainable materials in operation	High participation rate in key initiatives		Information in the Resident's Guide

## Key developments

- Gen Y achieved e-Tool Gold
- Lot 4 (Djildjit) achieved e-Tool Platinum
- All timber for Gen Y was 100% FSC certified

## Case Study - Lot 4 Djildjit (Little Fish)

### Assessment of waste and embodied energy

Djildjit, the Nyungear name for Fish, was given to two strata titled apartment development on lot 4 10a & b Mouquet Vista, White Gum Valley. The Development designed by Richard Hammond Architects and built by Eco Vison Homes for Dr Martin Anda, Academic Chair of Environmental Engineering Murdoch University, and a neighbouring couple.

The design features passive solar principles, stabilised rammed earth construction including 50% construction waste, Ecomax concrete floors on the lower level, upper floor walls are insulated stud frame, double glazed windows throughout. There is a 5kW Solar PV combine with a 3 in 1 heat pump shared system via hydronic tubing in the ground floor slab which is shared between the units. There is also a shared underground rain water tank for toilet flushing and clothes washing with garden irrigation provided by the community bore.





# Sustainable Transport

	Goal	Target	Baseline	2017 status
ST1	Enable a sustainable transport carbon footprint	< 1 tonne co2eq/capita	3.85 Tonnes CO2 Per capita (Garnaut Report)	EV Car Share installed at SHAC development which is available to all residents
ST2	Reduced private car ownership	< 1 car park space per household	One to two parking spaces per household	The car share reduces the requirement for private vehicles

## Key developments

- Electric car share vehicle at SHAC sponsored by electricity retailer Synergy was installed in 2017





# Zero Waste

	Goal	Indicator	Baseline	2017 status
ZW1	Maximise construction waste recycling	> 95% recycled	38% State Waste Strategy 2012	90% recycling on houses using the centralised waste system Data for 4 sites from ECR 197.5m3 material was recycled (ave of 89.1% recycled)
ZW2	Reduction in household waste in operation	30% reduction (kg waste / capita)		On track - 70% reduction by 2020
ZW3	Recycling rate of household waste	>70 % recycling rate	53%	On track - 70% by 2020 COF

## Key developments

- Centralised site resource recovery facility set up onsite
  - 4 houses used the Earth Care Recycling source separated bin system
  - Data for 4 sites from ECR = 197.5m3 material was recycled (ave of 89.1 % recycled)
  - Innovative rammed concrete construction on Lot 4 resulted in least waste of 22 m3
  - Smart Waste Industry Event held at Sullivan hall 21 Nov

## Case Study - Ecovision Homes

### How one green builder is warming to One Planet WGV

Craig Bailey, is building a number of the single dwelling units at WGV. He has nearly 50 years of experience in construction in Australia, India and North America and set up Ecovision Homes to help people build more sustainable homes with a bespoke solution. So when he was contacted by a friend of his who was interested in buying one of the plots at WGV but was daunted by the WGV design guidelines, he realised that at last at least parts of the industry were beginning to push the industry in his direction. While Ecovision have seven steps to creating a sustainable home, one of which is about creating a healthy home, Craig summed it up in two concepts; minimising waste and getting closer to nature.

<http://www.ecovisionhomes.com.au/7-steps.htm>

Craig is really impressed with what LandCorp is doing at WGV. He feels that the approach of sustainable design guidance is helping to educate the homebuyer and will also set a new norm in similar sub-divisions. He also used the centralised waste management facilities that LandCorp had arranged to be onsite. While it cost a little more than the off-site recycling company he usually used, it was more convenient. He also found that the required on-site sorting of construction waste actually made him more aware of material use and drove him to be more efficient in his use of resources. He's obviously been doing a good job because he's now building another four or so houses onsite!

While Craig's role at WGV is in designing and building single homes, he was just as enthusiastic about the community approach taken at WGV and felt this could have a really significant impact on people's happiness. At first he thought that One Planet Living was just some 'sexy marketing' but he has since realised that using the OPL framework helped to drive the design guidelines for the individual homes and the community centred approach of this pioneering development.





# Zero Carbon

	Goal	Indicator	Baseline	2017 status
ZC1	Maximise energy efficiency	Sitewide 34% reduction over baseline (kWh/m2/yr)	6-star NATHERS, Gas hot water, Standard air conditioning (2-star, single phase), Standard 50 kW plus 50Kw battery storage kW installed – on track to meet 90-100%	All completed buildings met this
ZC2	Renewable energy generation	Meet 100% demand net/year	0-14%	50 kW plus 50kW battery storage installed – on track to meet 90-100%

## Key developments

- Installed PV to date approx. 50kW
  - 20kW at SHAC
  - 9kW at Gen-Y
  - 20kW on (number) of private houses
- 50kW battery installed
- 8kW Gen-Y, 40kW SHAC,
- Martin Anda energy performance Platinum e-Tool rating





# Bioregional comment on the Annual Review

There has been rapid progress in 2017 with the opening of the Sustainable Housing for Artists and Creative's development (SHAC), four of the lots being completed and occupied with six under construction and construction starting on the Evermore multi-unit plot. WGV set out a highly ambitious vision, which is slowly being realised, but what is of equal importance is the influence and impact that the various initiatives are having on the wider housebuilding industry and the new residents of WGV:

- The Gen Y house was highly successful and influenced a private investor to replicate the higher density concept on another plot at WGV. Both projects have undergone a comprehensive life cycle analysis (LCA) and achieved a more than 60% saving in lifecycle carbon emissions compared to a standard benchmark;
- The completed SHAC project has an innovative approach to renting for tenants with highly variable incomes, with their rent fixed at 30% of their income;
- A local building company that aims to be sustainable as possible has built a number of the single dwellings and believes that the detailed design guidance for WGV has both helped shift the



## Bioregional

Championing a better way to live

perspective of home-buyers and also set a new standard for sustainability in sub-divisions;

- The innovation around the storage of electricity and resale to neighbouring residents ('peer-to-peer energy trading') could have a significant beneficial impact on the local solar electricity market where the low resale value to the grid is a barrier to take-up of photovoltaic panels;
- The One Planet Principles are being more widely taken up in the region with a second development in Fremantle using the approach. Furthermore the City of Fremantle has issued an Expression of Interest for a site that they are selling for development that requires the developers to respond to the 10 One Planet Principles.

WGV has rightly been well-recognised for these achievements winning two water awards and a sustainable

design award for the project as a whole and the Gen-Y project has separately won multiple awards.

There have of course been challenges and setbacks. It has proved challenging to get accurate construction site waste data, and not all house builders have used the onsite waste management facilities. While the electric car club has the potential to reduce vehicle emissions, further initiatives are needed to make meaningful progress on sustainable transport

It is highly encouraging to see that a number of goals have already been met. The real challenge in the coming year is gather and disseminate performance data more effectively, to verify the achievements and allow the industry to learn from the experience.

A series of short videos on the achievements at WGV can be viewed at:

<https://www.densitybydesign.com.au/wgv/>





# LandCorp Annual Review

## The LandCorp annual review includes more detail on performance and achievements at WGV.

This is the second peer review of the LandCorp’s annual progress report in delivering its One Planet Action Plan. While this is a standalone document, it will be best understood if read in conjunction with LandCorps’s internal review. Bioregional use a simple ‘traffic-light’ approach to review progress in meeting their targets.

Substantially or entirely completed, or with a high degree of certainty over deliverability	
On track for a long-term target or to be implemented in operational phase	
Substantially incomplete, behind schedule or doubt over delivery	



One Planet Principle	Outcome	Indicator & Target	Comment	Status
Health and Happiness	Foster a strong sense of community	On average know > 9 neighbours by name	Varied housing type, new park and renovation of Sullivan Hall will all help enable this.	
	Foster a healthy community	> 50% of people taking regular exercise	The above will support this, though additional resident engagement may be needed.	
Equity and Local Economy	Diversity of housing type and tenure	> 5 housing types > 10% affordable housing	15 affordable dwellings delivered; will exceed these targets as success is leading to further innovations.	
	Encourage fair trade and local economy programmes	% of residents considering these in purchasing decisions	WGV is providing a boost for the local economy – particularly by supporting 11 academic roles. Further engagement with residents will be required to make progress on this goal.	
Culture and Community	Create a culture of sustainability	Number and participation rates in sustainability related events	Sustainability and One Planet Living have been widely promoted to all stakeholder; 10 homeowners have benefitted from a sustainability design briefing, 5 have used a builder with sustainability credentials	
	Create a culturally vibrant community	> 5 onsite cultural events a year	Six events held; the involvement of an artist's cooperative is a very proactive way of supporting cultural initiatives and a future resident has set up a Facebook group.	
Land Use and Wildlife	Create two new habitats	Two new habitats	The opening of the 'Sump Park' is a major achievement. The green link will be built out on completion of construction.	
	Contribute to an increase in biodiversity	Increase in number of species by 20% and populations by 10%	New habitat and nesting boxes will support this – a monitoring strategy is needed.	
Sustainable Water	Reduced potable water use by 75%	50 litres/ person / day	8 connections to community bore and 4 water tanks installed to date.	
	Manage stormwater treated onsite	100%	Sump will deliver this.	
Local and Sustainable Food	Access to food growing space	100%	Delivered to date - need to ensure that this will be delivered in the multi-tenant units.	
	Provide 'edible landscaping'	30% of landscape trees edible	Achieved – mainly citrus and bay trees.	
Materials and Product	Encourage sustainable, healthy purchasing.		Information included in Residents' Guide – but ongoing engagement is always required.	
	Reduced embodied energy of construction (tonnes CO2eq)	30% reduction over baseline	One building that had a full LCA was found to have an embodied energy approximately 25% below baseline.	
Travel and Transport	Sustainable materials in operation	Participation rates in key initiatives	Information included in Residents' Guide – but ongoing engagement is always required	
	Enable a sustainable transport carbon footprint	1 tCO2eq/ person/yr % commuting by private car (target required)	Location and connections supported by the electric car club on the SHAC development.	
Zero Waste	Reduced private car ownership	Car ownership to be < 1 per household	Restrictions on car parking will support this, but ongoing improvements in alternatives to car ownership will also be needed	
	Maximise construction waste recycling	95%	The central waste facility has been used by the builders of four individual houses, achieving a 90% recycling rate.	
	30% reduction in household waste in operation	30% reduction	The guidance provided to the residents will need to be supported through ongoing initiatives such as resident engagement in partnership with the City of Fremantle.	
Zero carbon	Recycling rate of household waste (70%)	70%	Likewise the recycling facilities will make recycling easy but further support will be required to make it the norm.	
	Maximise energy efficiency (34% reduction)	34% reduction over baseline	Guidelines and minimum requirements are delivering high levels of efficiency.	
Zero carbon	100% renewable energy	100%	The guidelines and the ARENA funding will ensure that WGV is a leader in onsite renewable energy generation, but driving the percentage close to 100% remains a challenge	



## Western Australian Land Authority

Level 6  
40 The Esplanade Perth  
Western Australia 6000  
Australia

**T** +61 (08) 9482 7499

**F** +61 (08) 9481 0861

[landcorp.com.au](http://landcorp.com.au)

### POSTAL ADDRESS

Locked Bag 5  
Perth Business Centre  
Western Australia 6849



Disclaimer: The information contained in this document is in good faith; however neither LandCorp nor any of its directors, agents or employees give any warranty of accuracy nor accepts any liability as result of a reliance upon the information, advice, statement or opinion contained in this document. This disclaimer is subject to any contrary legislative provisions. The imagery and artist impressions contained within this document are for illustrative purposes only. © LandCorp 2017 LC4425a 05/2018