



WGV by LandCorp

One Planet Action Plan 2016 Review





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Chief Executive's Message

LandCorp aims to deliver land and infrastructure developments which have a lasting and positive impact for West Australians.

At WGV estate at White Gum Valley, we are proud to have achieved a Western Australian first with as the first internationally endorsed One Planet Community.

WGV has been designed to demonstrate the very best in modern, sustainable living and create a community where it is easy and affordable for people to live in a way that makes smart 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 to monitor the performance of the estate's building typologies and venerable technologies, particularly the Gen Y Demonstration House, and to share its findings with the wider community and industry.

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



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 2016

Housing

- Hope Street Stormwater Sump conversion into a Park completed
- WGV Community Information day and site tour
- Gen Y Demonstration Housing project completed and launched
- SHAC building construction commenced
- Evermore and Thrive Apartments/Townhouses – designs approved and sales commenced
- Baugruppen project (Lot 2) announced: <http://www.baugruppen.com.au/about.html>
- Sale of 98% of single lots with 14 buyers accessing architectural advice

Sitewide initiatives

- WGV Resident's Guide Launched
- WGV Smart Waste Package released
- Confirmation of ARENA grant for PV and battery storage: <http://www.landcorp.com.au/innovation/wgv/Latest/ARENA-backs-LandCorp-renewable-energy-projects/>

Awards

- WGV Waterwise Development Exemplar status achieved
- Winner 2016 UDIA Judges Awarded
- Winner 2016 Australian Award for Urban Design small scale projects
- Finalist for 2016 Banksia Awards



Summary of Action Plan

One Planet Principle	Headline goals and targets	2016 Status and progress
Health and Happiness	Foster a strong sense of community	Stormwater sump converted to active park Sullivan Hall renovation New Community facilities including Barbeque added
Equity and Local Economy	Ensure a diversity of housing type and tenure	Gen Y Demonstration Housing project launched SHAC apartments under construction
	Encourage residents to engage in fair trade and local economy programmes	NBN constructed Workers and CUSP PhDs engaged in research
Culture and Community	Create a culture of sustainability	Attendance at Information Days Attendance at Design Workshops
	Create a culturally vibrant community	One Planet Community Bill Board on site
Land Use and Wildlife	Create two new habitats	Trees retained and stormwater sump vegetated
	Contribute to an increase in biodiversity	Landscaping including native species completed for converted sump and Public open space
Sustainable Water	Reduced potable water use by 75%	Community bore and lot connections constructed
	Reduce flooding risk – 100% of stormwater treated onsite	Stormwater Sump conversion included below ground infiltration gallery
Local and Sustainable Food	Access to food growing space (100% of dwellings)	Space for food growing included in Design Guidelines
	Edible landscaping (30% of landscape trees)	Citrus and Bay laurel trees planted in public domain
	Encourage sustainable and healthy purchasing habits	Information included in Residents Guide
Sustainable Materials	Reduced embodied energy of construction	eTool lifecycle assessment for house designs
	Sustainable materials in operation	Salvaged timber recycled into street furniture and limestone reused onsite
Sustainable Transport	Enable a sustainable transport carbon footprint	Connections made to local cycle and pedestrian networks
	Reduced private car ownership	Information on active transport, public transport and alternatives to private vehicle trips Included in Residents Guide
Zero Waste	Maximise construction waste recycling (95%)	Smart Waste Pack provided for all lot purchasers
	Reduction in household waste in operation (30%)	Information on zero waste included in residents guide
	Recycling rate of household waste (70%)	Information on household recycling included in residents guide
Zero carbon	Maximise energy efficiency (34% reduction)	100% lots solar oriented 7 Star energy rating mandated
	Renewable energy generation (100% renewable energy)	All dwellings to have solar power 50% with battery storage





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

- Structure Plan (SP): Land uses, densities, lot layouts
- Design and layout (DL): Landscape, civil etc. designs for the land development
- 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 lays out the projects aspirations and LandCorp has engaged with them about how to best achieve these 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
- Partnership with City of Fremantle to maximise community engagement (CoF)
- Curtin University Sustainability Policy (CUSP): WGV has been selected as a CRC Low Carbon Living Laboratory research project, a three year monitoring and engagement project

Health and Happiness

	Goal	Target	Baseline	2016 status
HH1	Foster a strong sense of community	> 9 neighbours known by name	n/a	CoF WGV Precinct group engaged
HH2	Foster a healthy community	> 50% of people taking regular exercise	n/a	



Action Summary

LandCorp has made strong progress in the design and construction of WGV which now connects with the surrounding neighbourhood via beautiful streetscapes including rest stops under retained mature trees and enhanced public spaces such as Sullivan Hall and new community facilities. A once ugly weed and rubbish invested fenced stormwater sump has been reimagined as a biodiverse nature play area whilst still maintaining its drainage function with the construction of an underground infiltration gallery.



Equity and Local Economy

	Goal	Indicator	Baseline	2016 status
EQ1	Ensure a diversity of housing type and tenure	> 5 housing types, > 10 % affordable	1-2 predominate housing types	Diverse housing types including detached houses, townhouses, apartments, maisonettes, privately owned, rental and SHAC social housing planned.
EQ2	Encourage residents to engage in fair trade and local economy programmes	% of residents considering this in purchase decisions		Information on fair trade purchasing included in Residents Guide.

Key developments

- The construction and launch of the Gen Y Demonstration housing project which open in December for display purposes. Since the opening 105 people have attended guided tours to the end of 2016.
- Design and sales for the multi-residential sites by private developers Yolk and Contempo which include the ARENA funded solar power and battery trial.
- SHAC/Access housing development commenced and completion is expected in April 2017.
- Studio within SHAC development enables working, learning and sales on site
- Proposed Baugruppen Project. Community Information session held on 12 December 2016.
- NBN in place to facilitate working from home for resident when they move in.
- The number of CUSP PhD researchers involved in WGV has grown to eleven with four staff.

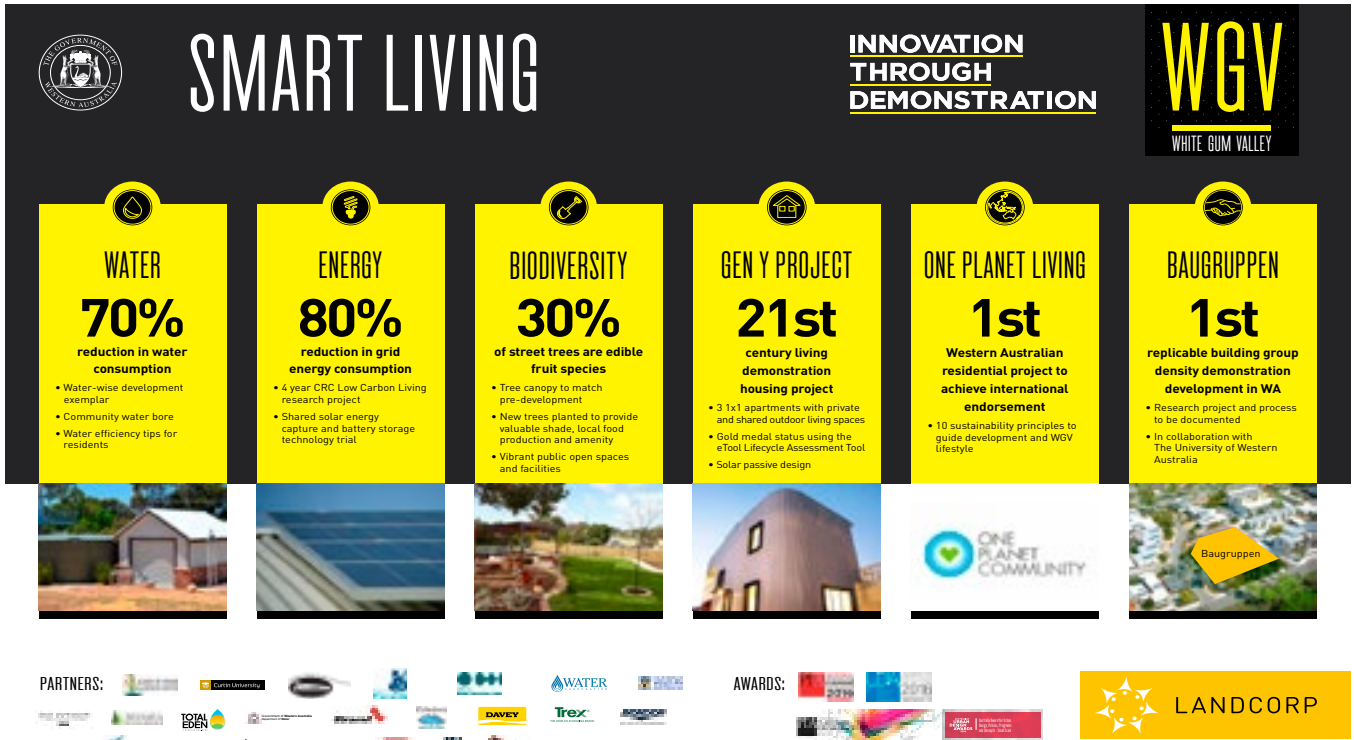


Culture and Community

	Goal	Target	Baseline	2016 status
CC1	Create a culture of sustainability	High levels on participation rates in sustainability related events	1-2 predominate housing types	Six events have been held that have raised awareness about the sustainable initiatives at WGV including the launch of the Gen Y Demonstration Housing project.
CC2	Create a culturally vibrant community	Number of onsite cultural events per year (>5)		These events included members of the broader WGV community, SHAC and other stakeholders in the project.

Key developments

- The One Planet Community logo included in all project branding and onsite Billboard
- Strong turnout for WGV Community Information Day and site tours
- 14 single lot owners have taken advantage of the free design workshop with Estate Architects CODA
- Local artists SHAC and Freo Men's Shed involved in design and fabrication of public art
- Preservation works on Sullivan Hall and hand over to the City of Fremantle
- New residents purchasers provided with community information in Resident Guide such as Living Smart, Meeting places and White Gum Valley Precinct
- SHAC planning opening event for 2017

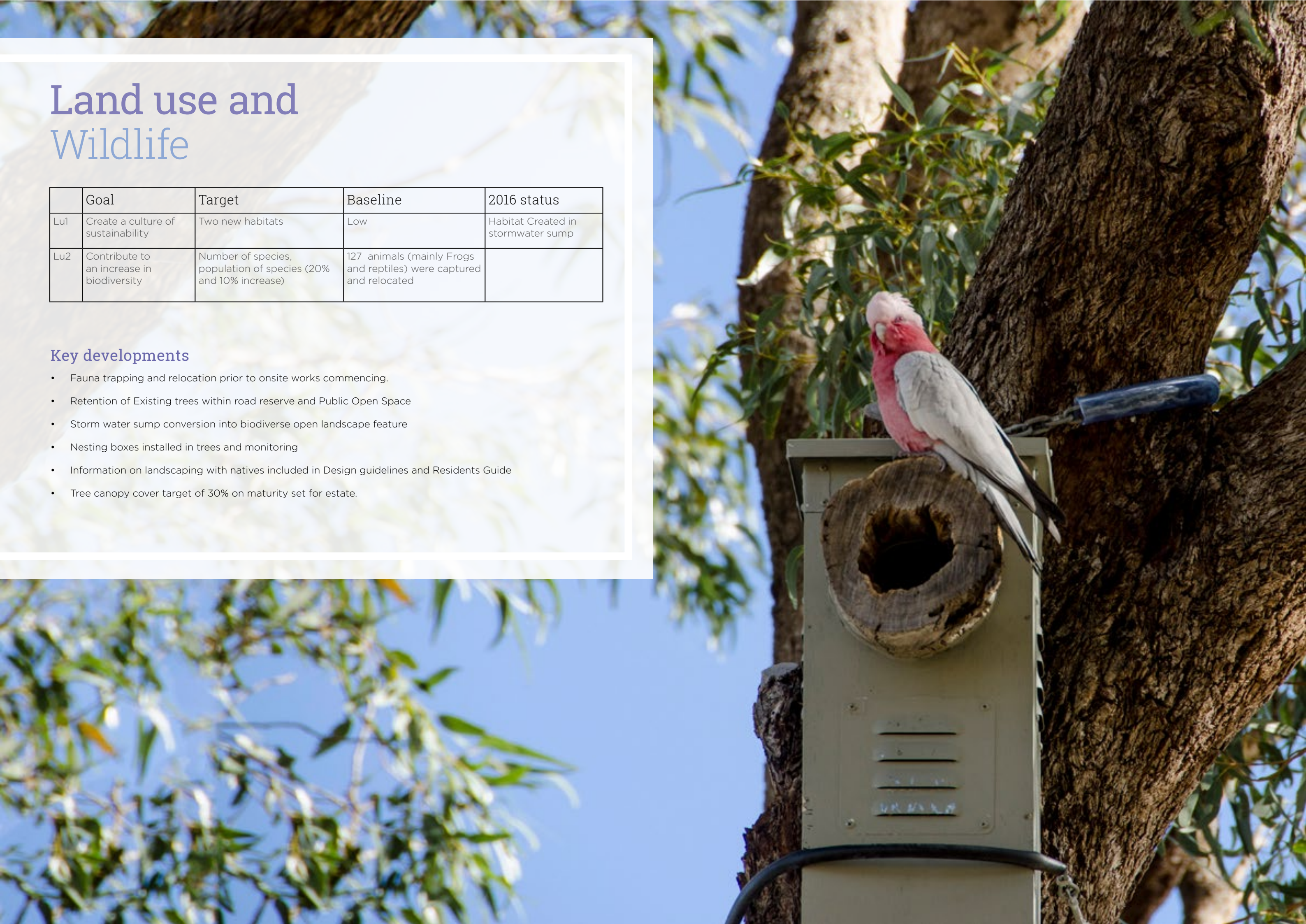


Land use and Wildlife

	Goal	Target	Baseline	2016 status
Lu1	Create a culture of sustainability	Two new habitats	Low	Habitat Created in stormwater sump
Lu2	Contribute to an increase in biodiversity	Number of species, population of species (20% and 10% increase)	127 animals (mainly Frogs and reptiles) were captured and relocated	

Key developments

- Fauna trapping and relocation prior to onsite works commencing.
- Retention of Existing trees within road reserve and Public Open Space
- Storm water sump conversion into biodiverse open landscape feature
- Nesting boxes installed in trees and monitoring
- Information on landscaping with natives included in Design guidelines and Residents Guide
- Tree canopy cover target of 30% on maturity set for estate.



Sustainable Water

	Goal	Target	Baseline	2016 status
SW1	Reduced potable water use	50 l/p/day (75% reduction over baseline)	200l/p/d	Included in mandatory design requirements
SW2	Reduce likelihood of flooding	100% of stormwater treated onsite	100% onsite infiltration	Sump Park completed

Key developments

- Community bore for all irrigation both public and private landscap
- Dual plumbing included as standard to all single lots
- Incentive for Rain water tanks connected to cold water washing and toilets for single residential lots
- In house water efficiency measures included in Design Guidelines
- Dual metering for both mains and bore water to all lots
- Information on being water wise included in Residents Guide
- WGV Waterwise Development Exemplar status achieved including accreditation by Water Corporation and sponsorship
- WGV recognised as a demonstration project for the CRC for Water Sensitive Cities a 4 year national research program on making cities and towns more water sensitive, liveable and resilient to climate change





Local and Sustainable Food

	Goal	Target	Baseline	2016 status
LSF1	Access to food growing space	100% of households		Gen Y incorporates food plants
LSF2	Edible landscaping	30% of landscape trees edible	Nil	4 Fruit Trees planted 30 Bay trees planted
LSF3	Encourage sustainable and healthy purchasing habits	High % of households High % of households		Information included in Residents Guide

Key developments

- A target of 30% of trees in the public domain are edible varieties including citrus and bay laurel
- All private lots on WGV have access to a sunny courtyard space where growing food will be possible
- WGV is well located within close proximity to the City of Fremantle community gardens. An onsite community garden is being considered by the City of Fremantle
- The WGV Residents guide includes information on local grown food and local grocers within the City of Fremantle as well as links to resources on growing your own food



Sustainable Materials

	Goal	Target	Baseline	2016 status
SM1	Reduced embodied energy of construction	30% reduction over baseline (Tonnes CO2eq)	16,900 Kg CO2 per occupant/yr	eTool Lite session offered with Design Workshop
SM2	Sustainable materials in operation	High participation rate in key initiatives		

Key developments

- Residents Guide contains information on Sustainable material selection including materials finishes, timber and materials to avoid (Red list)
- Links to external resources including Ecospecifier and Global Greentag included in Residents Guide
- The Gen Y demonstration home provides a built example of sustainable design and building products for future residents and the general community to see as well as a brochure on materials
- Information of the sharing economy, Spinlister(Bike share) and Freecycle (tool share) included in Residents Guide
- Links provided in Residents Guide to private car share operators and low impact vehicles

Sustainable Transport

	Goal	Target	Baseline	2016 status
ST1	Enable a sustainable transport carbon footprint	< 1 tonne co2eq/capita	3.85 Tonnes CO2 Per capita (Garnaut Report)	
ST2	Reduced private car ownership	< 1 car park space per household	1-2 parking spaces per household	

Key developments

- Delivered High speed NBN to allow working from home to avoid the need for private vehicle trips
- WGV has been designed to be pedestrian and cycle friendly and connects to local cycle and pedestrian ways
- Information on public transport and on Low impact vehicles provided in the Residents Guide
- All of the apartment developers in WGV will include an option to purchase without a car bay, offer car share and/or EV charging stations.
- The Residents Guide encourages people to consider sustainable transport in the design and operation of their home such as Electric Vehicle charging capacity in their garage, electric vehicle or bikes, cycling and public transport options instead private vehicle use.





Zero Waste

	Goal	Indicator	Baseline	2016 status
ZW1	Maximise construction waste recycling	> 95% recycled	38% State Waste Strategy 2012	Salvaged rock and timber reused in civil works. Smart Waste Initiative for construction.
ZW2	Reduction in household waste in operation	30% reduction (kg waste / capita)		Information on fair trade purchasing included in Residents Guide.
ZW3	Recycling rate of household waste	>70 % recycling rate		

Key developments

- The construction and launch of the Gen Y Demonstration housing project which open in December for display purposes. Since the opening 105 people have attended guided tours to the end of 2016.
- Design and sales for the multi-residential sites by private developers Yolk and Contempo which include the ARENA funded solar power and battery trial.
- SHAC/Access housing development commenced and completion is expected in April 2017.
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- Proposed Baugruppen Project. Community Information session held on 12 December 2016.
- NBN in place to facilitate working from home for resident when they move in.
- The number of CUSP PhD researchers involved in WGV has grown to eleven with four staff.



Zero Carbon

	Goal	Indicator	Baseline	2016 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 lighting	
ZC2	Renewable energy generation	Meet 100% demand net/ year	0-14%	

Key developments

- Design Guidelines ensure Climate Responsive Design to allow passive solar access
- Deciduous trees in landscaping to achieve seasonal shading and winter sun penetration
- Low energy water sources, alternative water sources for garden irrigation, toilet flushing and clothes washing
- Gen Y Demonstration Housing achieved overall gold medal status (60-90% saving) using eTool lifecycle assessment Tool.
- CUSP Battery storage on Strata Gen Y Demonstration House research project
- ARENA funded Solar Power and Battery research project (50 units) which will mean that they will be close to 100% self-sufficient/ net zero imported energy
- Three year CRC Low Carbon Living - Living Laboratory Research project
- Information provided in Residents Guide on choosing energy efficient appliances being more energy efficient and purchasing green power to offset additional electricity used onsite

Bioregional comment on the Annual Review

WGV set out with a highly ambitious vision, and a clear Action Plan. Yet as with all projects that aim to push boundaries, many unknowns remained, and this year has seen some of these questions answered. For example, the ARENA (Australian Renewable Energy Agency) funding will allow the multi-resident units to use onsite PV and battery storage to maximise the onsite generation and use of solar electricity. This will bring achieving true Zero Carbon buildings closer, though the final challenge is to ensure that all remaining electricity is from a certified renewable source. Likewise the Baugruppen Initiative will complement SHAC and Gen-Y in creating a diverse and engaged community from the outset, as well as pioneering a new approach for housing in Australia.

Challenges remain, particularly in areas where the solutions in Australia are less well developed. Examples of these challenges are achieving high levels of construction site recycling



from single lot developments and reducing fossil-fuel car use in such a car dependent city. Active stakeholder engagement with the City of Fremantle, the multi-dwelling developers and the future residents will be crucial to achieving these outcomes. This engagement has already started and the institutional partners, the developers and municipality share the same vision and commitment as LandCorp. This will certainly help the process, but it will need to be a focus area in the coming year.

Overall it is highly encouraging to see that a number of the

ambitious goals are essentially complete already and none of them are significantly off track. As the project develops the monitoring being undertaken by Curtin University will provide a more detailed insight into the success of specific strategies. We look forward to seeing this data as it becomes available, and learning from what it reveals.

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	Headline goals and targets	Comment	Status
Health and Happiness	Foster a strong sense of community	Varied housing type, new park and renovation of Sullivan Hall will all help enable this.	
	Foster a healthy community	The above will support this, though additional resident engagement may be needed	
Equity and Local Economy	Diversity of housing type and tenure	An exemplar in finding creative opportunities for providing varied and affordable housing – such as SHAC and the Baugruppen initiative	
	Encourage fair trade and local economy programmes	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	Sustainability and One Planet Living have been widely promoted to all stakeholders	
	Create a culturally vibrant community	The involvement of an artist's cooperative is a very proactive way of supporting cultural initiatives	
Land Use and Wildlife	Create two new habitats	The opening of the 'Sump Park' is a major achievement	
	Contribute to an increase in biodiversity	Several excellent initiatives in place, engagement with residents will drive the overall success	
Sustainable Water	Reduced potable water use by 70%	Community borehole and Residents' guide are an excellent start – overall result will depend on owner uptake and behaviour	
	100% of stormwater treated onsite	The use of underground infiltration cells throughout the development achieves this.	
Local and Sustainable Food	100% access to food growing space	Need to ensure that this will be delivered in the multi-tenant units	
	30% of landscape trees edible	Planting of citrus and bay trees means this is on track	
	Encourage sustainable and healthy purchasing habits	Information included in Residents' Guide – but ongoing engagement is always required	
Sustainable Materials	Reduced embodied energy of construction	Guidance, including eTool LCA will support this – but need to define baseline and a monitoring strategy	
	Sustainable materials in operation	Information included in Residents' Guide – but ongoing engagement is always required	
Sustainable Transport	Enable a sustainable transport carbon footprint	Location and connections allow low carbon solutions – challenge will be also promoting electric vehicles	
	Reduced private car ownership	Restrictions on car parking will support this, but ongoing improvements in alternatives to car ownership will also be needed	
Zero Waste	Maximise construction waste recycling (95%)	MBA Smart Waste Zone, and guidance and guidelines for builders will ensure the overall performance is well above local practice – achieving 95% will be a challenge	
	30% reduction in household waste in operation	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.	
	Recycling rate of household waste (70%)	Likewise the recycling facilities will make recycling easy but further support will be required to make it the norm	
Zero carbon	Maximise energy efficiency (34% reduction)	Guidelines and minimum requirements will ensure high levels of efficiency	
	100% renewable energy	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	

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