



WGV by LandCorp – One Planet Action Plan

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Bioregional

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1. Message from Pooran Desai – co-founder of Bioregional

The proposals for the WGV – White Gum Valley show us that there is a better way to live. It also highlights that when both the government and the private sector embrace innovative solutions we can increase quality of life at the same time as addressing the social and environmental challenges facing us. As the state land developer, LandCorp has a remit of delivering a return on investment and driving innovation and through the development of this One Planet Community it is leading the way in these objectives.

WGV will set a new standard for sustainable communities in Perth and Western Australia and provide an example of the higher quality of life that sustainable communities offer. These pioneering buildings will provide comfortable living standards and keep running costs low. While many residents will own a car the location and facilities mean that it will be quite practical to live without one if they wish. But the most attractive aspects of WGV are the public open space and the diverse creative community, which will ensure that WGV is vibrant, lively and a truly desirable place to live.

2. WGV

This new, boutique, residential estate will redevelop 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 will be transformed into a residential estate which is sympathetic to the community and environmental aspirations of the surrounding suburb.

3. One Planet Living at WGV

If everyone continues to live like the average Australian, we would need more than four planets to support the current world population. WGV has been designed to be a place where people lead genuinely sustainable lifestyles.

This is more than simply designing green, energy efficient buildings. To truly be successful, the commitment to live sustainably will need to continue once WGV is built and residents move in. We have partnered with the City of Fremantle and community groups to ensure future residents of WGV are supported to change their lifestyles and embrace One Planet Living.

WGV residents will each receive an introductory welcome pack providing information and resources to encourage them to:

- operate their home efficiently to reduce running costs
- grow and eat healthy and sustainable food
- access sustainable transport options
- access the services and opportunities available in the local community and through the City of Fremantle
- reduce the impact of the other services they rely on – schools, hospitals, shops

In return for embracing a sustainable lifestyle and committing to the vision of One Planet Living, single lot residents at WGV will be rewarded with reduced cost of living and the potential to save more than \$1,200 each year in reduced utility bills¹.

¹ Figures based on average Perth consumption for single residential dwellings, when adopting WGV's Design Guidelines and Sustainability Rebate Package.

4. Summary of Action Plan

One Planet Principle	Headline goals and targets
Health and Happiness	Foster a strong sense of community
	Foster a healthy community
Equity and Local Economy	Ensure a diversity of housing type and tenure
	Encourage residents to engage in fair trade and local economy programmes
Culture and Community	Create a culture of sustainability
	Create a culturally vibrant community
Land Use and Wildlife	Create two new habitats
	Contribute to an increase in biodiversity
Sustainable Water	Reduced potable water use by 75%
	Reduce flooding risk – 100% of stormwater treated onsite
Local and Sustainable Food	Access to food growing space (100% of dwellings)
	Edible landscaping (30% of landscape trees)
	Encourage sustainable and healthy purchasing habits
Sustainable Materials	Reduced embodied energy of construction
	Sustainable materials in operation
Sustainable Transport	Enable a sustainable transport carbon footprint
	Reduced private car ownership
Zero Waste	Maximise construction waste recycling (95%)
	Reduction in household waste in operation (30%)
	Recycling rate of household waste (70%)
Zero carbon	Maximise energy efficiency (34% reduction)
	Renewable energy generation (100% renewable energy)

5. 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

- Resident Info pack (RI): currently being prepared
- Site intranet (SI): to enable residents to engage with each other
- Partnership with City of Fremantle to maximise community engagement (CoF)
- Curtin University Sustainability Programme (CUSP): WGV has been selected as a Low Carbon Living CRC project, a three year monitoring and engagement project

Health and happiness

	Goal	Indicator	Target	Monitoring
HH1	Foster a strong sense of community	Number of neighbours known by name	>9	Periodic Survey
HH2	Foster a healthy community	% of people taking regular exercise	>50%	Periodic Survey

Design

Strategy	Action	Mechanism
Fostering community	Provide public spaces that encourage interaction and passive surveillance.	SP
	Maximise utility of all public space – revitalisation of the Sump and conversion into a park	DL
Promoting physical exercise	Exercise equipment and running circuits	DL
	Promotion of walking and cycling	SP, DG-M, DE

Construction

Strategy	Action	Mechanism
Healthy materials	Advice on materials toxicity and creating a healthy and fulfilling home. Provide a Red List to new owners prior to building and enable them to insist that the builder excludes all harmful substances.	DG-S, DE,

Operation

Strategy	Action	Mechanism
Fostering community	Community engagement and activation events and activities	CoF, SI
	Continued development of Western Edge	SP
Promoting physical exercise	Information on local opportunities for exercise	WP, SI

Equity and local economy

	Goal	Indicator	Target	Monitoring
Eq1	Ensure a diversity of housing type and tenure	Number of housing types, % affordable	5 > 10%	One off survey
Eq2	Encourage residents to engage in fair trade and local economy programmes	% of residents considering this in purchase decisions		Periodic Survey

Design

Strategy	Action	Mechanism
Diverse housing	Combine a range of dwelling typologies; detached, maisonettes and small and large apartments to cover a range of housing needs	SP
Affordable housing	The Sustainable Housing for Artists and Creatives (SHAC) provides affordable housing for Artists/Creatives	SP
	The Gen-Y Demonstration Housing project is aimed to meet the needs and price of younger buyers	SP
Home Working – NBN connection	Enable work from home and home based micro-businesses with best available internet connections.	DL

Construction

Strategy	Action	Mechanism
Job Creation	Project will feature local architects and engineers due to its scale	SP, DE
Indigenous Opportunities	LandCorp has a position (Reconciliation Action Plan) on contractors preferring indigenous employees for projects over a certain value. All contractors are required to respond to this.	DE

Operation

Strategy	Action	Mechanism
Job Creation	Development of local skills and knowledge through engagement with local academic institution.	CUSP
Fair trade	Connect residents to local initiatives around equity and Fair Trade.	WP, CoF
Local produce and services	Provide information on and promote local shops and services	WP, SI

Culture and community

	Goal	Indicator	Target	Monitoring
CC1	Create a culture of sustainability	Participation rates in sustainability related events		Annual survey
CC2	Create a culturally vibrant community	Number of onsite cultural events per year		Annual survey

Design

Strategy	Action	Mechanism
Diverse community	Range of dwelling typologies with a high quality public realm that encourages: <ul style="list-style-type: none"> Diverse community Walking and community events Intergenerational engagement. 	SP
Local Vernacular	Local artists engaged in design of elements of public spaces	DL, DE
Cultural facilities	Preservation of Sullivan Hall as a community facility	DL

Construction

Strategy	Action	Mechanism
Culture of sustainability	Encourage owners to take builders to the Design Workshop for an OPL induction	DG-S
	Include OPL messaging on onsite signage and training	DG-S, DE
Local Vernacular	Onsite reuse of materials included excavated limestone and milled timber from any trees that are removed.	DL

Operation

Strategy	Action	Mechanism
Community Engagement	Establish and provide an online community platform for residents and local groups to provide access to local knowledge and values.	SI
Engagement with artists	Engage with SHAC over open days, annual street festival and other activities	Engagement with SHAC
Culture of sustainability	Provide information on OPL to all residents	WP, SI

Land use and wildlife

	Goal	Indicator	Target	Monitoring
Lu1	Create new habitat	Number of specific new habitats	2 (Sump Park / green link)	Periodic survey
Lu2	Contribute to an increase in biodiversity	Number of species, population of species	20% and 10% increase	Periodic survey

Design

Strategy	Action	Mechanism
Protecting existing habitat	30% of existing trees retained through re-design, including the most healthy, mature specimens	SP
Habitat replacement	Tree planting to ensure no reduction of canopy cover after the development compared to prior to construction	DL
Habitat creation	Stormwater Sump Rehabilitation: Conversion of an existing fenced drainage sump into a biodiverse open landscape feature with local native species and habitat structures	DL
	Offer of native deciduous tree to detached houses	SU

Construction

Strategy	Action	Mechanism
Species protection	A comprehensive program well beyond regulatory requirements, including survey and re-location of fauna to adjacent bushland prior to earthworks.	DL

Operation

Strategy	Action	Mechanism
Habitat Creation	Design guidance contains advice on creating a biodiverse garden; retaining trees, installing a pond	DG-S,RI
Ecological management	Inform residents of local species and their care Connect them to local conservation groups Advice on mitigating the impact of pets	RI, SI
	Ensure ecological management of public open space	CoF

Sustainable water

	Goal	Indicator	Target	Monitoring
SW1	Reduced potable water use	l/p/day	50 l/p/day (75% reduction over baseline)	CUSP programme
SW2	Reduce likelihood of flooding	% of stormwater treated onsite	100%	CUSP Programme

Design

Strategy	Action	Mechanism
Reducing demand – internal use	Efficiency standards above building code requirements stipulated.	DG-M
Alternative water sources	Dual plumbing in all detached houses	DG-M
	Rainwater tank, pump and plumbing available as a financed upgrade for detached houses	SU
	Multi-house lots to include rainwater harvesting where possible	DE
Metering and leak detection	Both mains water and bore water to each lot monitored for demand management and leak detection. Water from the tank, if installed, will also be monitored separately.	DL

External water use	Community Bore for irrigation in private and public gardens to reduce mains water use.	SP
	Efficient irrigation: Best practice automation, sub-surface, hydro-zoned to public domain, and equivalent guidance for residents.	DL, DG-S
	Low water use species in public open space	DL
Stormwater management	A simple and effective sustainable urban drainage approach to treat all water onsite: <ul style="list-style-type: none"> • The sump improvements • Additional storage and infiltration areas 	SP, DL

Construction

Strategy	Action	Mechanism
Soil reuse and mulching	Store site sourced topsoil and augment for water holding capacity prior to re-use on site for soft landscaped areas.	DL

Operation

Strategy	Action	Mechanism
Reducing internal demand	Monitoring, metering and feedback provided to residents	CUSP
Minimising irrigation	A list of suitable Waterwise plants within design Guidelines.	DG-S
	Advice on mulching	WP
Water efficient planting	Tree Pit Infiltration Trial: implemented on three street trees within the development, with the intention of a broader roll out once proven.	DL, CoF

Local and sustainable food

	Goal	Indicator	Target	Monitoring
LSF1	Access to food growing space	% of households	100%	Planning process
LSF2	Edible landscaping	% of landscape trees edible	30%	Periodic review
LSF3	Encourage sustainable and healthy purchasing habits	% of households		Periodic review

Design

Strategy	Action	Mechanism
Onsite food growing	Target of 30% edible trees in public domain. Many of these will be citrus due to their hardy nature and popularity of their fruit.	DL
	Creation of sunny garden spaces conducive to productive plants and a species list that includes suitable edible varieties	DG-S
	Encourage developers to offer growing space to all residents	DE

Construction

Strategy	Action	Mechanism
Healthy eating	Provide information on healthy eating options in free design sessions	DG-S

Operation

Strategy	Action	Mechanism
Food growing	WGV will connect with the City of Fremantle's community gardens program.	CoF
	Opportunity for an onsite community if residents are behind it.	DL
Healthy eating	Connect residents to a CoF healthy living and wellbeing seminar post occupancy.	CoF, RI
Local produce	Provide a link to local producers and suppliers - such as the local farmers' market	RI

Sustainable materials

	Goal	Indicator	Target	Monitoring
SM1	Reduced embodied energy of construction	Tonnes CO2eq	30%	CUSP programme
SM2	Sustainable materials in operation	Participation rate in key initiatives		Periodic monitoring

Design

Strategy	Action	Mechanism
Reduce material use	Diverse housing types to prevent oversized houses	SP
	Shading through deciduous trees	DL, DG-M, SU
	Information on intrinsic finishes (e.g. stone, concrete) to reduce materials used	WP
Reused materials	Use site found materials in place of materials imported onto site: <ul style="list-style-type: none"> - excavated limestone - milled timber from trees removed. 	DL
Healthy materials	Red list provided, e.g. VOCs to be avoided	DG-S, RI
Embodied energy	Provide information on lifecycle analysis, such as the analysis undertaken on the Gen-Y buildings, and strategies to reduce embodied energy	DG-S

Construction

Strategy	Action	Mechanism
Sustainable materials	Certified timber specified	DG-M
	Use of certified materials, e.g. providing links and information from GECA (Good Environmental Choice Australia)	DG-S, RI

Operation

Strategy	Action	Mechanism
Healthy materials	Red list and information on materials, covering both building fit-out and operation, such as cleaning products	RI
Promote the sharing economy	Link to sharing initiatives; The men's shed, community garden, freecycle	RI, CoF
	Provide a platform where residents can provide any goods they will share (e.g. tools)	SI

Sustainable transport

	Goal	Indicator	Target	Monitoring
ST1	Enable a sustainable transport carbon footprint	tonne co2eq/capita	1 tonne co2eq/capita	CUSP programme
ST2	Reduced private car ownership	Number per household	< 1	Planning process

Design

Strategy	Action	Mechanism
Reduce the need to travel	Site is well located, with schools and services within 2km and 3km from Fremantle town centre	Not applicable
Public Transport	Bus passes the site, connecting to the train station in Fremantle	Not applicable
Reducing private car ownership	Multi-tenant dwellings will have less than 1 space per unit	DE
	Design workshops to outline opportunities to reduce parking space	DG-S, workshop
	Potential for car-share scheme onsite	DE, CoF
Cycling and walking	Pedestrian friendly design	SP
	Adequate, ideally weatherproof, cycle storage	DG-S, DE
	Connections to local cycle and pedestrian network	SP

Construction

Strategy	Action	Mechanism
Cycling	Cycle storage to be provided onsite	Space is available

Operation

Strategy	Action	Mechanism
Sustainable transport choices	Inform residents of alternative transport to private car trips e.g. Travel smart	CUSP
	Inform residents of CoF cycle plan	RI, CoF
Efficient vehicles	Provide information on more efficient vehicles	RI
	Provide information on and link to initiatives to promote electric vehicles	RI
Reduce the need to travel	Opportunities to make on-line ordering and drop-off more convenient	RI, SI

Zero waste

	Goal	Indicator	Target	Monitoring
ZW1	Maximise construction waste recycling	% recycled	95%	CUSP programme, with MBA
ZW2	Reduction in household waste in operation	Kg waste / capita	30%	Periodic survey
ZW3	Recycling rate of household waste	% recycled	> 70%	Periodic survey

Design

Strategy	Action	Mechanism
Design out waste	Promote prefabrication	DG-S
Recycling facilities	Provide guidance on spacing requirements	DG-S, DE

Construction

Strategy	Action	Mechanism
Recycling	Mandatory guidance provided based on the MBA Smart Waste Guidance (http://www.mbawa.com/smartwaste/)	DG-M
	Design meetings to highlight this issue	DG-S

Operation

Strategy	Action	Mechanism
Waste reduction	Information to be provided on how to reduce waste	RI
	Links to local services and initiatives aimed at reducing waste, e.g. Garage Sale Trails	RI, CoF
Recycling rates	Information provision, and engagement programmes	RI, CoF
Residual waste	Waste will be taken to the South Metro Regional Council (SMRC) resource facility which currently achieves 70% diversion from landfill and is targeting 100%.	SP

Zero carbon

	Goal	Indicator	Target	Monitoring
ZC1	Maximise energy efficiency	kWh/m ² /yr	Sitewide 34% reduction over baseline ²	CUSP programme
ZC2	Renewable energy generation	Total kWh consumed / generated	100% of site energy consumption	CUSP programme

² Baseline reference: 6-star NATHERS, Gas hot water, Standard air conditioning (2-star, single phase), Standard lighting

Design

Strategy	Action	Mechanism
Site-wide energy conservation	Diverse dwelling type allowing residents to choose an appropriately sized house	SP
	Climate Responsive Layout - orientation of lots will support passive solar design of buildings	SP
	Climate Responsive Landscaping - use of deciduous trees to achieve seasonal shading in appropriate locations	SP
Energy Efficiency	Measures to exceed standard building efficiency; 7 star NatHer rating, efficient appliances	DG-M
Renewable energy	Solar power to meet 100% demand of detached housing electricity, with battery storage	DG-M, SU
	Solar power to be included in multi-tenant lots, potentially with battery storage (LandCorp is progressing a funding application)	DE
	Energy Services Company to deliver 100% green power for any remaining demand	DE
	Solar thermal or Heat pump for hot water	DG-M, DE
City-wide benefit	Low Energy Water Sources: Alternate water sources for non-potable uses produced at lower energy value than mains water.	SP

Construction

Strategy	Action	Mechanism
Training and engagement	For construction workers	DG-S

Operation

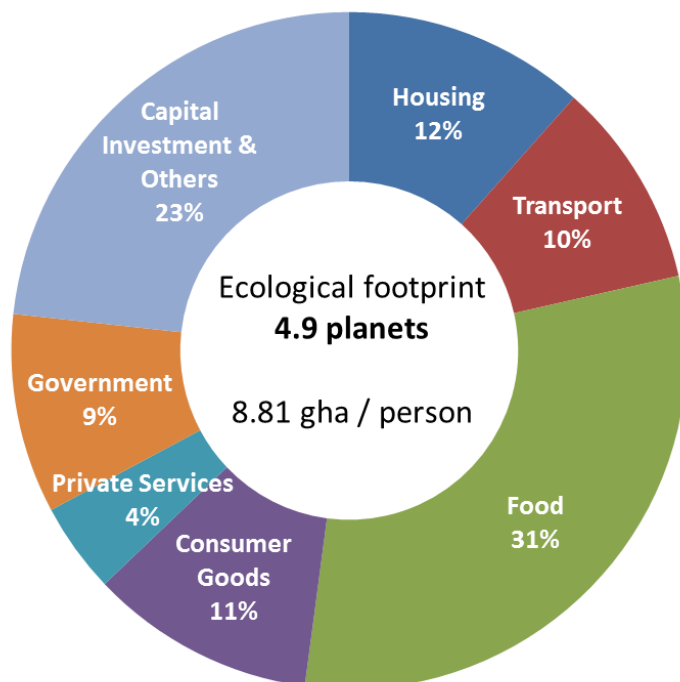
Strategy	Action	Mechanism
Resident engagement	Tailored action plan and engagement strategy to encourage carbon efficient behaviour	CUSP
	Monitoring and feedback	CUSP
	Information provision	CoF

6. Sustainable Living at WGV

The goal of WGV is that a resident will be able to easily lead a One Planet lifestyle if they choose to and ecological footprint analysis is a simple method of investigating how and if this can be achieved.

Ecological Footprint

The Ecological Footprint of the average Australian resident is 8.81 global hectares, or over 4.5 planet's worth of resources³.



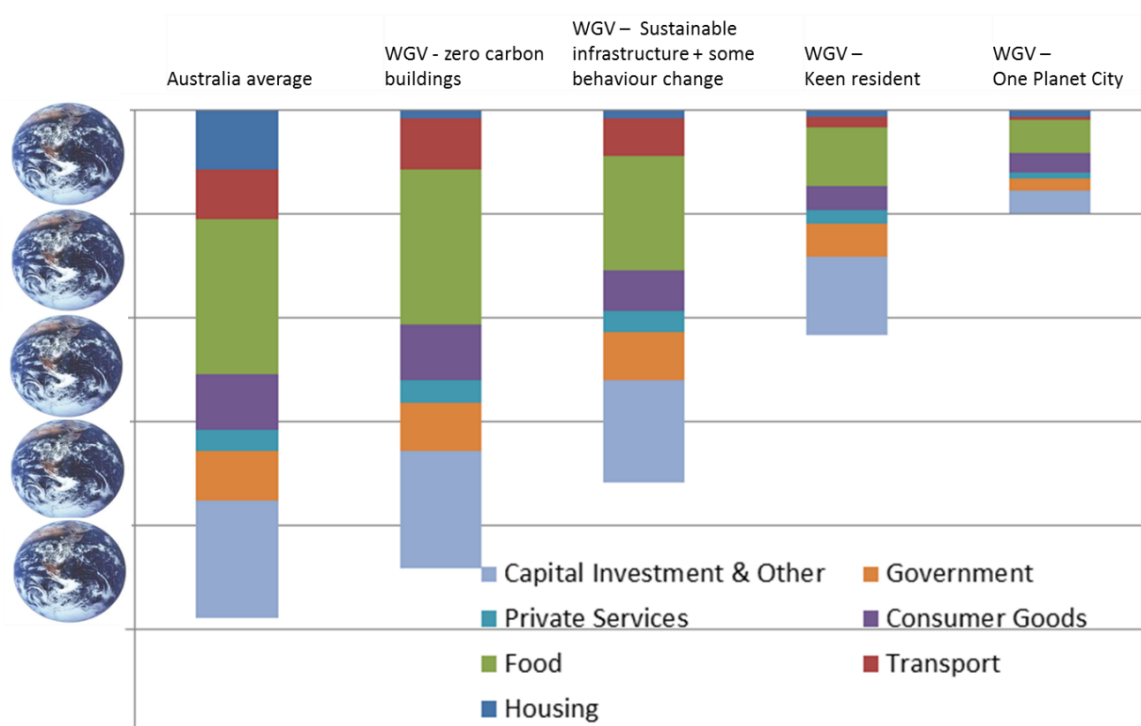
Four scenarios were then modelled for a resident living at WGV:

1. Zero carbon buildings alone
2. Sustainable infrastructure; the site layout with reduced parking, support for cleaner vehicles, some food growing space and community facilities
3. A 'keen' resident making significant use of the onsite infrastructure to make large changes to food, transport and material consumption
4. A One Planet City (and country), requiring a zero carbon grid and reduced waste in supply chains

The results of this analysis are shown below which highlights a number of key points:

1. The relatively limited savings that can be made by looking solely at the building construction (zero carbon buildings)
2. Greater savings can be made through infrastructure that encourages and facilitates a more sustainable lifestyle (sustainable infrastructure and some behaviour change)
3. Individual choices still play a huge part in personal ecological footprint – highlighted by the savings of the Keen Resident
4. Ultimately One Planet Living is only achievable with city and national changes.

³ Data taken from [the EUREAP database](#) of October 2012.



This analysis highlights the savings that can be achieved at WGV by encouraging a more sustainable way of living – but also that to achieve One Planet Living requires action at both a state and national level as well.

WGV living – what might it be like living at WGV

The excerpts below are intended to give a flavour of what it will be like to live at WGV.

Family living at WGV

We'd been thinking about moving for a while, with the kids in school we wanted to stay in the same area, but wanted something a little bigger and ideally closer to the City. Initially WGV didn't seem to fit our needs, it wasn't that much larger than where we were, but as we read through all the information we saw how it could work; perhaps the kids wouldn't need a car, they'd be able to go into town by themselves, my husband could even start cycling...



So in the end we took the plunge and bought an empty lot. Initially the design guidance did seem a little overwhelming but the free design advice soon cleared all that up, and now we have a fantastic house that rarely overheats, generates all its own power and collects its own water!

The streets round the house are so safe for the kids, and this encourages you to walk or cycle short distances, which really helped with meeting the neighbours (and thankfully some of them have kids the same age). As I was about to go back to work we thought we'd need a new car – but you can make do without, and it's been great to actually use the front yard rather than it be just a car park. I've never really grown anything before but picked up a few tips from the community garden, and could borrow some tools, and so have planted some herbs and tomatoes. This really got me thinking about where our food comes from, so now I try and head to the farmers' market.

When you're a parent your life always seems to be a rush, but moving to WGV, in spite of going back to work, seems to have given me more time to just enjoy my life.

Young Couple – first time buyers in the Gen-Y House



We'd both been living with our respective families in suburbs – which has a great standard of living, but a horrible commute to work. So we wanted to live somewhere that was still close to the ocean, but was much more accessible to our work. Prices are really high in Perth, but by selling a car and committing to cycle to work we could afford an apartment in the Gen-Y building. In reality financially it's been even better than that because since we've been cycling to work we've both dropped our gym membership and we've had more time to get down to the ocean!

#The location is fantastic, with the access to Freo, the City Centre, the Park opposite and the ocean, and yet it doesn't feel like living in a faceless City. Right from when we moved in the residents' network introduced us to all the facilities onsite – and we actually got a lot of our furniture from neighbours who'd moved from bigger houses and didn't have space for it! It's also been a great network for borrowing things, like tools, that you need for fixing the house up but don't even have the space to store them. But it's only now that I'm pregnant that I'm really understanding the value of our 'village'; I've already got most of the equipment that I need from neighbours as well as been introduced to all the great facilities nearby – including the local Fremantle toy library! Life changes so fast yet the variety of housing here means if something becomes available we should be able to stay in the community as the family grows.