



Bioregional
Championing a
better way to live

Villages Nature® Paris
Annual Review

Technical Appendix
2015/16

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Introduction

With its One Planet Action Plan endorsed by Bioregional in 2013, Villages Nature® Paris is a new European holiday destination due to open in July 2017. This One Planet Destination aims to create a different kind of holiday, immersing one million visitors a year in nature while minimising its impact on natural resources.

Villages Nature® Paris is being developed through a strategic partnership between Euro Disney S.C.A. and Group Pierre et Vacances Center Parcs using the principles of One Planet Living, a framework created by Bioregional. It aims to be a truly sustainable tourism development.

This technical appendix, written by Bioregional, begins with a summary of overall progress in 2015/16, assessed against the ten One Planet principles around which the development's One Planet Action Plan is organised. It covers the year up to the autumn of 2016. Then it looks in more detail at how the construction phase, now coming to an end, has progressed – set against these principles. Next, this appendix looks in detail at overall progress under each one of the ten principles.

This is a supporting document to a summary Annual Report produced in partnership with Villages Nature® Paris. It provides additional information on the progress in delivering the Action Plan and the performance achieved to date. All comments on performance and progress are the opinion of Bioregional, based on information provided by Villages Nature® Paris. For anyone wanting more information, the One Planet Action Plan for Villages Nature® Paris and previous Annual Reviews of progress can be found at: <http://www.bioregional.com/villages-nature/>

Summary of progress on One Planet Action Plan

Key progress in 2015/2016 has occurred in both construction and planning for operations:

Construction:

- Completion of offsite ecological work – ecological corridor, wetland creation, offsite forest management
- Nearly half of onsite planting and landscape work completed
- Installation of geothermal network

Planning for operation:

- Development of sustainable development guest experience with chosen partners
- Selection of main commercial partners for the lakeside area; restaurants, supermarket, gift shop
- Launch of main tenders with sustainability criteria; e.g. welcome packs, uniforms, cleaning and waste contracts
- Development of operations phase One Planet Action Plan

Key:

	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

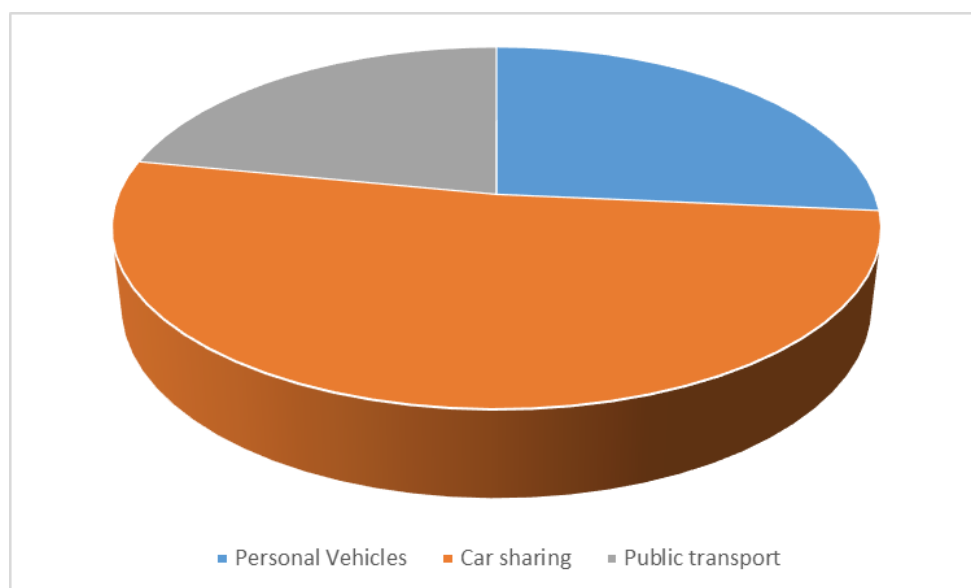
Health and Happiness	Assure comfort and security of employees / visitors	
	Improve wellbeing through reconnection with nature	Guest experience partners chosen
	Enhance the quality of life of neighbouring residents	Minimal levels of complaints
	Drive a policy of responsible employment	
Equity and Local Economy	Support the local economy through procurement	60% construction contracts with local companies
	Support local employment in construction and operation	Training underway
Culture and Community	Create a transformational experience for visitors	In development
	Develop synergies to promote local tourism	In development
Land Use and Wildlife	Neutral impact on the 72 protected species identified	Confirmed in survey
	Ongoing management to be 'biodiversity positive'	Will use Eco-Jardins
Sustainable Water	Maintain the quality of aquifer and waterways	Confirmed in survey
	Reduction in water use (>15% below industry standard)	
	Recycle part of the Aqualagoon water	on track for 37%
Local and Sustainable Food	A 'responsible' and attractive food offer	Partners with similar values selected
	A healthy and varied choice	
	Favour onsite/ local/ regional food	
Sustainable Transport	Concept of a zero car site	
	Maximise use of public transport by visitors (30%)	Partnerships to allow 'car-free stay' in development
	Maximise use of public transport by staff (30%)	
Sustainable Materials	Reduce embodied carbon	Housing: 28% below benchmark
	Value the materials on the site	Zero export of excavated material
	100% timber from certified sustainable managed sources	Being verified
	Low impact materials in operation	
Zero Waste	Ongoing reduction of waste	
	Maximise separation and valorisation of waste	Landfill: < 2% construction waste
	Education of guests about waste	
Zero carbon	Reduce and control energy consumption	On track
	Energy strategy favouring renewable energy	

Construction progress

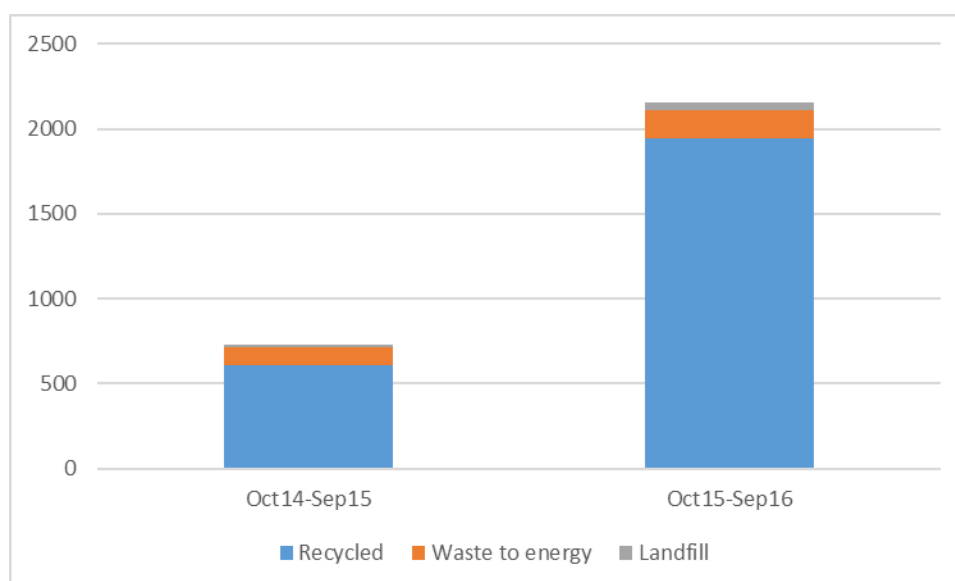
	Construction site - 2016
Health and Happiness	<ul style="list-style-type: none"> • Accident rate about half the industry average • 100% of paints and materials in contact with the air (floor coverings, varnish) are VOC rating A+
Equity and Local Economy	<ul style="list-style-type: none"> • 60% contracts by value made with organisations within 100km • More than double the 'insertion'¹ (apprenticeship) hours originally committed to
Culture and Community	<ul style="list-style-type: none"> • Ongoing sustainability training and reporting
Land and Wildlife	<ul style="list-style-type: none"> • Surveys show no significant impact of construction on species numbers
Sustainable Water	<ul style="list-style-type: none"> • Consumption data not available • Depth and quality of water table approximately unchanged
Sustainable Food	<ul style="list-style-type: none"> • Information included in sustainability training
Sustainable Materials	<ul style="list-style-type: none"> • On track for zero export of excavated material - final audit in process • Sustainable timber: verification of 100% FSC/PEFC in process • Reuse of felled timber: close to 100%, data collection in process
Sustainable Transport	<ul style="list-style-type: none"> • Estimate for 2015/16: 26.5% of all construction staff journeys to work by private car, 51.5% car share, 22% Public transport - see graph
Zero Waste	<ul style="list-style-type: none"> • Increase in construction waste generated as rate of progress increases: 72% of cumulative waste generated in 15/16 • 2015/16: 90% of construction waste recycling, 7.75% energy, 2.25% landfill - see graph • Reuse of felled timber: close to 100%, data collection in process
Zero carbon	<ul style="list-style-type: none"> • Incomplete construction site data

¹ Insertion is the term given to French training and apprentice schemes for local job seekers

How construction staff travel to Villages Nature® Paris – 2015/16



Construction waste recycled and sent to landfill – tonnes

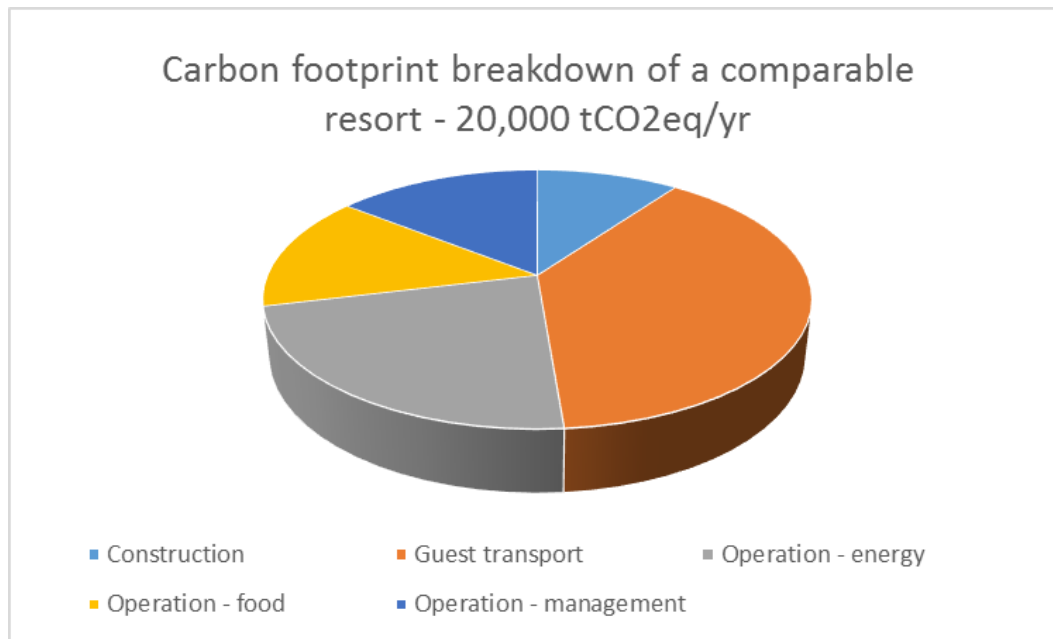


Potential carbon footprint saving

High level analysis shows that the annual emissions of a comparable resort in France are 20,000 tCO₂eq/year². This includes the emissions associated with constructing the resort, which are then spread through the entire lifetime of the development. The footprint is made up of approximately:

- Construction – 10% of embodied greenhouse gas emissions
- Guest transport to and from the site– 39%
- Onsite energy use – 23%
- Food – 14%
- Operations: 14%

Using this data as a baseline, and estimates of the likely operational impacts at Villages Nature® Paris, scenarios have been created to investigate the likely carbon footprint of visitor to this destination. These are scenarios based on estimates and assumptions; actual impact will depend on the behaviour and choices of the guests.



The impact of Villages Nature® Paris will be lower than this due to:

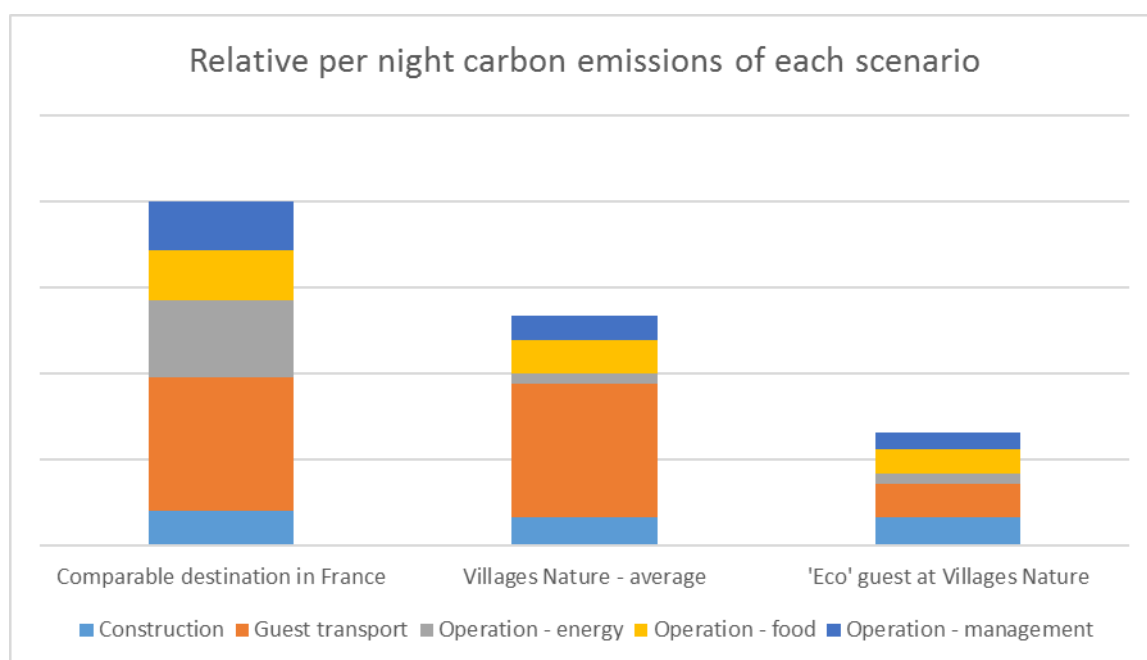
- Lower impact construction materials
- 100% renewable energy
- Emphasis on promoting sustainable and healthy food
- Low impact operation strategy – e.g. zero-car site

² see: <https://www.youtube.com/watch?v=saEHmpmuBZk> for analysis of a tourism project of a similar size and type

Additionally, Villages Nature® Paris has the potential for further benefits due to:

- Excellent public transport links
- Encouraging sustainable behaviour – eating and purchasing

It is likely that the impact of an average visitor to Villages Nature® Paris will be 1/3rd less than for the comparable benchmark. If a guest comes by public transport and makes use of the environmentally-friendly options available then the carbon footprint would be reduced by about 2/3rds (see Appendix). This highlights the scale of savings that are possible when Villages Nature® Paris Villages and the guest collaborate to minimise the impact of the stay.



One Planet Action Plan progress

Health and happiness

	Goal	Target	Comparison	Current status
HH1	Assure the comfort and security of employees and visitors	High levels of satisfaction and engagement of visitors	To Be Confirmed (TBC)	Guest programme in development
		High levels of satisfaction and engagement for staff	Construction site accident rate nationally: 6.8%	Accident rate of 2.8% (2015: 8 incidents lead to staff missing work)
HH2	Improve wellbeing of visitors and employees through reconnection with nature	High levels of participation in relevant activities	TBC	Guest programme and staff opportunities in development,
HH3	Protect and enhance the quality of life of neighbouring residents	High level of satisfaction of stakeholders, low level of complaints	2015: minimal level of complaints during construction phase	Minimal complaint level
HH4	Drive a policy of responsible employment	Specific wellbeing targets to be defined	TBC	Policy in development

Health and safety levels at the construction site continue to be well above industry average. It has always been recognized that ensuring that Villages Nature® Paris is a happy and creative place to work will be key to the project's success. With this in mind the staff offices and facilities have been designed to maximise opportunities for relaxing during down-time; the Villages Nature® Paris Values will help to reinforce this.

Achievements and activities in 2015/2016	Design Offices designed to promote wellbeing, such as high levels of day-lighting, sports and relaxation facilities, including a vegetable garden
	Construction Completion of staff breakrooms, relaxation & sport areas Low accident rate and minimal complaints about nuisance
	Operation Implementation of employee restaurant focused on quality and healthy meals Development of the first package of activities and services for employees' personal development and appreciation of nature Initiation of One Planet Living training programme for all Completion of first draft of Villages Nature® Paris Values
Plans for 2016/2017	Finalisation of Villages Nature® Paris Values Ongoing development of guest programme highlighting opportunities to develop wellbeing

Equity and local economy

	Goal	Target	Comparison	Current status
Eq1	Support the local economy through procurement	Maximise % (by value) of sourcing from businesses within 100km	Unknown	Construction phase- 60% of contracts by value with businesses located within 100 km. Operations phase -86% to date
		Local tax revenues	Estimate 7m Euro/year	
Eq2	Support local employment in construction and operation	Number of direct and indirect jobs created	Estimate: 4,500 (1,600 direct)	Approx. 500 FTE jobs in construction phase
		% of employees local	Unknown	Construction: double 'insertion' hours (see footnote 1) committed to, and 2/3rds of trainees found work onsite
Eq3	Development of local partners in various fields	% of local businesses proactively engaged in the tender process	Unknown	Ongoing consultations

Construction of Villages Nature® Paris has had a significant positive impact on the local economy:

- 60% by value of construction contracts are with local companies
- Approximately 500 full-time jobs were created onsite
- Equivalent to 10 full-time trainees onsite (>67,000 hours)

The efforts to develop contracts with local businesses and to provide job opportunities is already generating benefits for the area which will only increase with time. Villages Nature® Paris is currently sourcing more than 85% (by value) of its contracts from the local area for its operations, when guests start arriving. The training programmes that Villages Nature® Paris is supporting will ensure that the local community is well placed to benefit from the 4,500 estimated jobs that will be created when it opens.

Achievements and activities in 2015/2016	<p>Design</p> <p>Evolution of staff building design to meet requirements in agreement with AGEFIPH (French Disability Department) and ensure building meets needs of disabled staff</p>
	<p>Construction</p> <p>Villages Nature® Paris completed > 67,000 insertion hours to date, comfortably exceeding 25,000 hour target</p> <p>Contractors on track for their target of 42,000 insertions hours</p> <p>Insertion scheme proved successful with approximately 2/3rds of insertion employees then finding additional temporary work onsite</p>
	<p>Operation</p> <p>Development of training programmes for the local Pôle Emplois to increase the capacity of the local population, enabling higher local employment rates</p> <p>Fair trade standards to be developed with commercial partners</p> <p>Initiation of implementing the activities in the agreement with AGEFIPH (French Disability Department)</p> <p>Target 15% of total staff 'insertion' (apprentices) in security and cleaning departments in operation</p>
Plans for 2016/2017	<p>Undertake recruitment for the operation phase</p> <p>Continue to delivering the actions scheduled in the 'Convention Emploi', such as; training, local promotion of opportunities, development of apprenticeship schemes</p> <p>Ensure commercial partners meet high standards in terms of local recruitment, wage levels, equal opportunities etc</p>

Culture and community

	Goal	Target	Comparison	Current status
LW1	Create a transformational experience for visitors, awaken them to sustainable development	Number, and participation in, activities raising awareness of sustainability	Not applicable	Further development of the guest programme (see below)
LW2	Develop synergies with the key actors and flagship tourist locations in Seine-et-Marne	Number of visits to local sites made by Villages Nature® Paris guests	Local benchmark: 7% of guests visit Paris, 0.5% sites in Seine- et-Marne.	'Sales booth' to promote local heritage at Villages Nature ® Paris main reception

The guest experience will both promote local culture and art while encouraging guests to embrace nature and a more sustainable lifestyle. Initiatives include:

- Development of a One Planet Living and biodiversity trail and smart phone app
- Geothermal energy discovery centre
- Nature based activities for kids
- Land arts and creative art experiences
- One Planet Living communication and marketing strategy along the guest journey

Villages Nature® Paris is a holiday destination and guests should leave feeling relaxed, inspired and happy, having enjoyed some French 'belle vie' (the good life) - simple pleasures like soaking up nature, connecting with friends and family and enjoying new experiences. But Villages Nature® Paris is an organisation that acknowledges we need a global transformation in how we do business, and wants to enable people to lead a happy, healthy, and sustainable, life while on holiday and then to continue that when they go home.

Key initiatives in this will be the engaging guest programme that connects people to nature; this continues to evolve. The staff training and working environment and work culture will help staff embody the values that Villages Nature® Paris wishes to communicate to the guests.

Achievements and activities in 2015/2016	Design Land art included in site layout
	Construction Construction and fit-out of projects; land art and geothermal discovery centre Finalising of the planning for the signage and guest experience in the Extraordinary Gardens
	Operation First full day sustainability training sessions run for 13 staff Selection of key partners in delivering the guest programme – the Kids Club and Smartphone App
Plans for 2016/2017	Finalise design & fit-out of sales booth and agree partners to be involved Next sustainability training sessions planned Develop and roll out the onsite communication strategy to engage with guests about sustainability, nature, wellbeing and One Planet Living

Land use and wildlife

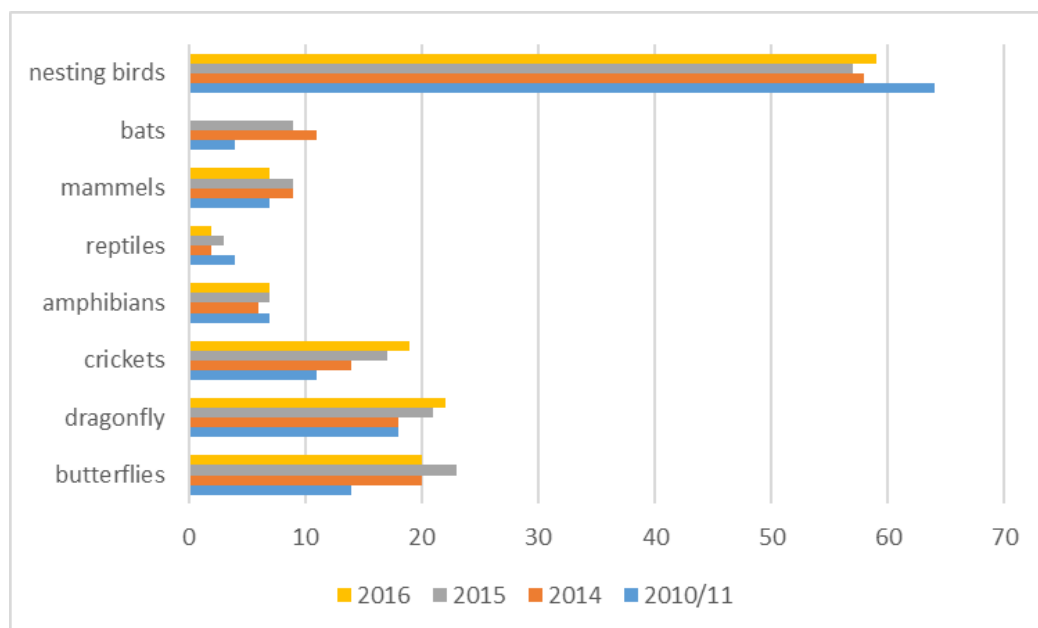
	Goal	Target	Baseline	Current status
LW1	Neutral impact on the 72 protected species identified on the site through surveys	Zero change in number of key species	68 protected species (plus 4 potentially observed) in 2010/11 surveying (129 total fauna species). In 2014 64 protected species (136 total fauna species) were found.	Excluding bat ³ , 60 protected species and 136 total species, if bat levels are same as 2015: 69 protected and 145 total species
LW2	Ongoing management to be 'biodiversity positive'	Achieve improvement in value under @d Aménagement durable	0.59	0.61
		16,000m ² of green walls and roofs	Not applicable	7,500m ² completed on apartments,
		Improvement in a defined management indicator	Most likely to be Eco-Jardins	Eco-Jardins indicator being assessed

This year saw the completion of the majority of the remaining conservation measures onsite and the commencement of management of these spaces for biodiversity. The benefits of this are already being seen, with the new habitats already being colonised by new species. Last year the Little Ringed Plover (*Charadrius dubius*) and the Common Tern (*Sterna hirundo*) arrived, this year they have been joined by the Common Greenshank (*Tringa nebularia*) showing that the new habitat is already attracting new species.

The annual species count of 2016 shows that there has been no significant change in the number of species found onsite throughout the construction process.

³ Bat survey not yet completed

Number of species found onsite in surveys



Achievements and activities in 2015/2016	Design Final figure of green roofs/walls achieved about 7,500m ² . While lower than the target, the additional ecological interventions more than compensate for this reduced area
	Construction Completion of restoration of all 4 remaining wetland areas Completion of Bassin Lignière within the new 5.5 km ecological corridor connecting the Forêt de Crécy with the Forêt régionale de Ferrières
	Operation Ongoing Japanese knotweed removal Ecological management of offsite woodlands at Bois de Coubert (73.6ha), Bois du Boulay (33ha) and Bois de la Grange (4.7ha) Completion of landscape management plan, including Zero Phyto (no pesticide commitment). This plan will be adapted once management begins to ensure maximum positive biodiversity impact

Plans for 2016/2017	<p>Completion of green roof construction and specific habitat creation (e.g. reptile 'houses' – such as log piles and other habitat for reptiles)</p> <p>Implementation and adaptation of management plan – specifically: training of staff and development of processes to ensure ecological maintenance of green spaces and protection of biodiversity</p> <p>Villages Nature® Paris gardens to be certified by Eco-Jardins</p>
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Sustainable water

	Goal	Target	Baseline	Current status
SW1	Maintain the quality of the aquifer and waterways	Level and quality of water table unchanged	Pre-construction level	Monitoring shows no change in level or quality
		Flow and quality in provisioning water bodies unchanged	Pre-construction level	Monitoring shows no change in level or quality
SW2	Reduction in mains water use	> 15% reduction in total water use	Baseline: 600,000 m ³ /year	Estimate: 490,000 - 550,000 m ³ / year depending on guest behaviour
		20% reduction (to ~ 132l/guest/day) in residential water use	165 l/guest/day	Estimate: 15-30% reduction depending on guest behaviour
		25% reduction in Aqualagoon water use (38l/guest/day)	50 l/guest/day	On track for 38l/guest/day
		100% non-potable water for irrigation	Unknown, can be 0%	On track for 100%
SW3	Recycle water	37% of Aqualagoon water to be recycled	0% recycling	On track for approx. 37% - Filtering Gardens complete, Reverse Osmosis plant being installed

There are three distinct water recycling approaches at the Aqualagoon:

1. A reverse osmosis plant which produces pure water for the pools
2. The integration of natural water treatment into the filtering gardens
3. Use of cleaned water to top up the lakes.

Combined these will ensure that more than 1/3rd of the Aqualagoon water is recycled – when standard practice is to discharge for treatment.

Achieving the water use targets will require a combination of efficient technologies and fittings supported by guest behaviour. The installation of the reverse osmosis plant for the Aqualagoon and the identification of a lower flow 'rain-shower' for the 'Bulle' units (about 30% of accommodation) means that the fittings and technology are in place, and now the requirement is to engage with and educate the guests about water use. This will be a key focus of the onsite communications strategy.

Achievements and activities in 2015/2016	Design Confirmation of reverse osmosis plant for Aqualagoon Efficient 'rain-showers' identified and specified for 'Bulle' units
	Construction Fit out of first guest accommodation with water efficient equipment Filling of final lakes through rainfall Completion of filtering garden in the Extraordinary Garden to filter and re-use Aqualagoon water
	Operation Guest engagement and partner water use standards delayed until 2017
Plans for 2016/2017	Water conservation in operation will be driven through: <ul style="list-style-type: none"> - Staff training - Guest engagement and communication - Engagement with commercial partners to maximise efficiency. These strategies will be developed prior to opening.

Local and sustainable food

	Goal	Target	Benchmark	Current status
LSF 1	A 'responsible' and attractive food and drink offer always available for visitors	100% of outlets to have a marked 'responsible' option	No standard set	Engagement has started with commercial partners, and the basic standards laid out as part of this negotiation.
LSF 2	A healthy and varied choice for all visitors	Specific % of total sales labelled (organic, fair trade etc)	Unknown	
LSF 3	Favour onsite production and local and regional food	Specific % of onsite sales from the region (or within 100km)	Unknown	<p>Onsite food growing:</p> <ul style="list-style-type: none"> • 1,000m² for fruit, vegetable and dairy, • 17.2 ha TBC. <p>Offsite:</p> <ul style="list-style-type: none"> • 11ha confirmed, • 13 TBC <p>Developing local producer platform</p>

The restaurants at Villages Nature® Paris will have the capacity to cater for thousands of people a day while at the same time prioritising healthy and sustainable food produced from fresh local ingredients. This is challenging. Villages Nature® Paris has entered preliminary agreements with a number of restaurants and retailers whose ethos and sustainability commitments match its own.

Food is a central part of any holiday experience and Village Nature® Paris extends this further by bringing the guest closer to their food through the onsite farm and local food growing initiatives. These will form an integral component of the guest experience and activities, as well as creating an opportunity to engage with guests about what they eat and its impact.

This message will extend into the restaurants by selecting commercial partners which share a vision of a sustainable food system, and working with them to develop strategies for engaging with guests over this subject.

Achievements and activities in 2015/2016	Design Investigation of opportunities to increase the onsite food growing area through a 17.2 hectare plot to the south of the site
	Construction Progress on construction of the farm and associated food producing areas
	Operation Commercial partner negotiations; commitments to local, sustainable and healthy food, and reduction of food waste Signing of agreements with partners with good sustainability credentials; Franprix, Vapiano, Pur Etc., Vins et Idées, Thierry Meunier and Olivier Demarle Developing 'food experience' onsite, such as Villages Nature® Paris vegetable and dairy products in restaurant and shops and cookery classes Certification of Farm production (Organic and Bleu-Blanc-Coeur)
Plans for 2016/2017	Completion of farm and set up for operations Finalisation of contracts with commercial partners, including food standards Development of guest engagement strategy including links to healthy eating Implementation of agreement with CERVIA – local food producers network – and the Seine-et-Marne Chamber of Commerce to establish a local producer network to supply Villages Nature® Paris

Sustainable transport

	Goal	Target	Benchmark	Current status
ST1	Zero car site	Zero tCO ₂ eq/yr from vehicles onsite	Comparable sites generate about 250tCO ₂ eq/year	Parking at exterior
ST2	Maximise use off public transport by visitors	30% of visitors to make the majority of their journey to and from Villages Nature® Paris by public transport	% of visitors: TBC Estimate of transport emissions 50kgCO ₂ /visitor for Villages Nature® Paris, 200kgCO ₂ /visitor for alternative destination	Strategy based on excellent location of the site and its transport links
ST3	Maximise use off public transport by staff	30% of staff to commute by public transport	TBC	Construction: <27% by private car. Staff travel plan for operations phase in development

A central system for enabling sustainable transport is being established, including:

- Centralised web and desk-based transport coordination service for guests
- Multiple connections to nearby train stations (TGV RER, Eurostar); bus line and a 'supershuttle'
- Electric cars for hire, low-carbon taxis, and excursions with group transit
- Onsite electric vehicles

In spite of its excellent location, guest transport will be the most significant component of the operational carbon footprint of Villages Nature® Paris– with staff transport making a further contribution. The key strategies for mitigating this are the services provided by the sustainable transport partners and the marketing plan to encourage guests to benefit from these services. Both of these strategies continue to develop with a focus on maximising the uptake of sustainable transport means.

Achievements and activities in 2015/2016	Design Fixing of car parking ratio, approximately 1.3 spaces per unit, only units with 3 bedrooms or more to have 2 parking spaces.
	Construction Occasional surveys suggest that among construction staff 22% use public transport, 51.5% car share and 26.5% use their own private vehicle
	Operation Development of strategy to ensure a 'car-free site' Development of marketing plan to promote sustainable transport options to guests Agreement of fixed parking charge for day visitors Ongoing development of agreement with sustainable transport provider
Plans for 2016/2017	Finalisation of agreement with sustainable transport partner to enable and encourage guests to take sustainable transport options for excursions; 'car-free stay' Definition of marketing strategy and incentives to encourage guests to come by non-car means Finalisation of negotiations and opening of bus service to the site from day one.

Sustainable materials

	Goal	Target	Baseline / benchmark	Current status
MP1	Reduced embodied carbon	20% reduction over baseline	Baseline 119kg Ceq/m ² for residential buildings (ADEME)	Most recent analysis shows a 28% reduction on average
MP2	Valuing onsite materials	Zero export of excavated material or felled trees	N/A	Complete – Zero export of material, many trees reused
MP3	Maximise certified timber from sustainably managed woodlands	100% FSC or PEFC	Average French construction 77% PEFC/FSC (2012 study), 92% PEFC/FSC for housing (2013)	On track to achieve 100%
MP4	Ensure low impact of materials in operation			

Maximising the use of timber and ensuring that it is locally sourced has been a key component of the strategy to reduce the embodied energy of Villages Nature® Paris. For the residential buildings, nearly 40%⁴ of the cottages are predominately timber and, 8.4% of the apartments, and all of the timber was PEFC/FSC certified and sourced from within the EU. The farm is 54% certified French timber.

As the main parts of the construction phase draw to a close a full review of the construction process and materials will be made. There have been many successes but also some challenges. The embodied carbon of the cottages is exceptionally low due to the high percentage of wood sourced from within Europe. The use of low-carbon concrete and timber in the Aqualagoon has also significantly reduced embodied carbon. But the inability to source low-carbon concrete for the collectifs (apartment buildings) has increased their embodied carbon – highlighting the need to engage further with the supply chain.

Attention now turns to developing the procurement standards to be used by Villages Nature® Paris and commercial partners in operations, and defining the guest programme to encourage sustainable consumption habits.

⁴ Defined as percent of main elements and structure that were prefabricated offsite

Achievements and activities in 2015/2016	Design Design changes have been made during the construction process but in general the key parameters of the buildings have remained unchanged
	Construction Low-carbon concrete used in the Aqualagoon, but not in the 'collectif' as the supplier failed to deliver 100% certified timber and zero export of fill, both on track
	Operation Definition of procurement standards for Village Nature® Paris' own procurement; uniforms, welcome products, cleaning products vehicles etc. Environmental credentials a key component of selection procedure in major tenders
Plans for 2016/2017	Define the indicator to be used to track progress in operation Develop guest engagement to encourage sustainable purchasing habits Engage with commercial partners over responsible sourcing

Zero waste

	Goal	Target	Baseline / benchmark	Current status
ZW1	Ongoing reduction of waste	20% reduction over baseline	Baseline for similar tourist destinations in France: ~ 371kg/visitor/year	
ZW2	Maximise separation, recycling and value of waste	Material recovery rate of > 90% and > 60% recycling	Construction: unknown	Site average for construction period: 88% recycling, 10% energy to waste 2% landfill
			Operation Baseline : similar French tourist destinations: ~ 22% waste segregated for recycling	Internal fit-out defined, in consultation with waste management partners
ZW3	Educating guests about waste	Number of activities		In development

Construction waste management is not simply about ensuring that waste material is recycled. Reducing the amount of potential waste that enters the site is also a key component. Prefabrication of buildings in efficient factory conditions has been a key strategy in this regard at Villages Nature® Paris, with the residential properties achieving:

- 45% prefabrication⁵ for the cottages
- 20% prefabrication for the apartments

Much like water use, once the correct technology and systems are in place the waste generation will be driven mostly by guest behaviour. From a systems perspective the household food waste strategy is being reviewed, with an aim to increasing participation by the guests, and is part of ongoing negotiations with potential contractors.

Villages Nature® Paris will aim to engage with guests throughout their customer journey; about what they bring to the site and then how they manage their waste onsite, this will help to minimise the generation of non-recyclable waste. This will also be supported by ensuring that the commercial partners also prioritise waste minimisation and recycling.

⁵ Defined as % of main elements and structure that were prefabricated offsite

Achievements and activities in 2015/2016	Design Specification of residential recycling facilities defined: twin bin for waste and dry recyclables, separate carrier for glass, and biodegradable bags for organic waste
	Construction Ongoing engagement on the construction site driving a high level of recycling Onsite reuse of timber, excavated stone and 100% of the 1 million m ³ of earth excavated
	Operation Negotiations in place for waste management partner Initiation of new household organic waste strategy to deliver higher participation rates
Plans for 2016/2017	Installation of recycling facilities in all accommodation Staff training and engagement Define composting strategy Guest engagement strategy to focus on waste reduction (what is brought to site) and maximising waste separation onsite. Commercial partner engagement to minimise generation of non-recyclable waste Finalisation of design for educational waste bins

Zero carbon energy

	Goal	Target	Baseline / benchmark	Current status
ZC1	Reduce and control energy consumption	Meet energy efficiency standards of RT 2012 – France’s building efficiency standard	Residential: 201 kWh primary energy/m ² /year	Both residential and Aqualagoon on track to meet desired standards
ZC2	Energy strategy favouring renewable energy	Day 1: Onsite renewable energy to meet 100% of heat demand	Initial estimate of 38 GWh/year of heat (primary energy)	Through more detailed analysis the demand revised to 44 GWh/year, geothermal wells and network in place to meet demand
ZC3		Net zero carbon by 2020 – including all electricity demand	Initial estimate of Aqualagoon and residential electricity demand: 44 GWh/year (primary energy). France grid electricity approx. 20% renewable energy	Residential and Aqualagoon electricity demand estimate remains 44 GWh/year, but total site demand now estimated at 68 GWh/year Local renewable energy project will meet 15% of demand ⁶

There has been major progress over the previous year in the development of the zero carbon geothermal heat network, including

- Completion of the two geothermal wells
- Completion of the heat network (completed by end of the year)
- Connection to the nearby Disneyland Paris site completed and should begin to operate when Villages Nature® Paris opens to guests.

⁶ Villages Nature® Paris has been facilitating the development of an electricity generating anaerobic digestion plant on a neighbouring farm. Regulations prevent this power being sold directly to Villages Nature® Paris and it will be exported into the grid. But because Villages Nature® Paris has been instrumental in the realisation of the project, its electricity generation will count towards VNP’s renewable energy consumption.

While the total energy demand estimates have increased this is due to a more complete analysis (e.g. the initial estimate of electricity consumption was for the aqualagoon and residential consumption only). The buildings' performance and the selected appliances continue to be in-line with meeting the initial efficiency targets.

The installation of the geothermal heat network ensures that 100% renewable heat will be supplied from the opening. Onsite and local offsite renewable energy will cover in the range of 15% of the projects electricity demand and so further offsite solutions are still being investigated.

Achievements and activities in 2015/2016	Design
	Construction
	Operation
Plans for 2016/2017	

Conclusion

With the opening of VNP planned for 2017, the coming year is crucial to fulfilling its sustainability vision.

2016 has seen the completion or commencement of much of the key infrastructure. And while there have been some minor setbacks, such as not using low-carbon concrete in the 'collectif' (apartment) buildings, for the main part all of the sustainability infrastructure will be delivered as designed and planned.

With this the focus shifts towards management and guest engagement. The development of the operation phase One Planet Action Plan is a great first step, and this will need to be further developed in the coming years.

Tourism is a major industry with a significant climate change impact, estimates show it contributes at least 10% of global greenhouse gas emissions, but it is also a sector that has a unique opportunity to engage with millions of people when they are hopefully in a relaxed and open frame of mind. So the sector needs leaders and examples demonstrating that the impact of tourism can be minimal, or even positive, and that it can make a significant contribution to encouraging more sustainable lifestyles.

The design and construction phase of VNP will help minimise the impact of a guest's stay at VNP. If the management and guest engagement can be as successful then VNP will be well placed to provide the global leadership and benchmark that the tourism sector requires.

Appendix – Carbon footprint explanation

The table below shows the assumptions used to create the scenarios for the carbon footprint analysis (see page seven). The data used is robust, based on the most recent detailed estimates of embodied carbon and operational energy consumption, French specific carbon emissions rates for transport, and well-established findings from carbon footprint analysis (such as a sustainable vegetarian diet having potentially half the carbon footprint of a standard diet). Nonetheless the scenarios are based on estimated, not actual, data and are being used to illustrate the potential savings that can be created through cooperation between Villages Nature® Paris and the guest.

	Villages Nature® Paris-average guest	'Eco' guest at Villages Nature® Paris
Construction	25% saving based on most recent estimate of embodied carbon of construction	Same as for average guest
Guest transport	No change - assumed to be same as baseline	Arrive by public transport - reduce emissions by 3/4, based on standard emissions factors of car and train in France
Operation - energy	Most recent energy analysis assuming all electricity consumed onsite is supplied by renewable energy	No change
Operation - food	1/3rd reduction - estimate based on more sustainable practices and behaviour, such as reduced waste	Total 50% reduction achieved through vegetarian diet
Operation - management	50% reduction due to sustainable management practices; waste management, zero car site	2/3rds reduction; 100% recycling, favouring lower impact activities onsite