



SONOMA MOUNTAIN VILLAGE



ONE PLANET



SONOMA MOUNTAIN VILLAGE

Verified by **BioRegional**

# 2020 Sustainability Action Plan Report

For Media, Policy-makers, and Design Professionals - Version 1.01

Washington DC | **Rohnert Park** | Montreal | London | Lisbon | Abu Dhabi | Durban | Panyu



If everyone on Earth lived like this, we'd stop bankrupting our one planet's limited resources and arrest climate change.

**The goal is simple.** Rohnert Park developer Coddling Enterprises is building Sonoma Mountain Village, a 1,900-home neighborhood that strengthens community, provides a healthier quality of life, and restores nature with an 80% ecological footprint reduction – America's first **One Planet Community**.

**The plan is complex.** Achieving "true sustainability" means stretching beyond the highest green building standards for materials, water, energy and indoor air quality. It *also* means having more local, organic, and fair trade products in restaurants and shops; providing cleaner transportation options; creating quality affordable housing and 4,400 jobs; and making it easier to adopt healthy, green lifestyles.

## 2020 Sustainability Action Plan - Summary

- 1** **Reduce building emissions by 100% (carbon-neutral).** Build some of the most energy efficient homes and buildings in the United States, beating California's stringent Title 24 Energy Code by 50-80%. Heat, cool, and power them with 100% renewable energy generated onsite.
- 2** **Reduce waste by 98%.** Decrease construction waste by 90% with smart design and future recyclability. Provide ergonomic facilities, education, and incentives to occupants, limiting waste sent to landfill to 2%, with at least 70% being reclaimed/re-used, recycled or composted.
- 3** **Reduce transport emissions by 82%** for travel to/from/within the community. Make transit, neighborhood electric vehicles & hybrids, car sharing lots, bike paths, and shuttles far more convenient. Offset unavoidable emissions with a certified carbon sequestration scheme.
- 4** **Manufacture at least 20% of materials onsite** from recycled automobiles in a [solar-powered factory](#) that produces no emissions and less than 3% of typical construction waste. Finished buildings can be recycled at end of life. Buy an additional 40% of materials locally (<500 miles).
- 5** **65% of all food from local farms and onsite gardens** (40% <300 miles & 25% <50 miles). Provide an all-season farmer's market, community agriculture/orchard, sustainable food grocery store/restaurants, and healthy prepared meals for pickup at convenient neighborhood locations.
- 6** **Reduce water use by 144 gallons** per person each day, adding 1,900 homes while decreasing use of municipal water. The Water Plan includes extensive conservation, innovative water re-use in greywater/reclaimed water systems and massive rainwater harvesting.
- 7** **20% of site as greenspace + 10% of site restored to native habitat.** Create wetlands to attract endangered salamanders to the site. Purchase 90 acres of nearby off-site habitat and permanently protect it. Increase biodiversity with native flowers, trees and grasses.
- 8** **Enhance local culture and heritage.** With its farmer's market, public art by children and local art exhibits, local landscape, staged plays and concerts, the Town Square will host many community gatherings. A points-based rewards program will encourage "local-first" purchasing.
- 9** **4,400 jobs, 25% affordable housing, and fair trade.** 4,400 new jobs with employment for disadvantaged groups; 25% affordable rental and for-sale housing; co-housing; an [incubator for eco-entrepreneurs](#); and requirements for retailers/grocers to promote fair trade products.
- 10** **A new standard for healthier, happier lifestyles.** A friendlier, safer community with convenient all-season fitness facilities. Where fresh, healthy diets are the default. Designed, built, and operated to incorporate the latest happiness and wellness research.



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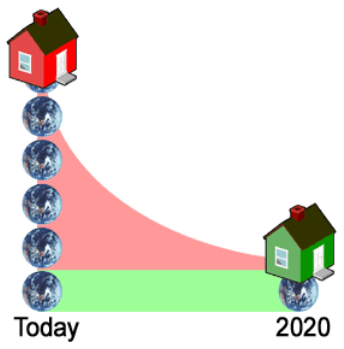
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*Please note that this document, intended for a public audience, summarizes a lengthy internal Sustainability Action Plan document that is significantly more technical.*

# introduction

If everyone on Earth consumed resources like Americans do, we would need **five planets'** worth of resources to support us.

The fact is, it's almost impossible for the average American household to reduce their swollen "ecological footprint" by more than 25%. Our cities just aren't designed to support it.



**Sonoma Mountain Village is the 1<sup>st</sup> American community designed for living within the limited resources of our one planet.**

This 1,900-home neighborhood in Rohnert Park, California, has been carefully planned by Coddling Enterprises to make an **80% ecological footprint reduction** practical (and even convenient) for residents to achieve – without sacrificing modern comforts. In fact, Sonoma Mountain Village residents will enjoy healthier lifestyles, fresher food, and a higher quality of life.

It's only the fourth project in the world to be endorsed as an **official One Planet Community** – requiring real estate developers to meet ambitious goals by 2020 that include Zero Emissions from buildings and Zero Waste, and submit to annual performance monitoring by independent environmental organization BioRegional.



BioRegional, a non-profit organization, coordinates this network of some of the world's most advanced sustainable communities. With world headquarters in London, UK, and North American offices in Ottawa and Washington, D.C., BioRegional has been creating award-winning sustainability solutions since 1994.



**Achim Steiner**  
Executive Director,  
UNEP - UNITED NATIONS  
ENVIRONMENT PROGRAM

"One Planet Communities offers us a very simple choice: The next time we choose a place to live, we can choose one that invests in the sustainability of our planet. This will allow us to make a difference on a scale - and with the urgency - that all of us now know is absolutely necessary."



**Ken Smokoska**  
Clean Energy Chair  
SIERRA CLUB CALIFORNIA

"The prestigious international program of One Planet Communities solves the climate change conundrum of new development. Instead of just trying to eke out more energy efficiency, it starts from the basic principle of zero greenhouse gas emissions from buildings and a massive 82% reduction from transit."



**Prince Charles**

"BioRegional's common sense approach of using local resources from farming, forestry, solar energy and recycled waste to meet more of our everyday needs brings benefits to society in numerous ways. The transport of goods is reduced, cutting fossil fuel consumption, reducing our contribution to global warming and improving air quality for a positive effect on health. The creation of local employment leads to more diverse and healthy economies. And the physical proximity of producer and consumer can help protect local communities from some of the negative consequences of the global economy and lead to increased accountability."

# the One Planet network

## The "Prototype"



London, UK. One Planet Communities are informed by lessons learned at the multi-award winning **BedZED** - the UK's largest urban eco-village (completed 2002), with 96 homes, commercial, and community space. The average resident uses 23 gallons less water and 58% less electricity per day, saving 5.1 tons of greenhouse gas emissions each year through a wide range of sustainable technologies and green lifestyle strategies. *"BedZED's environmental achievements suggest that neighborhood-scale sustainable development can go much further than has been imagined in the USA."* – **Urban Land**

## Other Official One Planet Communities



Portugal. The €1.1 billion **Mata de Sesimbra** project south of Lisbon, with 8,000 solar-powered eco-homes, hotels, and shops, is surrounded by 12,000 acres of restored forest and wetlands – Europe's largest private reforestation project. 50% of food will be sourced within a 31-mile radius. It has been declared a "Project of National Importance" by Portugal's Prime Minister. *"An ambitious experiment in sustainable living, with zero emissions and almost zero waste."* – **BBC**



Abu Dhabi. **Masdar City** – a 2.3-square mile city for 1,500 businesses and 50,000 residents – will be the world's first zero-carbon, zero-waste, car-free city. The \$15 billion project will exceed the Ten One Planet Principles by the time it is completed in 2015 (5 years ahead of the 2020 targets). Masdar's stone-and-mud walls, built in the tradition of an Arab walled village, will be covered in photovoltaic panels capable of generating 130 megawatts. *"Get ready for the world's first carbon-free city – smack-dab in the center of the oil-rich Middle East."* – **CNN**



London, UK. In February 2007 the **One Gallions** consortium beat 17 other competitors to be selected as the preferred development partner for the Mayor of London's first zero carbon development at Gallions Park in East London. *"A landmark scheme that helps set the standard for environmentally sustainable development across London."* – **Mayor of London Ken Livingstone**



Brighton, UK. The 1<sup>st</sup> One Planet Community to finish construction, **One Brighton** is a zero-parking development with renewable energy generated onsite from rooftop wind turbines and a waste biomass Combined Heat and Power Plant, and a "green lifestyles concierge" for residents. *"Brighton is Britain's eco-capital... now the place is about to get its first zero-carbon development."* - **The Times**

Future projects are underway in Washington D.C., Seattle, Montreal, China, South Africa, and Europe.

## Related Projects



BioRegional was commissioned by the **London 2012 Olympics** committee to create a "One Planet" Olympic plan covering low-carbon energy & transport strategies, biodiversity and a legacy for a sustainable community. On-going plans call for Zero Waste from 12 million meals and reducing emissions by 50%.



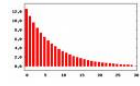
BioRegional provided the new Discovery Planet Green channel with footprint reduction science and tactics in filming reality TV series "WASTED". Due to launch Spring 2008, the show provides "sustainability makeovers" to ordinary families. Participating families implementing BioRegional's advice have achieved a 30% average reduction in ecological footprint, and created some compelling TV.

# strict requirements

To earn **One Planet** endorsement, developers must:

**Zero Carbon**  
**Zero Waste**

**1. Plan using Ten Principles.** The Ten One Planet Principles keep developers working towards big-picture, long-term environmental and social improvements in every aspect of daily life. These principles act as a kind of “green DNA”, embedded in every building design, construction contract, and business plan.



**2. Set ambitious targets.** Zero Carbon and Zero Waste targets require developers to eliminate 100% of building emissions and 98% of garbage going to landfill by 2020. For the other 8 Principles, developers must set “stretch targets” that go well beyond established best practices such as the LEED green building rating system. These targets and the strategies to hit them are enshrined in this Sustainability Action Plan.



**3. Aim for true sustainability with ecological footprinting.** Ecological Footprinting is a valuable tool for measuring over-consumption of renewable natural resources in a way that is easy to understand and communicate. One Planet Communities use the tool to in design and planning, guiding reductions in the total ecological footprint of residents to a truly sustainable, “one planet” level.



**4. Encourage healthy, sustainable lifestyles.** Ecological footprint analysis done by BioRegional in the UK has found that the lifestyle choices of households account for 54% of their total greenhouse gas emissions. One Planet Communities make lifestyle changes more practical for families – for example, by offering healthy ready-made meals supplied by local agricultural producers, or by making car-sharing (e.g. Zipcar) just as convenient as owning a private vehicle. Developers must provide a “Sustainability Concierge” and social marketing programs to help transform behaviors – housed in a “**One Planet Center**”. The One Planet Center at Sonoma Mountain Village will be centrally located off the Town Square and will include a show-home, green products store, sign-up for community agriculture, and sustainability education.



**5. Monitor & manage until 2020.** Most developers build homes and move on. One Planet Communities require developers to stay involved in property management, monitoring performance and making adjustments to keep the project on track until 2020. Sustainability must be the central focus in all property management including rentals, sales, leasing, cleaning, maintenance, grounds-keeping, etc. And the developer must allow BioRegional to conduct annual independent audits of environmental performance until 2020.

*Exceed the highest standards in green building.*

## THE TEN ONE PLANET PRINCIPLES

- 1 Zero Carbon
- 2 Zero Waste
- 3 Sustainable Transport
- 4 Local and Sustainable Materials
- 5 Local and Sustainable Food
- 6 Sustainable Water
- 7 Natural Habitats and Wildlife
- 8 Culture and Heritage
- 9 Equity and Fair Trade
- 10 Health and Happiness

*Make it easier for residents to adopt healthy, green lifestyles.*

# save \$\$ + the planet

## benefits of One Planet living at Sonoma Mountain Village

1

**Zero Carbon**, ultra-efficient buildings powered by 100% renewable energy mean lower energy bills that are “future-proofed” from the ever-rising costs of oil, coal, and natural gas. It means better air quality and less local air pollution, eliminating “up-stream” environmental impacts of extracting fossil fuels, and the guarantee that your building won’t contribute to climate change.

2

**Zero Waste** means spending less on unnecessary disposable consumer goods and packaging; knowing that your food waste is being used as fertilizer in local landscaping and gardens; providing more materials for recycling businesses to put to re-use; reducing the impact of contaminated landfills and the production of the potent greenhouse gas methane.

3

**Sustainable Transport** means less time stuck in traffic jams and more time with family or friends; spending less on the rising cost of gasoline; getting more exercise bicycling or walking to nearby stores and jobs; safer streets for children; saving the planet *and* our lungs with less harmful smog, less pavement, and an 82% reduction in greenhouse gases from our cars.

4

**Local and Sustainable Materials** helps California’s economy with more jobs and a higher tax base. It means living in healthy, non-toxic buildings with unbeatable indoor air quality; spending less money maintaining imported materials designed for other climates; building with recycled cars, not trees; and greatly reducing smog and greenhouse gas emissions in material transport.

5

**Local and Sustainable Food** grown organically in onsite gardens and nearby farms means a healthier diet; convenient and affordable in-season meals that are fresher, better-tasting and more nutritious; a stronger local agricultural economy; fewer impacts from pesticides and petroleum-based fertilizers; and less smog and greenhouse gas emissions from food transport.

6

**Sustainable Water** – we’ll lower your water bill by 60%, and lower your energy bill by using less hot water. Irrigating with rainwater means less of your HOA fees going to landscaping and irrigation costs. Less chemicals will be used for water treatment. Less water will be polluted in sewers, ending up instead where nature intended – in ponds, wetlands, and rivers.

7

**Natural Habitats and Wildlife** enables life-long learning with nature, right in families’ own back yards; hosts a wide variety of outdoor recreation and leisure activities; provides free ecological services, like carbon sequestration, water and air purification; contributes to the beauty and value of the Village; and helps reverse habitat loss with benefits for local endangered species.

8

**Culture and Heritage** efforts enhance a sense of local identity, history, and civic pride, with regular events, festivals, and farmer’s markets hosted in the Town Square. Local artists will be showcased, with opportunities for kids to get involved in creating public art. A local-first loyalty program will encourage consumers to shop local, boosting the local economy.

9

**Equity and Fair Trade** – we’ll create 4,400 jobs close to home, day-care, and shopping, with at least 90% of those jobs meeting the County living wage standard; provide 450+ affordable homes to help meet Sonoma County’s shortage; and ensure that stores have a large selection of fair trade goods, giving poor producers in developing countries a fair price for their hard work.

10

**Health and Happiness** commitments will help create a more genuinely wealthy community, where residents are healthier and safer, know their neighbors, and have more time to spend with friends and family, exercising, and being outdoors in bountiful nearby nature. Buildings will be brightly lit by natural daylight, and meet the highest standards in indoor air quality.



# convenient eco-lifestyles

**The Challenge.** Of the 36.9 tons of greenhouse gas emitted each year by the average Californian household, 8.7 tons come from building and powering homes. However, the majority of household greenhouse gas emissions – 28.2 tons – are a result of lifestyle choices, including car and airline travel (11 tons), food purchases (6.8 tons), consumer goods like clothing (4.1 tons), the use of services (3.3 tons), and solid waste (2.9 tons). The way our cities are designed actually makes environmental responsibility inconvenient.

**Sustainable lifestyles: the “new normal”.** Sonoma Mountain Village sets out to make sustainable lifestyles more practical, convenient, and affordable for families.

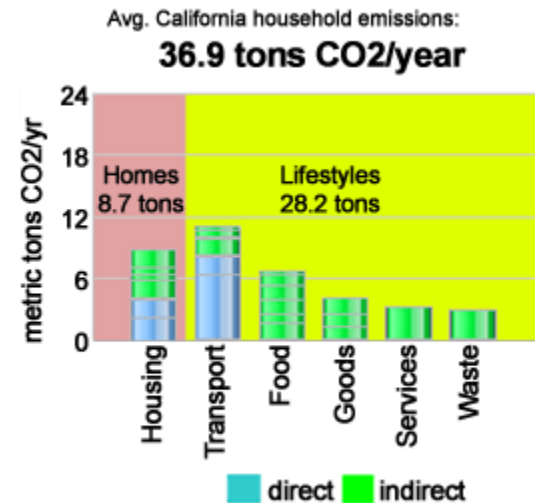
## It's never been easier to compost, recycle or lower your transport emissions.

A welcome pack will introduce new residents to the many benefits and opportunities for sustainable living at Sonoma Mountain Village.

A **Sustainability Concierge** will explain the choices and technologies available, and provide training, with additional curriculum available at the One Planet center, in schools, and via the community intranet.

The **One Planet Center**, located in the Town Square, will be the resource hub for sustainable lifestyles programs. It will also serve as a meeting place and exhibition center, complete with a show home for visitors who are interested to see what sustainable living looks like from the inside.

- **Green Transportation.** Sonoma Mountain Village will make car-sharing (e.g. Zipcar) just as convenient as owning a private vehicle, with multiple car-share parking lots conveniently located close to homes. Electric vehicle charging stations will be made available throughout the community, as will secure bicycle storage. Ride-sharing will be conveniently organized online, on billboards in the One Planet Center, and by the Sustainability Concierge. The concierge will also introduce residents to plug-in hybrid and electric vehicle options as the technology becomes available.
- **Sustainable Food.** Healthy ready-made meals supplied by local agricultural producers will be ready for pickup at the One Planet Center. The Sustainability Concierge will introduce residents to the various healthy, local food choices throughout the project – profiling restaurants with local food options. The concierge will also introduce residents to on-site gardening and composting, and provide easy sign-up for the community supported agriculture (CSA) program at the One Planet Center. A leasing program will require Sonoma Mountain Village retailers and grocers to set aside shelf space to promote local and fair trade products (not just coffee or chocolate). We plan to run a consumer awareness campaign through the One Planet Center and are actively researching ways to reward people for shopping local, organic and fair trade more often.
- **Promoting low energy & water use.** An ongoing education & social marketing program will emphasize low energy & water choices. The One Planet Center and intranet will either sell or link residents to efficient lights, appliances and other consumer purchases, and all residents and businesses will have on-line or in-building access to their energy & water use data in an easy-to-understand format.
- **Zero Waste Culture.** Recycling and composting bins will be conveniently located throughout the site, and in-home recycling and composting will be made as easy as possible. On-site collection facilities will be available for materials that often aren't recycled, such as clothing and electronics. The One Planet Center and local retailers will sell products made from locally-recycled materials.



The One Planet Center in the Town Square will provide training, tours, and resources for sustainable, healthy lifestyles



# 5-minute living

Original Industrial Campus



## Closer.

Clustered around a new town square and daily farmer's market, the community is planned to ensure **every resident** is no more than a five-minute walk to the cinema, groceries, restaurants, offices, day care and shops offering local, sustainable, and fair trade products and services. Streets are narrow, sidewalks are wide. Kids can walk to school and safely play in the streets. By combining new urbanism with deep sustainability, Sonoma Mountain Village turns an old factory into a living neighborhood.

**Site Details.** The total site area is 200.1 acres, including 145.13 acres of developed area, 30.2 acres of parks and 24.8 acres of open space and stormwater ponds.

The plan includes 1,892 units of housing, including live-work, condos, row houses, small and large detached homes, and tiny "Katrina cottages".

# daily life in 2015

## So what does sustainable living cost?

Sonoma Mountain Village has been designed to ensure that sustainable living is not just convenient, but affordable, too. Living here will cost no more than living anywhere else because of the strong partnerships with utilities, lenders and governments. By lowering the cost of insurance, energy, water, sewer and waste, the small increase in mortgage is more than offset by household savings in other areas.



## A day in the life...

### Child

I like living at Sonoma Mountain Village. Mom doesn't mind me walking or biking to school because there aren't many cars – I sometimes catch the "walking bus" with my friends.

We live in one of the townhouses near the soccer field. There's a big playground I like that Dad says is totally made from stuff people didn't use any more – he says it's like recycling, only better. I ride my skateboard a lot on the streets and there's even ramps that all the bigger kids ride on.

School is fun here. We learn about the planet and the things we can do to save it. At lunchtime, we eat a lot of vegetables that we've grown in the school's garden. Last week we went to the composter to learn about how worms turn old food into fertilizer. And in the summer we went on a school trip to a farm that sells its fruit and vegetables at the farmer's market and also to the supermarket in the Town Square. It was neat to learn about organic food and how it's made without gross chemicals. We also went to the factory here where they make recycled cars into houses! That was the best.

When we go to visit my aunt in Petaluma, Mom and Dad take one of the car-sharing club's electric cars parked on our street. The car is kinda cool because it gets its electricity from the sun and is really, really quiet.

Mom and Dad seem happier and less stressed since we moved to Sonoma Mountain Village. They might finally even let me get a dog. This is the coolest place I've lived!



### Retired Couple

We have lived in Sonoma County for most of our lives, so we were glad when we had the opportunity to move into a smaller condo at Sonoma Mountain Village, just down the road from our grandchildren.

Our home is very comfortable and has a great view of the mountain. As a former engineer, Ted can't stop talking about how the sun heats our water. Our bills are much, much lower than friends living elsewhere, especially as oil and gas prices have risen steeply in recent years.

Almost all the facilities we need are nearby, and every day we walk in the park and visit the farmer's market. There is a strong sense of community here – our neighbors come from all walks of life. We enjoy growing vegetables in the garden and Marie helps out at the school where the kids have a community garden.

We'd like to stay at Sonoma Mountain Village as we grow older. It'll help that our home has been thoughtfully designed so that it's easily adaptable for when we're less mobile. There's even a local organic meals on wheels service so we can still eat healthily. But that's a long way off – we're more active now than we've ever been!



### Family with young children

We moved to Sonoma Mountain Village because of the quality of the home, the access to nature, and the opportunity to live in a community where people actually know each other.



In the mornings Nathan has this little routine walking to work through the Town Square. He goes by the newsstand and picks up organic fair trade coffee at the corner cafe. He usually bumps into some of our neighbors before heading off to work at his company's office behind the One Planet Center. I'm always reassured because he pops out at lunch to check on little Jericho at the daycare center. And I'm sometimes a little jealous when he goes to lunch with colleagues at my favorite local restaurant, Cafe Sonoma – the food is delicious, and it's all exclusively from within Sonoma County.

I commute in to the Bay Area for my job. The short walk from our house to the commuter train is lovely, and I sometimes stop to watch the birds in the wetlands. The good public transport services here, the cycle paths and the convenient car club helped convince us to get rid of our second car when it was time to replace it. We don't miss it, and car-sharing has saved us money as well. We're also more likely to go for walks and bike rides or visit the leisure centre at weekends – so we're fitter, too!

There are a lot of community events here that are a great way of getting to know new people. I feel we know far more neighbors than where we used to live. Perhaps it's because fewer people use cars; you just don't need to when everything is within walking distance!

### Single Professional

I work as a product designer in the Sonoma Business Cluster, which is just a couple minutes from my studio apartment. My job involves finding new uses for recycled materials, particularly plastics – in fact, I designed the park benches at Sonoma Mountain Village. I'm taking night courses at Sonoma State University, too. Most days I cycle to the University, although if it's raining I take the bus. It runs on a hydrogen fuel cell.



My job keeps me busy, and my social life is thriving here. There's a lively atmosphere at the local microbrewery where I meet friends on a Friday night, and the best dance club in the area is here too. It's the first time I've ever partied to solar-powered music!

Most days, I rollerblade on the excellent paths here. On weekends my friends and I sometimes go horseback riding up onto Sonoma Mountain. In the winter I love to ski at Lake Tahoe. I use the intranet to coordinate ride-shares, which means I get to hook up with neighbors from Sonoma Mountain Village who are heading up to go skiing for the weekend. The intranet also allows me to order organic food boxes and other items which are delivered at the One Planet Centre when I'm not at home – I can easily collect them on my way back from work.

Sonoma Mountain Village is such an interesting place to live. And I just love how my high quality of life goes hand in hand with having a much, much lower environmental impact. When the time comes to settle down and start a family, it'll be easy to sell my studio apartment. I have my eye on the townhomes down by the wetlands...

*The people depicted here are actors.*

# 2020 action plan



“It’s time to stop planning for energy efficiency and start planning for zero impact. It’s time to move past ‘green’ and embrace truly sustainable development. BioRegional’s Sustainability Action Plan for a One Planet Community has given us the framework to do just that.”  
**Geof Syphers, Chief Sustainability Officer, CODDING ENTERPRISES**

In May 2007, BioRegional challenged the project’s architects, engineers, and designers to answer this question: *What would true sustainability look like at Sonoma Mountain Village?* By focusing on performance goals for each of the Ten One Planet Principles and avoiding prescription of specific strategies (as green building rating systems do), the design team was free to exercise their ingenuity.



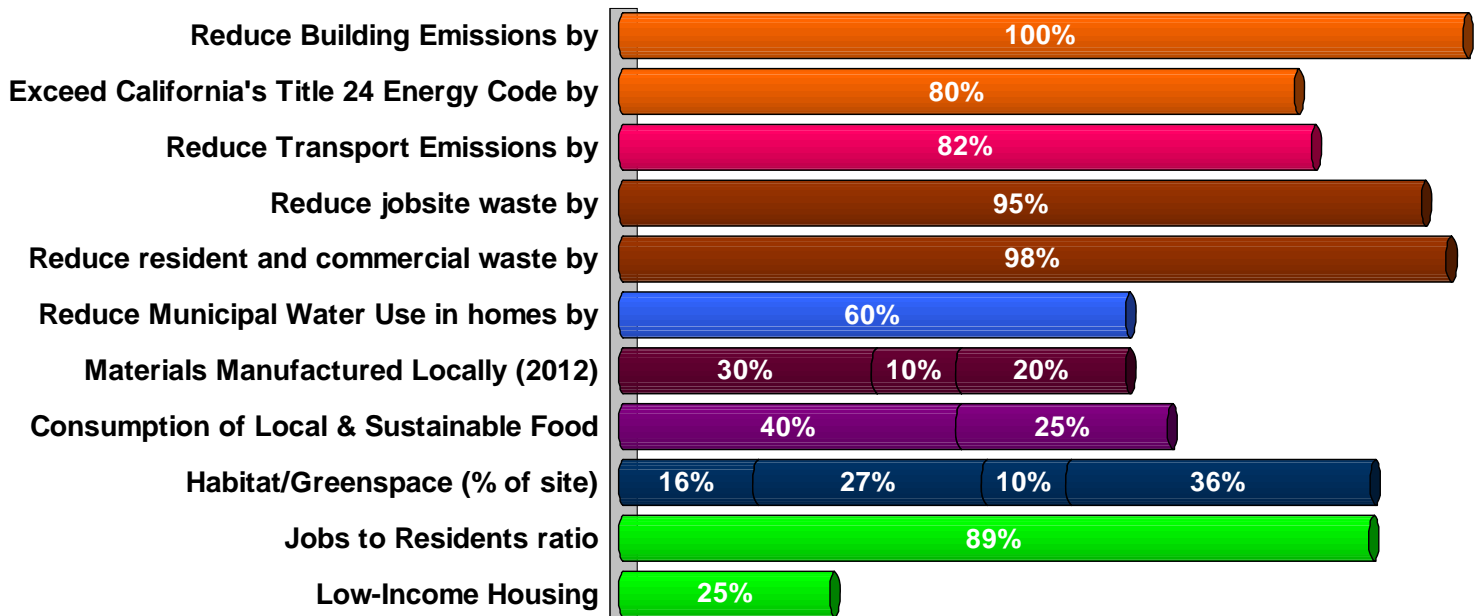
BioRegional lead the Sustainability Action Plan workshop at Sonoma Mountain Village

**Endorsed**



After 6 months of detailed planning, this Sustainability Action Plan\* was rigorously reviewed by a panel of environmental scientists at BioRegional UK and formally endorsed as North America’s first approved plan for a One Planet Community.

This plan integrates and often exceeds the highest standards in green building, renewable energy, sustainable agriculture and transportation, biodiversity regeneration, local economy, and healthy “green lifestyles”, tailored to the unique context of the site. **2020 targets** for Sonoma Mountain Village include:



BioRegional will work over the next 5 years to help Sonoma Mountain Village hit these targets throughout design, construction, and operation, and will independently monitor progress annually until 2020.

# 1 Zero Carbon

**The Challenge.** The average home in California uses enough electricity to emit 4 tons of greenhouse gas (GHG) each year. These emissions contribute to global warming, resulting in a predicted rise in global temperatures of between 1.4° and 5.8° by 2100. This rise affects weather patterns and sea levels, damaging ecosystems upon which we depend, and increasing the frequency of natural disasters. This trend has begun - 2005 was the hottest year on record globally.

## Green buildings aren't enough.

If each building at Sonoma Mountain Village achieved a LEED Platinum rating, the project would *still* generate **16,870 tons** of CO<sub>2</sub> equivalent greenhouse gases each year just from energy use in buildings. We'd need **4 million trees** to sequester that carbon – a forest 64% larger than the city of Rohnert Park!

**Our 2020 Plan.** Buildings will not contribute greenhouse gases to the atmosphere, period. By using efficient technology in combination with the best of proven passive solar features, the zero-carbon home outperforms without getting complicated:

- **Exceed Title 24 energy code by 50-80%.** All new buildings will beat California's current energy code by at least 50% - with some buildings aiming for an 80% reduction. Key strategies will be ultra efficient pre-installed appliances and lighting, super insulated walls, floors and roofs, maximum use of daylight, elimination of reheat, maximum use of natural ventilation and free cooling and low pressure drop pumping and piping systems.
- **100% renewable electricity.** In October 2006, Coddling installed the 2<sup>nd</sup> largest privately owned solar photovoltaic installation in Northern California, at 1.14 MW. It will help power homes, businesses, and a zero carbon data center - the first of its kind in the world. Onsite renewable power in excess of the available solar photovoltaic capacity, if needed, could include gasification of cellulosic biomass from county sources, methane production from food waste composting and biodiesel production. 100% of temporary construction power is from onsite solar.
- **100% renewable heating and cooling.** Heating will be primarily served with passive solar features (using techniques developed by the Passiv Haus Institut); supplemental sources include solar-electric heat pumps, biomass, biogas, and ground-source heat pumps. Buildings will be connected to the existing efficient chilled water and hot water central plant wherever possible, with natural gas boilers being converted to biofuel, biomass or reclaimed heat from power production for the data center.
- **Promote low energy use.** An ongoing education & social marketing program will emphasize low energy choices. The One Planet Center and intranet will encourage efficient lights, appliances and other consumer purchases, and all residents and businesses will have on-line or in-building access to their energy use data in an easy-to-understand format.

going solar



Workers install the solar power plant at Sonoma Mountain Village. The \$7.5million plant generates 1.14 megawatts – enough to power 1,000 homes.

100% powered by  
renewable energy  
generated onsite

## Greenhouse Gas Emissions

Annually, per household

### Building energy direct emissions:

- California Average = 4 tons
- LEED Platinum = 2 tons
- One Planet Community = **0.0 tons**

## Measuring Performance until 2020

Total greenhouse gas emissions from building energy use, as tracked with the EPA Climate Leaders protocol, must decline against the U.S. National per capita average on this schedule:

2008:	55%	2 tons CO <sub>2</sub>
2012:	75%	1.1 tons CO <sub>2</sub>
2016:	90%	0.5 tons CO <sub>2</sub>
2020:	100%	0.0 tons CO <sub>2</sub>

Verified by **BioRegional**

# 2 Zero Waste

**The Challenge.** Most of the planet's extracted and refined resources are used once, then discarded - creating a huge disposal challenge while squandering valuable resources. Global waste generation is expected to increase by 500% above 2005 levels by 2025, with the highest increases in industrialized countries. According to the UN, a majority of the world's ecosystem services are in decline from unsustainable consumption, and the planet's capacity to absorb current waste production is inadequate. Land-filled organic waste emits methane, a greenhouse gas 21 times more potent than CO<sub>2</sub>.

## Our 2020 Plan.

### A. Over 97% reduction in construction waste on jobsites:

- **Build with recyclable materials.** First, design for waste minimization and future recyclability. Then, in a solar-powered factory onsite that creates almost no garbage, manufacture wall, roof and floor assemblies that can be fully recycled at end of life.
- **Recycle 100% of the asphalt** from 3200 existing parking spaces to create new traffic-calmed narrow streets and alleys.
- **Adaptively re-use** 700,000 square feet of existing buildings, instead of demolishing them. This avoids the creation of approximately 56,000 tons of demolition waste.

### B. Limit total solid waste sent to landfill to 2%, ensuring at least 70% of waste by weight is reclaimed, recycled or composted:

- **Make recycling convenient.** Design to ensure recycling is as easy as garbage (e.g. separate garbage and recycling chutes). Also, require all businesses and homes to feature adequate space for convenient separation of materials for landfill, recycling, green waste, food waste and toxics.
- **Provide collection bins for recyclables in all public areas.** Achieve best practices as defined by StopWaste.Org
- **Create incentives to encourage recycling** by asking local government to set garbage prices to encourage minimized volumes, make recycling inexpensive or free, collect food waste, and provide easy, safe disposal for hazardous/toxic materials.
- **Leasing requirements for retail tenants** that require reductions in packaging and bag use and minimizing disposable products. Support practices that favor waste reduction such as discounts for reuse. Create convenient and inexpensive ways to buy food in bulk with minimal packaging.
- **Encourage local stores to sell products** made from locally-recycled materials, and ensure the One Planet Center sells these and other "green" products at Sonoma Mountain Village.
- **Begin collecting organic waste** for onsite composting by 2012.
- **Create collection facilities** for materials that often aren't recycled, such as clothing and electronics. Where possible create onsite businesses to make use of recyclable materials.
- **Eliminate the need for purchasing bottled water** by providing high quality filtered water throughout the community.
- **Create a plan for generating a culture of Zero Waste**, including incentives, contests, grade school education and reporting on community progress on the intranet.

## recycled roads



**Stockpiled concrete: All new roads 100% recycled from the campus' existing 3200 parking spots**

*Divert 98% of waste from landfill*

## Greenhouse Gas Emissions

Annually, per household

### Residential waste indirect emissions:

- California Average = 2.9 tons
- One Planet Community = **0.1 tons**

### Construction waste indirect emissions (annualized):

- California Average = 0.6 tons
- LEED Platinum = 0.15 tons
- One Planet Community = **0.03 tons**

## Measuring Performance until 2020

In 2003, 55% of all solid waste was diverted from landfills in Rohnert Park. An increase per person at Sonoma Mountain Village must be measured on this schedule:

2008:	68%	2.9 lbs/day
2012:	77%	2.0 lbs/day
2016:	89%	1.0 lbs/day
2020:	98%	0.2 lbs/day

Establish protocols for measuring defined categories of materials such as organics, recyclables, hazardous wastes and materials sent to landfill. Measurement may be by volume or weight, using the best available conversion factors where necessary for meaningful comparisons.

Verified by **BioRegional**

# 3 Sustainable Transport

**The Challenge.** Transport is the fastest growing contributor to CO<sub>2</sub> emissions. Transportation in Sonoma County was responsible for 43% of the CO<sub>2</sub> emissions produced in the county in 2000. 72% of all Sonoma county transportation is from driving alone in gas- and diesel-powered vehicles. Vehicle miles traveled in Sonoma County increased a dramatic 42.5% between 1990 and 2000, more than twice the rate of the county's 18% population increase. Commuters report a shift toward more single-occupancy trips driven by the difficulty of finding carpool partners, a lack of direct transit service, and irregular work hours. Alternative transportation is limited in Sonoma County, with not enough bicycle routes, infrequent buses, no car share programs, poor success with rideshare commuting and no current passenger rail service.

**Our 2020 Plan.** The combined impact of these strategies will reduce by 82% the total GHG emissions arising from travel to, from and within the community - lowering vehicle miles traveled by 54%, fuel use per mile by 55%, and carbon content of fuel by 12%:

- **Reduce the need to travel** offsite and the need for fossil-fuel-based transport modes. Every resident is no more than a five-minute walk to onsite jobs, the cinema, groceries, restaurants, offices, day care and shops offering local, sustainable, and fair trade products and services. At least 4,400 new onsite jobs, live/work housing, hot desks for telecommuting, and local small businesses further encourage reduced travel.
- **Make walking and bicycling easy, safe, and fun.** Institute a free bicycle program. Complement pedestrian promenades, narrow tree-lined streets, off-street paths and possible "bicycle boulevards" with a high quality, safe bike and pedestrian path directly to train station, including landscaping and lighting. Convenient bicycle parking everywhere with at least one easily-accessible, secure, covered bicycle parking space for every housing unit on site and at least one easily accessible bicycle rack space for every 2,000 square feet of office and retail.
- **Politically support** the SMART train initiative to bring commuter rail to a station just 3 minutes by bicycle from the Town Square.
- **Widespread use of neighborhood electric vehicles** and utility carts charged by 100% solar power and inter-connected with the grid to allow the utility to pull energy out of the cars' batteries during peaks periods. Purchase electric utility carts for use by maintenance, landscape and garbage and recycling services.
- **Promote a plug-in hybrid car-share** system with convenient parking locations throughout the neighborhood as a practical, lower-cost alternative to owning a car.
- **Convenient carpool/ride-sharing** organized online and by the sustainability concierge in the One Planet Center.
- **Alternative fuel shuttle** to university and [proposed] rail station.
- **Aim for a 25% reduction in air travel** by educating residents about the invisible but massive environmental impacts of airlines.
- **As a last resort, go biofuel** with an onsite biodiesel tank for construction vehicles and a biofuel filling station to give long-distance drivers a low-carbon option.
- **Certified offset** for remaining unavoidable emissions.



Proposed Sonoma-Marin Train

*82% reduction in vehicle emissions*

## Greenhouse Gas Emissions

Annually, per household

Motor vehicle direct emissions:

- California Average = 6.3 tons
- One Planet Community = **1.1 tons**

Motor vehicle indirect emissions from manufacturing & infrastructure:

- California Average = 2.4 tons
- One Planet Community = **1.4 tons**

Air travel + infrastructure direct & indirect emissions:

- California Average = 2.3 tons
- One Planet Community = **1.6 tons**

## Measuring Performance until 2020

Total annual CO<sub>2</sub> emitted from travel by all transit to, from and within Sonoma Mountain Village using the EPA Climate Leaders Phase II transit calculation methodology by the Climate Protection Campaign, per household:

2008:	0%	6.3 tons CO <sub>2</sub>
2012:	29%	4.5 tons CO <sub>2</sub>
2016:	57%	2.7 tons CO <sub>2</sub>
2020:	82%	1.1 tons CO <sub>2</sub>

Also: achieve LEED-ND Transportation Demand Management credit.

Verified by **BioRegional**

# 4 Local and Sustainable Materials

**The Challenge.** The building industry consumes 40% of the world's raw resources. Globalization means more materials are being transported greater distances, contributing to significant greenhouse gas emissions. Widespread use of toxic materials in buildings contributes to poor indoor air quality and can impact human health.

**Our 2020 Plan.** The One Planet Communities program broadly encourages developers to exceed the excellent LEED standard for materials. For instance: avoiding a material altogether (e.g. finishing concrete rather than using carpet), eliminating dioxin (e.g., avoiding PVC wherever practical), recyclable at end of life (property of the material and how it is mixed, fastened, etc), and product recovery or 'take-back' by manufacturer at its end of life. Strategies include:

- **Manufacture at least 20% of materials onsite** in a [solar-powered factory](#). The process uses the steel from eight recycled cars to build a new home with deconstructable wall, roof and floor assemblies, generating no emissions, less than 3% of the typical construction waste, and replacing the wood from 40 trees. The finished building can be recycled into a new building when it is renovated or demolished in the distant future.
- **Source 10% of additional materials from within 50 miles.**
- **Source 30% of additional materials from within 500 miles.**
- **Issue Standard Specifications**, ensuring that local, reclaimed, renewable, recycled, healthy and low impact materials will be selected to maximize opportunities for cradle-to-cradle management. The guide will indicate distance to the closest known suitable manufacturer, and address areas frequently overlooked in U.S. projects: recycled content materials that can be truly recycled (as opposed to downcycled), and low-embodied-energy materials such as concrete from local manufacturers, window coverings from natural fibers like local wool, cork flooring, refurbished furniture and natural plasters.
- **Set healthy materials standards** for low-VOC content, zero added urea formaldehyde, encapsulation or elimination of crystalline silica, waterproofing & mold control, heavy metals and dioxin, as well as jobsite dust control, ducting, and cleanliness.
- **Adaptively re-use** 700,000 square feet of existing buildings – lowering the need for new building material for replacement buildings by approximately 44,000 tons.
- **Inventory existing materials** on site, including crushed concrete and asphalt, steel, doors, etc. and identify the proper methods for recovery, storage, and future use.
- **Create an onsite construction material re-use center** to accept, store, prepare, and provide salvaged materials. Possibly invite other regional builders to deposit and acquire materials.
- **Recycle 100% of the asphalt** from 3200 existing parking spaces to create new traffic-calmed narrow streets and alleys.
- **Create an onsite nursery** for growing street trees and an adjacent compost facility for generating topsoil.
- **Enlist a local artist** to create town art from construction waste.
- **Track the embodied carbon in materials and activities**, minimizing total embodied emissions on a lifecycle basis.



Solar-Powered Panelized Frame Factory on Site

*20% of materials manufactured on site + 40% from within 500 miles*

## Greenhouse Gas Emissions

Annually, per household

Construction materials indirect emissions, annualized:

- California Average = 1.2 tons
- One Planet Community = **.8 tons**

## Measuring Performance until 2020

Achieve levels of performance equivalent to all LEED credits for recycled content and low emission materials.

The percent of materials used that are manufactured within 500 miles will be tracked on this schedule:

2010:	35%
2015:	45%
2020:	60%

Indicators are being set for minimizing embodied energy of materials.

Verified by **BioRegional**



# 5 Local and Sustainable Food

**The Challenge.** Food production exerts a huge impact on the world's ecosystems as wilderness areas are converted into agricultural lands, and through the quantities of fossil fuels used to produce food and transport it to our tables, making food one of the largest single contributors to green house gas (GHG) emissions. It takes approximately ten calories of fossil fuel to produce one calorie of food. This ratio escalates for highly processed foods, and for meats, reaching thirty-five calories of fossil fuel to produce a calorie of beef; and sixty-eight to make one calorie of pork.

According to the USDA, the average distance food has traveled from "farm to fork" in North America is 1,500 miles, with a rapidly increasing proportion of what Americans eat produced in other countries. The result is that over 20% of fossil fuels consumed in the US are used to transport food. The UN estimates that when you take into account the methane released by rearing cattle, the planet's 1.5 billion cattle are "responsible for 18% of greenhouse gases, more than cars, planes and all other forms of transport put together," and that this is projected to double by 2050.

In agricultural California there is simply no need for eating so much food from far away. But to change habits requires that healthy, local food be convenient and affordable.

**Our 2020 Plan.** 25% of all food consumed onsite will come from within 50 miles and an additional 40% from within 300 miles, and by 2015 10% of all food consumed must be organic or fair trade:

- **Provide a year-round farmer's market** in the Town Square and enlist local farmers and artisans to establish stalls.
- **Recruit a sustainable food grocery store** which agrees to:  
A) Purchase at least 25% of vegetables, fruits, dairy products and meats from within 50 miles and 75% from within 300 miles.  
B) Post the company, city and country of origin for each vegetable, fruit, dairy and meat product, and display the Monterrey Sustainable Fish guidelines on seafood. C) Ensure that Fair Trade products have at least 3% of store shelf space. D) Participate in a soup kitchen program and a composting program for disposing of food near and after spoiling.
- **Active recruitment and leasing preference for restaurateurs** featuring local and organic foods with a wide vegetarian menu.
- **Provide healthy prepared meals** available for pick-up from convenient neighborhood locations, sourced from CSA gardens.
- **At least 6 community gardens** provided throughout the site and explore setting up a potential seed farm on the property.
- **Establish community supported agriculture (CSA) program** with easy sign-up in the One Planet Center.
- **Create an edible landscape** (e.g. fruit trees) in parks and manage the harvest of fruiting trees along streets.
- **Establish roof-top apiary** onsite to increase food production.
- **Encourage a healthy, organic school lunch program** by working with nearby schools; create a school garden program.
- **Promote eating lower on the food-chain**, with social marketing to encourage diets with lower animal protein content.



Early Winter Harvest Going Into Community Shared Agriculture (CSA) Veggie Boxes for Home Delivery

*25% of food from within 50 miles + 40% of food from within 300 miles*

## Greenhouse Gas Emissions

Annually, per household

### Food & restaurant emissions:

- California Average = 6.8 tons
- One Planet Community = **4.6 tons**

## Measuring Performance until 2020

Survey a sample of residents to determine the percentage of food sourced from local low environmental impact sources over time, and monitor the origin of food consumed in the Village on the following schedule:

	300 miles	50 miles
2010:	50%	12%
2015:	60%	20%
2020:	65%	25%

In addition, 10% of all food consumed must be organic or fair trade by 2015; and a minimum of six community gardens must be created.

Verified by **BioRegional**

# 6 Sustainable Water

**The Challenge.** WWF's Living Planet Report states that Americans have the 6th highest water withdrawals in the world, behind only a handful of arid Central Asian countries. Provision of potable water requires significant energy and infrastructure, resulting in greenhouse gas emissions; and hard surfaces like streets and rooftops have a disruptive effect on how rain water is absorbed back into the earth, which can contribute to flooding and water contamination. Water security in drought years is an issue in Sonoma County and throughout the Western United States.

## Going beyond water efficiency.

Building water-efficient new homes without addressing the inefficiencies of existing buildings doesn't do the planet much good – the net impact is still increased water use. America's, existing inefficient buildings will be around a long, long time. Codding believes the future of sustainable construction is in redeveloping existing buildings and sites, and improving their water efficiency. By improving 700,000 square feet of existing inefficient buildings, Sonoma Mountain Village is then able to **add 1,900 homes to the site without increasing the supply of municipal water.** If every developer did this, we'd be closer to living within the natural limits of earth's water supply.

**Our 2020 Plan.** Reduce use of municipal water by 60%, saving 144 gallons per person each day, through integrated water management. A detailed Water Plan articulates the on-going management of water quality and conservation on site for decades into the future, with commitments of stewardship through the year 2020:

- **Exceed stormwater runoff/treatment standards** required by government regulatory agencies and achieve LEED stormwater credits for reduction in total suspended solids and phosphorus, and for reduction in the rate of runoff. Manage stormwater and discharge treatment with advanced surface features including porous materials, structured soil, swales, and mycoremediation.
- **Guarantee a 40% drinking water use reduction**, at a minimum\*, for building usage and 50% for irrigation *on all new construction, starting immediately* (per LEED calculation).
- **Irrigate only with non-potable water**, including in backyards.
- **Flush toilets without using drinking water** with rainwater, reclaimed water, and/or greywater from showers/sinks.
- **Provide large-scale on-site water storage** (e.g. onsite cisterns for rainwater catchment, capture of shower greywater via a reed bed) to improve stormwater control, restore habitat and create a source of water for irrigation and/or toilet flushing.
- **Set water efficiency guidelines**, including toilets at 1.0 gpf, 0.5 gpf urinals or less, 1.5 gpm showerheads, appliances, etc.
- **Research onsite sewage treatment** with safe and clean biological treatment, with enormous systemwide energy savings.
- **Create Home Owner Association rules** regulating pesticides, fertilizers, etc. to protect creeks and wetlands from pollution.

\* Our efforts to help California revise its greywater use policy, if successful, would guarantee a 55% reduction in water use in homes.



conserve H2O

Russian River Watershed (Photo by Walter Finlay)

Use 144 gallons  
less water, per  
person each day

## Greenhouse Gas Emissions

Annually, per household

### Water heating emissions:

- California Average = 0.6 tons
- One Planet Community = **0.3 tons**

60% less supply minus 10% increase from rainwater system = 50%)

## Measuring Performance until 2020

Monitor reductions in municipal drinking water consumption on the following schedule, relative to an average baseline for Sonoma County (240 gallons), per person:

2010:	30%	168 gallons
2014:	45%	132 gallons
2018:	55%	108 gallons
2020:	60%	96 gallons

Achieve LEED stormwater credits for reduction in total suspended solids and phosphorus, and for reduction in the rate of runoff.

Verified by **BioRegional**

# 7 Natural Habitats and Wildlife

**The Challenge.** 150 years ago, the San Francisco Bay area supported grizzlies, salmon, elk, deer, pronghorn antelope, and cougar. Today, the area's remaining biodiversity is threatened by some of the most intensive development pressures in the nation. The US Dept. of Agriculture estimates that 2.2 million acres of open space, including parks, farms, and natural areas, are converted annually to "developed land" in America. Intensive development – even if it's "green" – can destroy and fragment undisturbed natural areas that are habitat for species. Loss of habitat acreage leads to a losses of species populations, reducing their genetic diversity and making them more susceptible to extinction.



thriving urban  
biodiversity

Pollinator Gardens Enhance Landscaping

**Our 2020 Plan.** 180 acres of conservation and greenspace, including:

- **10% of the total site (20.1 acres) restored/protected as high biodiversity zone** by creating, restoring and expanding native habitat, through aggressive native planting programs and invasive species control. To ensure wildlife has undisturbed areas, this zone will include setbacks and be protected from development in perpetuity through conservation covenants or easements. Land in this zone will be protected during construction to avoid soil compaction from trucks and equipment, and special considerations are made for stormwater impacts in these areas as well.
- **27% of the total site (54.8 acres) as medium biodiversity zone** – including open park spaces for gardening, orchards, and nurseries, and tree corridors along streets which provide critical paths for birds to move around the site, all contributing to a thriving urban ecology.
- **16% of the total site (32.7 acres) as low biodiversity zone** – including recreational fields, managed grassy areas for leisure activities, trails, backyards and backyard habitat, green rooftops, and single trees will create tremendous opportunities for outdoor enjoyment. Even the "monoculture" of a soccer field creates useful hunting ground for red-shouldered hawks and other local raptors.
- **At least 50% of the development footprint (72.5 acres) protected off-site as conservation offset.** Codding will acquire fee title or conservation easements on land within 200 miles of the project, and ensure its protection from development in perpetuity. The land must be identified by a local, state, or national government as important for conservation for natural or cultural purposes.
- **Attract and nurture endangered populations of the California Tiger Salamander** by restoring seasonal wetlands from their current degraded state and creating ponds and a riparian corridor to link habitats. Research setting up a formal Restoration Zone with the State Fish & Wildlife.
- **Create habitat on green roofs** with apiaries, food garden/pollinator garden combinations, undisturbed nesting habitat, bird nesting and bat roosting boxes, and raptor roosts near open space.
- **Promote backyard wildlife habitat**, supported by resident education, contests and garden tours.
- **Develop a Habitat Conservation Plan for Rohnert Park**, working with local community and environmental groups that are already measuring the health of the local ecosystems. Help these groups to track the progress of the plant and animal life onsite over time.
- **Meet LEED lighting criteria** for Light Pollution Reduction, especially in key habitat zones.
- **Increase diversity of trees and plants using mainly native plants** and only drought-tolerant species. Native flowers, trees, and grasses, plus pollinator gardens on green roofs, all support such diverse benefits as native bee populations, migrating birds, food production, soil health and stormwater management. Remove any invasive species on the site.
- **Water will flow across the site** on the surface and through the soil rather than in pipes. This allows it to be cleaned, provides benefits to landscaping, and creates beautiful swales (small creeks).
- **Create a 10-year management plan** for all onsite native habitats and their buffers. Establish guaranteed funding for management.

## Measuring Performance until 2020

Monitor progress annually for:

- Creation of Habitat Conservation Plan for Rohnert Park.
- 10% of footprint restored/protected as a high-biodiversity zone.
- 20% of footprint as greenspace.
- 50% of footprint conserved off-site.

Verified by **BioRegional**

# 8 Culture and Heritage

**The Challenge.** Local cultural heritage is being lost throughout the world due to globalization, resulting in a loss of local identity and wisdom. Learning from our past can help us live in the future in ways more appropriate to our local geography, climate and culture.

## Our 2020 Plan.

- **The past will be showcased** and built upon in the nucleus of culture at Sonoma Mountain Village - the Town Square - with its farmer's market, public art and art exhibits, local landscape, staged plays and concerts, and venue as *the* community gathering place. The Square will be fronted by an arts movie house, restaurants and shops showcasing local products and cuisine, a boutique hotel, diverse housing and a factory.
- **Host local festivals, markets and celebrations.** Set a goal of eventually hosting one local festival each month, and a farmer's market at least once per week after people begin living on site.
- **Local culture will influence the architecture**, including both the existing local vernacular as well as the spirited contemporary architecture of the nearby cities of Petaluma and Healdsburg.
- **Commission public art** that references historic Miwok and/or Pomo cultures as well as the current "eco-culture." Local children will paint or tile a mural in the pedestrian promenade, and other local expression will be prominently displayed. Hire local high school art students through the ArtStart program to create on-site artwork. Commission a mural to show Rohnert Park's history.
- **The siting of parks near every home** will continue the tradition that was embedded in the incorporation of Rohnert Park as a city. This tradition will be expanded to include access to gardens as well [see *Food*]. The addition of diverse housing, jobs and shops in the same "pedestrian shed" as the parks will create opportunities for more walkability, vitality and safety in those neighborhoods.
- **The local eco-system** will be enhanced through the use of bioswales and rain gardens for natural, local drainage; solar energy capture; and re-introduced habitat for local plant and animal species, with perches for native red-shouldered hawks in the parks.
- **A Sonoma Mountain Village eco-culture** will honor the local environmental ethics movement of the 1960s, both in ways that are visible (i.e., bioswales, solar panels, local habitat, etc.) and in ways that are not so visible (i.e., management of eco-processes, underground cisterns, urban design pattern to maximize solar access, etc.). These all will be part of the new emerging eco-culture with its educational locus at the One Planet Center located just off the Town Square.
- **A local railroad culture will be revived.** Although passenger rail likely will not return to the rail adjacent to the site for another few years, Sonoma Mountain Village will be designed to be "transit-ready," with densities, pedestrian-friendly streets, small blocks, interconnected streets, and services and shops to support future transit use [see *Transit*].
- **A revival of local high-tech manufacturing and technical jobs** that were part of this site when it was the Agilent Campus will emphasize the new boom: advanced green technology. This includes the sustainable resources business incubator at the Sonoma Mountain Business Cluster and at Coding Steel Frame Technology, and will expand with the world's first Zero Carbon data center.
- **Create a community-oriented culture** with a high degree of community input on the project and future community processes. Create a community-based website. Provide feedback to each community-generated idea on-line in a public format within 6 months after website launch.
- **Name 25% of streets and parks** after important local people.
- **Honor the history of Rohnert Park as a seed farm** by exploring creation of a community "seed nursery" that provides habitat for endangered local heritage fruit and vegetable species.
- **Explore creating a "local-first" neighborhood rewards program.**



Example of a Grade School Tile Mural

## Measuring Performance until 2020

A survey will be conducted annually to measure the connection, knowledge and pride in Sonoma Mountain Village's history *and* its future as a model of sustainability for the nation.

Verified by **BioRegional**

# 9 Equity and Fair Trade

**The Challenge.** While some Americans still live in relative poverty, many in the developing world cannot meet their basic needs from what they produce or sell – contributing to our global environmental crisis. Regionally, Sonoma County has a shortage of affordable housing.

**Our 2020 Plan.** Sonoma Mountain Village will invest in broader societal goals such as environmental protection, affordable housing, community economic development and job creation, promoting equity and fair trade:

- **25% Affordable Housing.** Sonoma Mountain Village has committed to providing a range of affordable rental and for-sale housing well above and beyond municipal requirements – including “Katrina cottages” designed after the hurricane as robust small-footprint single family homes. At SMV, “affordable” doesn’t mean low-quality – and we are going out of our way to design a community where differences in incomes are not accentuated.
- **4,400 new jobs.** When the Agilent campus closed down in 2003, more than 2,000 jobs were lost in Rohnert Park. We are creatively recycling those high-tech buildings, turning them into new offices, shops, and factories. Our commitment is to create 4,400 jobs, with at least 90% of those jobs meeting the County living wage standard. And we are creating detailed plans for employment outreach to disadvantaged groups.
- **Incubating Sustainable Businesses.** In 2007 Codding founded the [Sonoma Mountain Business Cluster](#), a non-profit business incubator for sustainable resource technologies that assists startups with training, management, investment resources and support networks. The vision: *To be the premier place in the North Bay to start and grow a technology business.* In addition, we are exploring cooperative office space and other ways to support early start-ups and home entrepreneurs.
- **Consumer choice is a responsibility.** The downstream effects of the many choices we make as consumers are often invisible to us (you can’t see greenhouse gases) or felt far away (have you ever met the peasant who grows your coffee?). By making equity and fair trade a priority, we’re creating a better place to live and making it easier for residents to make more responsible choices.
- **Promoting fair trade and local business.** A leasing program will require Sonoma Mountain Village retailers and grocers to set aside shelf space to promote local and fair trade products (not just coffee or chocolate). We plan to run a consumer awareness campaign through the One Planet Center and are actively researching ways to reward people for shopping local, organic and fair trade more often. And we’re contributing toward Rohnert Park becoming a [certified Fair Trade town!](#)
- **Celebrating diversity.** People of all ages, backgrounds, income levels and family structures will be welcomed at Sonoma Mountain Village, creating a unique and vibrant culture.
- **Participatory self-governance.** We will create small systems of self-governance with multiple co-housing projects already under way, senior housing, artist housing and through expressly permissive homeowner’s association rules.
- **Accessible to all.** Sonoma Mountain Village will enable all people, regardless of age or bodily ability to participate in the community. Most of us will pass through at least some periods of temporary disability and, if we’re lucky and live to a ripe old age, are very likely to be permanently disabled in some way at some point. Disability is not a rare or unusual state, yet most of our buildings and communities are built with able bodies in mind. To create a truly sustainable community, Sonoma Mountain Village is changing that. A universal accessibility plan is being created to allow visiting wheelchair and walker access to most housing units, facilitate mobility throughout the community (including for the blind and deaf), and allow conversion of any home with a ground floor bedroom to a fully accessible unit. Provisions for thriving with illness are being made, such as including small shelves in commercial bathroom stalls for diabetics to place their glucometers and insulin bottles.



**Affordable Katrina Cottage at 510 square feet**

## Measuring Performance until 2020

We’ll measure consumer spending in Rohnert Park and compare it to spending by SMV residents, and measure the multiplier effect of “Local First” programs on dollars spent locally within the community. We’ll track job creation, affordable housing rates, and fair trade purchases annually.

Verified by **BioRegional**

# 10 Health and Happiness

**The Challenge.** Out of a ranking of 178 countries, the USA is 150th in the [Happy Planet Index](#), which shows the relative efficiency with which nations convert the planet's natural resources into long and happy lives for their citizens – incorporating three separate indicators: ecological footprint, life-satisfaction and life expectancy. Regionally, Sonoma County is known for its high quality lifestyle, yet with the high cost of housing and transportation and long commutes, many residents have less time for leisure activities.

**Our 2020 Plan.** Sonoma Mountain Village will set an ambitious new standard for healthier, happier lifestyles. We will incorporate the latest findings from happiness and wellness research, so that SMV is designed, built, and operated with a higher quality of life in mind:

- **Friendlier.** Sonoma Mountain Village's town center, parks, and community center are all designed to host the emergence of a close-knit community. The natural beauty of the area is enhanced by architecture, community gardens and comfortable public spaces for community activities. SMV's lifestyle programs will emphasize getting to know neighbors and volunteer care-giving for young and old alike. Places with a strong sense of community – where neighbors know and help each other – consistently report better health and higher life satisfaction amongst residents. And a higher sense of community spirit and neighborliness contributes directly to safety on streets and in public areas – a kind of friendly, informal neighborhood watch program.
- **Safer.** Sonoma Mountain Village is being built and operated to maximize safety for all residents and workers. For example, our traffic-calmed streets are designed to make them safe for children to use and play around, with special attention to intersections and crossings. We'll create designated areas for teenagers to socialize and recreate, modeled on other successful examples. And the architecture ensures safety features like many eyes on public spaces, appropriate landscaping, lighting, etc.
- **Healthier.** Homes and buildings are being constructed to absolutely minimize pollutants, toxins, and dangerous chemicals often found in paints and building materials – improving long-term indoor air quality and health. We will exceed ASHRAE 62 compliance with best practices for fresh air and extensive daylighting of rooms. Outside, groundskeepers will maintain pesticide-free landscapes. And staff at the onsite health center will promote wellness and help residents through stressful situations.
- **Fitter.** Enjoy varied, world-class sport and fitness programs, advice, and facilities, including martial arts, yoga, a gym, and soccer fields. SMV will provide a coordinator for intramural/intergenerational sporting activities. 30% of the site will be greenspace or habitat areas, complete with fitness-oriented "parcourse" trails. Convenient, all-season access to active lifestyles and healthful diets comes first.
- **Fresher.** At SMV, everyone will find it more convenient to enjoy fresher local food and organic, healthier diets. Nutritional advice, restaurants, grocery stores, and ready-made meals for busy residents and families will cater to this "local first", organic approach. Healthy diets will be the norm.
- **Closer.** Sonoma Mountain Village's wide range of cafes, restaurants, day care, community facilities, groceries and shops are within a 5-minute walk of each home – more reasons to get out more often.
- **Greener.** Sonoma Mountain Village will feature 15.5 protected acres for local wildlife and 29.1 acres of parks full of native biodiversity, with many beautiful views of nearby Sonoma Mountain. A dog park will be provided, along with dog-friendly sidewalks and storefronts.
- **Wealthier.** Sonoma Mountain Village's emphasis on the local economy and job creation will help create a more genuinely wealthy community. Long working hours and commutes are cited as major reasons for dissatisfaction. By encouraging onsite work opportunities we can help alleviate those sources of unhappiness. And by creating opportunities for volunteerism, care-giving, and civic and environmental action, Sonoma Mountain Village will make it easier for residents to participate in "the greater good" – a different kind of wealth and an important contributor to life satisfaction.

**Your voice matters.** Opportunities for participation in local governance and decision-making will be a priority. Community meetings will gather input and invite participation in Sonoma Mountain Village.

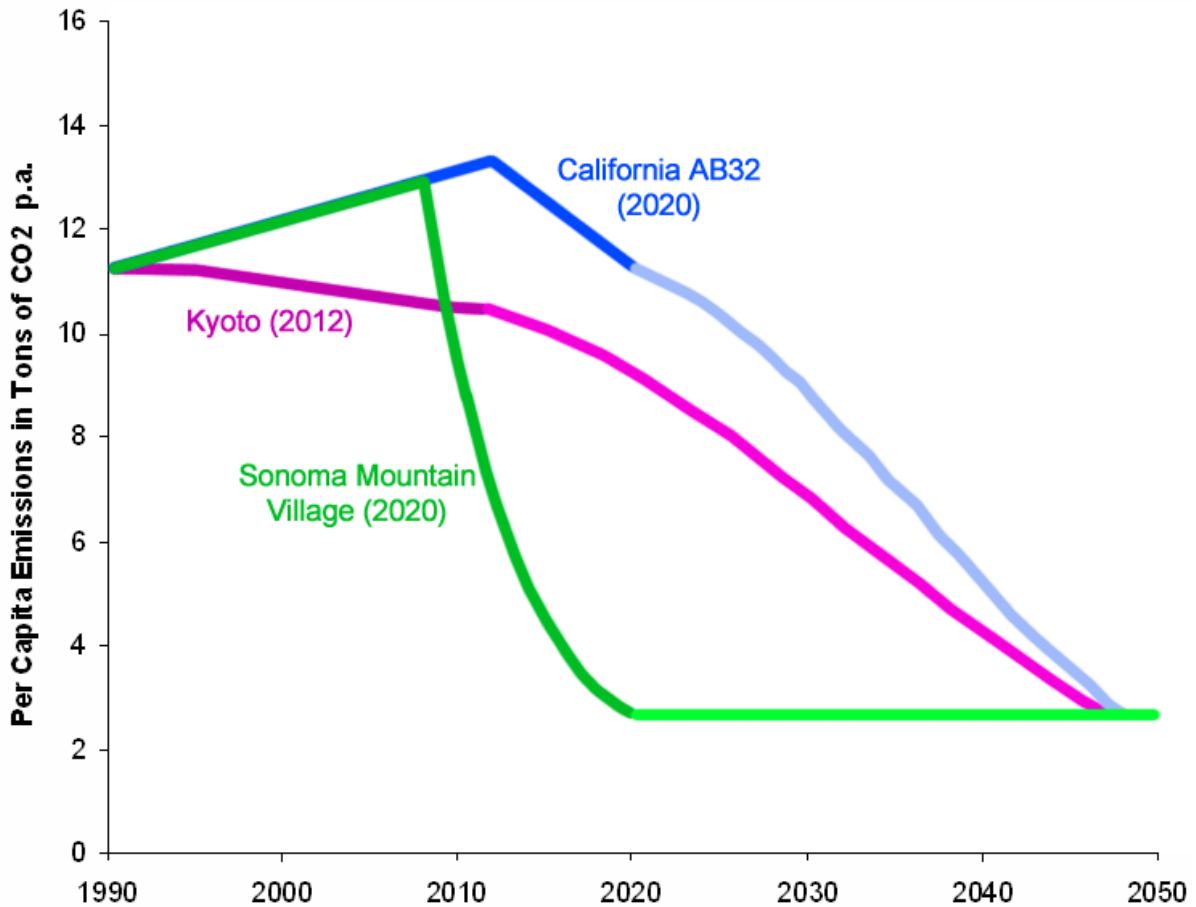


## Measuring Performance until 2020

We will regularly survey residents for health and happiness indicators. Self-reported health and fitness trends will be collected and summarized in annual reports alongside descriptions of the communities elements intended to improve health. We will include all ages in these studies, to adequately address the needs of children and seniors as well as those in the middle of their lives.

Verified by 

**2020: Beating Climate Change.** By implementing this Sustainability Action Plan, Sonoma Mountain Village will meet the targets laid out in California's AB32 emissions reduction law 5 years early (which requires a 25% reduction state-wide), and by 2020 will vastly exceed the targets. For comparison purposes, the below graph also includes the 7% reductions that would have been required of the United States had it signed onto the Kyoto Protocol:



Total direct emissions at Sonoma Mountain Village will be slashed by 83% (down to just 2.6 tons CO<sub>2</sub> per year per household), and indirect emissions by an additional 40%.

	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Total Direct Emissions</b>	<b>15.2</b>	<b>2.6</b>	<b>83%</b>
<b>Total Indirect Emissions</b>	<b>21.7</b>	<b>12.9</b>	<b>40%</b>
<b>Grand Total</b>	<b>36.9</b>	<b>15.5</b>	<b>58%</b>

	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Building Energy</b>	<b>5.1</b>	<b>0.3</b>	<b>93%</b>
<i>Direct</i>			
Electricity	2.2	0.0	100%
Natural Gas	1.8	0.0	100%
Other Fuels	0.0	0.0	100%
<i>Indirect Emissions</i>			
Electric infra.	0.4	0.3	15%
Nat. Gas infra.	0.7	0.0	100%

	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Waste</b>	<b>3.5</b>	<b>0.1</b>	<b>96%</b>
<i>Direct</i>			
Solid Waste (household)	2.9	0.1	96%
<i>Indirect Emissions</i>			
Solid Waste (constr-annualized)	0.6	0.0	95%

	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Transportation</b>	<b>11.1</b>	<b>4.1</b>	<b>63%</b>
<i>Direct</i>			
Motor vehicle	6.3	1.1	82%
Air travel	1.9	1.3	33%
Public transit	0.1	0.1	10%
<i>Indirect Emissions</i>			
Motor vehicle infra.	1.7	0.8	54%
Vehicle mfg.	0.7	0.6	15%
Air travel mfg & infra.	0.4	0.3	33%

	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Food</b>	<b>6.8</b>	<b>4.0</b>	<b>41%</b>
<i>Indirect Emissions</i>			
Meat	1.6	0.8	50%
Dairy	1.0	0.4	60%
Eating out	1.4	1.1	25%
Other food	1.3	0.9	30%
Fruits and veg	1.0	0.5	50%
Cereals and bakery	0.5	0.4	30%

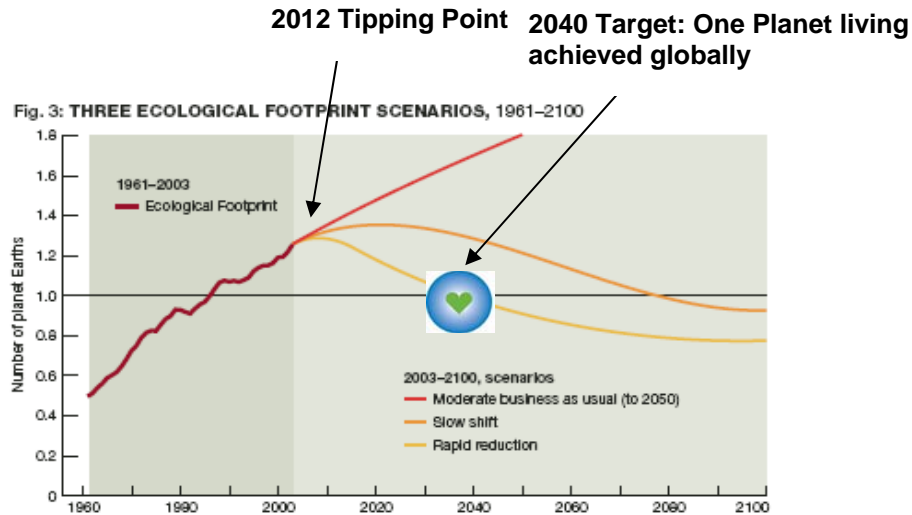


	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Materials</b>	<b>1.2</b>	<b>0.6</b>	<b>50%</b>
<i>Indirect Emissions</i>			
Materials (constr-annualized)	1.2	0.6	50%
	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Water</b>	<b>1.8</b>	<b>0.6</b>	<b>69%</b>
<i>Indirect Emissions</i>			
Water	0.6	0.3	50%
Sewage	1.2	0.3	79%
	<b>Avg Calif</b> Tons CO <sub>2</sub> p.a.	<b>SMV</b> Tons CO <sub>2</sub> p.a.	<b>Reduction</b>
<b>Goods</b>	<b>4.1</b>	<b>3.6</b>	<b>13%</b>
<i>Indirect Emissions</i>			
Clothing	1.3	1.0	20%
Furniture and appliances	1.2	1.1	10%
Other	1.6	1.4	10%
<b>Services</b>	<b>3.3</b>	<b>2.2</b>	<b>33%</b>
<i>Indirect Emissions</i>			
All services	3.3	2.2	33%

The reductions laid out in the previous graphs are a result of

- a) Commitments to specific target reductions, such as Zero Carbon from buildings, Zero Waste, and an 82% reduction in motor vehicle emissions
- b) Estimates of GHG reductions based on projected changes in behavior, such as a 33% reduction in air travel by SMV residents

**2040: Global Footprint Reduction.** One Planet Communities like Sonoma Mountain Village will demonstrate that measurable sustainable living can be achieved by ordinary, mainstream families. Real-world reductions will inspire governments to undertake bolder policies, create demand amongst home-buyers for truly sustainable homes, and fundamentally change the marketplace. One Planet Communities are part of a broader effort with global bodies such as the United Nations to create a global 'tipping point' by 2012 that will slow and then reverse humanity's sky-rocketing ecological footprint.



[www.sonomamountainvillage.com](http://www.sonomamountainvillage.com)

[www.oneplanetcommunities.org](http://www.oneplanetcommunities.org)

**Codding Enterprises** ([www.codding.com](http://www.codding.com)), takes pride in the ability to anticipate an ever-changing real estate market by implementing bold inventiveness with new technology and development strategies. Codding Enterprises is positioned as an industry leader in building deeply sustainable mixed use communities to create a profitable and responsible future. The company envisions development to have a restorative impact on both nature and cities.

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**BioRegional** ([www.bioregional.com](http://www.bioregional.com)), a non-profit environmental organization, coordinates the One Planet network of advanced sustainable communities. With world headquarters in London, UK, and North American offices in Ottawa and Washington, D.C., BioRegional has been creating award-winning sustainability solutions since 1994. In the United States, the One Planet USA program is managed by **BioRegional North America** (a Canadian non-profit organization) as a project of the Tides Center (the charity of record for grant-makers).

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