



# SOMO One Planet Community

Progress against targets

*One Planet Action Plan Annual Review 2011*

## SONOMA MOUNTAIN VILLAGE



***BioRegional***

solutions for sustainability

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## Message from Sue Riddlestone

### Executive Director and co-founder of BioRegional Development Group

This Annual Review report summarizes the monitoring of progress of America's first One Planet Community – Sonoma Mountain Village (SOMO) in Rohnert Park, California by real estate developer Coddling Enterprises.

One Planet Communities are neighborhood development projects around the world that have committed to bring the ecological footprint of residents down to a truly sustainable, one planet level by 2020 by creating greener buildings *and* greener lifestyles.

Each year through 2020, BioRegional's technical team supported by the One Planet initiative's Expert Panel, which includes world renowned independent experts, assess these projects for progress against sustainability targets such as Zero Carbon and Zero Waste. These reviews are a public, transparent update to stakeholders on progress at the site towards truly sustainable living, and help ensure that the One Planet Communities programme maintains its integrity as the highest achievement in sustainable design and operation of green neighborhoods.

There are early indications that SOMO has become a regional catalyst in Northern California, even at this early stage. Although the market in the US has slowed construction of the residential phase, excellent results have been achieved at the green industrial park. Other local developers have been inspired to create plans for Zero Carbon, Zero Waste communities. Through Coddling's participation in committees for California's Air Resources Board and through the newly launched California Infill Builders Association and Council, these best practices are being advanced to a wider audience. Coddling has also become an important advocate at all levels of government for overcoming the regulatory barriers that can even make sustainable development measures illegal. These pioneering efforts have not gone without acknowledgement. In November 2008, SOMO earned recognition from Gov. Schwarzenegger as the sole recipient of the Governor's Economic and Environmental Award for Best Comprehensive Land Use Planning in California.

I have spent considerable effort preparing for and participating in the recent COP15 and COP 16 United Nations Climate Change Conferences in Copenhagen and Cancun. We personally presented negotiating parties with a summary of the progress at SOMO outlined in this report, as a case study in sustainable development that deserves scrutiny by the world's decision-makers. Projects like SOMO prove to our policy-makers that a meaningful reduction in carbon is achievable today, at scale, and is a sound business investment.

*Sue Riddlestone*



## Message from Kevin Hydes

### Expert Panel member for the One Planet initiative



Recent research and media coverage in both the United States and UK suggests that many buildings under-perform *after* they have achieved the highest standards of green building certification. Certification is no guarantee that we are actually making the reductions in carbon emissions from buildings which we now know to be absolutely necessary. A number of us are focused on the pursuit of actual performance and the establishment of frameworks that embed continuous improvement protocols.

It is now well-established that green buildings should be monitored regularly to create a feedback system ensuring long-term adherence to performance targets. Unfortunately, very few buildings are monitored this way – which makes the One Planet Communities Annual Review process essential. The Expert Panel for One Planet initiative is tasked to review monitoring results from buildings in some of the world's most ambitious green neighborhoods. But buildings are not the only aspect of our review process.

As a California resident, I am acutely aware that progress towards footprint reductions in progressive California urban areas is offset by the long-term impacts of sprawl and an overwhelming reliance on automobiles and long commutes in most suburban areas. Across the entire state, according to the University of California Berkley's Cool Climate program, the average household has a combined carbon footprint from food and transportation that is triple the footprint from housing. Yet most green projects largely ignore this serious impact of lifestyle choices. BioRegional's work with partners like Codding Enterprises demonstrates that even the greenest buildings are not enough – fostering green lifestyles is the other half of the solution to climate change.

Codding Enterprises have made great strides at SOMO. Installation of a 2nd megawatt photovoltaic array is now underway; the highest waste diversion rates in LEED history were achieved on the LEED-CI Platinum retrofit for SOMO tenant Comcast; Codding Standard Construction Specifications have been drafted, incorporating the highest standards for construction; a landmark labor agreement has been negotiated; roughly half of the existing buildings on site have now been retrofitted to a high level of energy efficiency; SOMO has been officially recognized as one of the most important incubators of green jobs in California; and the precedents set by SOMO through its Environmental Impact Review and corporate advocacy work are having a broader impact on the California policy landscape. However, there is much room for improvement in the area of green operations – with over 700 jobs now on-site, Codding need to take on a much more proactive role in helping existing and incoming tenants establish zero waste, sustainable food, and sustainable transportation targets and actions.

**The milestone achievements detailed in this Review report support a finding that Sonoma Mountain Village has made significant progress over 2008 - 2010 towards the targets laid out in its One Planet Action Plan.** We commend Sonoma Mountain Village for its ground-breaking work in reducing its carbon footprint, and look forward to responses to our key recommendations for improving the strategy in the year ahead.



Timelapse photos of the adaptive reuse of an existing commercial building at Sonoma Mountain Village, using Coddling Steel Frame technology.

## Summary of Progress

The review has identified many milestones met, including the following of special note:

### Zero Carbon

- The completion of SOMO Zero Carbon Home Guidelines, setting targets for exceeding the State Title 24 Energy Code by 50-80% that all builders working on the SOMO site must adhere to.
- The completion of SOMO's public Environmental Impact Review (EIR), an in-depth process mandated by the State. In the EIR the project set important precedents in California for using a per capita approach to carbon footprint and for earning a "less than significant" GHG impact finding (representing the lowest carbon impact finding in California to date at the neighborhood scale).
- Continued production of zero carbon renewable energy at the site with a 1.14 MW photovoltaic array and the start of construction on an additional 1.00 MWe AC solar photovoltaic array, which should be completed by early April 2011.
- The 358,000 s.f. of buildings which are occupied have all undergone water and energy retrofits; 342,000.s.f. of unoccupied existing buildings are still to be renovated. A 35,000 s.f. retrofit for tenant Comcast has been completed, earning a Platinum LEED-CI rating.

## Zero Waste

- The Comcast retrofit achieved 98.6% jobsite waste diversion – the highest in LEED history. Materials reused included acoustic ceiling tiles, t-bar ceiling grids, conduits, copper fittings & piping, storage lockers, metal fencing, bathroom partitions, roll doors, grab bars, hardware, metal studs, insulation, and over 30 tons of asphalt and concrete.

## Sustainable Materials

- The Coddling Steel Frame system is being manufactured in a solar-powered on-site factory and has been used effectively in retrofitting existing commercial buildings on-site as well as in constructing regional schools, hospitals, housing, laboratories and retail. The company has refined its manufacturing process so that it now uses 40% less steel than a conventional light-gage steel frame approach. Over a quarter of all building materials to be used at SOMO will be manufactured on-site with this system. A recent BioRegional study (commissioned for a project in a far hotter climate) found the Coddling Steel Frame product to outperform standard concrete construction in terms of embodied carbon, though the benefits are less significant compared to low carbon concrete with high levels of cement replacement PFA. The light-gage system uses a combination of cavity fill insulation and continuous exterior rigid insulation which appears to provide an air-tight system appropriate for use in Passivhaus construction and for general use in climates ranging from temperate Mediterranean to regions requiring night-time cooling or daytime heating.
- Sonoma Mountain Village's efforts to collect, organize and re-use materials removed from the existing buildings is above average. The program goes beyond just ceiling tiles and furniture, and includes structural steel, insulation, piping, hardware, railings, fencing, fixtures, and so on.
- The Comcast retrofit included use of FSC-certified wood in doors and lockers, and Greenguard certified furniture throughout for offices.

## Sustainable Transport

- After a previous defeat in a 2006 referendum, a proposed sales tax - vital to realizing plans for a regional Sonoma Marin Area Rail Transit (SMART) - again went before voters in November 2008. Thanks in part to Coddling's \$40,000 contribution to lobbying efforts, the sales tax was approved in the 2008 election, paving the way for passenger train service to Sonoma county residents inside 5 years. A SMART train station will be located within a 10 minute walk of the SOMO town square, making SOMO a transit-oriented development (TOD).
- In other efforts, Coddling has also helped a local community group relocate a planned train station along the SMART line to better serve the population in nearby Santa Rosa. As a result, another 68-acre retail mall property owned by Coddling is now within a half-mile walk of a planned station, and may be the site of a distant future One Planet Community.

## Local & Sustainable Food

- SOMO is now host to its first sustainable restaurant. In 2009 local caterer Sally Tomatoes moved to the SOMO Event Center, where it offers local, organic, biodynamic and small-farmed food and drinks in a cafeteria and nightclub format. Sally Tomatoes transitioned away from using disposable plates, napkins and utensils at larger events and now provides a zero waste experience.

## Sustainable Water

- Codding has committed in the draft Development Agreement with the City of Rohnert Park to the performance criteria for stormwater onsite, including decrease in the rate of run-off and an increase in water quality (e.g. reduction in total suspended solids) and other low-impact development standards.
- Codding will continue to lobby the local government to permit use of rainwater and greywater in buildings. Three years of lobbying efforts on greywater culminated in the passage of a law allowing greywater use for irrigation for all types of homes in August 2009.

## Land Use and Wildlife

- First habitat mitigation measure completed; Codding have negotiated land purchase of 35 acres of land for open space at the edge of Rohnert Park, on Formschlag Lane in Penngrove, to be placed into conservation easement in perpetuity.
- A very detailed ecological assessment has been completed as part of the EIR process. Biologists visited the site and performed an assessment for species classified as threatened, endangered or concerned. Three species of concern were identified and special studies were done on those species.

## Culture and Heritage

- SOMO has been established as a major green destination in Sonoma County, with 3-5 events each week at the existing Event Center that deal with environmental themes (last year alone, 200 events). The Event Center always gives priority to groups with environmental and social sustainability missions, and has in many ways become a kind of community center for NGOs and environmental groups (e.g. the Hispanic Chamber of Commerce, Sonoma County Conservation Action, etc.)

## Equity & Local Economy

- Increased job creation at SOMO, with 700+ jobs now onsite in commercial buildings and a successful green business incubator ([Sonoma Mountain Business Cluster](#)). In 2009, almost 100% of all new leasing activity in the municipality of Rohnert Park occurred at SOMO, making it the city's largest

source of new jobs. The project is attracting green jobs to the area; in November 2009 SolarNet, one of the nation's largest suppliers of solar components, announced that it is moving its headquarters to SOMO. [\[Press coverage\]](#) SolarNet expanded its office and warehouse operations at Sonoma Mountain Village in 2010. We have also found cases where conventional tenants at SOMO have been influenced by the One Planet ethos at their new workplace to establish new or improved sustainability goals for their on-site operations (Comcast, for example, has been inspired to change its vehicle maintenance program to reduce use of chemical cleaners and to implement a new service vehicle routing system to minimize fuel use). By attracting jobs - particularly green jobs - to Rohnert Park, SOMO is helping to compensate for the loss of 2,500 local high-tech manufacturing jobs when the original owners of the SOMO site, Agilent, closed their factory.

- The completion of a detailed development agreement between Sonoma Mountain Village and a coalition of local labor, housing and environmental groups called the Accountable Development Coalition on the use of union labor and living wages, construction of affordable housing and environmental requirements. The development agreement has been praised in the media for its "far reaching" impact on local business practice. [\[Press Coverage\]](#)

## Health & Happiness

- SOMO is becoming an important locus for fitness related activities
- SOMO has invested in creating a safer environment for occupants:
  - Leasing language for tenant contracts prohibits certain toxic materials, such as adhesives.
  - Street crossings have been reviewed for child safety and site safety audit completed for walking path to off-site amenities such as school and parks. Need for Signalized crossing identified at Camino Collegio and Manchester Avenue.

## Modelling carbon footprint reductions of SOMO resident

As part of a discussion document comparing the annual consumption based emissions of best practice developments (i.e. LEED, Code for Sustainable Homes) and One Planet Communities the CO<sub>2</sub> emissions of a resident of SOMO were estimated. Scenarios were modelled of different lifestyle choices in a LEED ND development and a One Planet Community to do this. Scenarios are pictures of the future, or alternative futures, however they should not be taken as predictions or forecasts. Rather, each scenario is one possible image of how the future might unfold and as such are based on a series of assumptions.

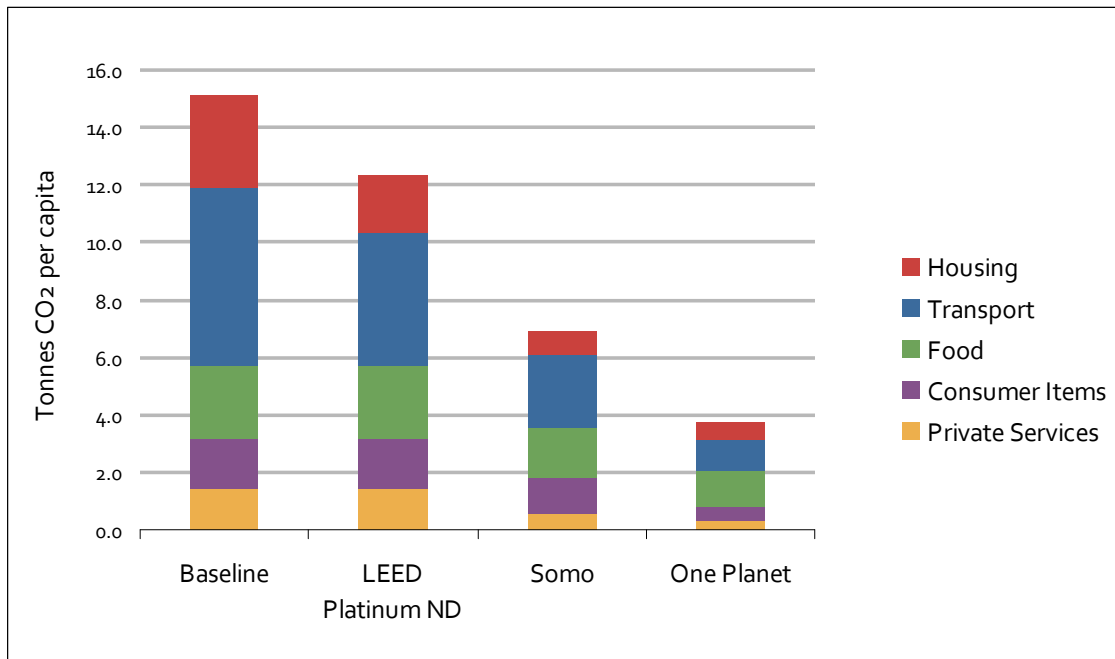


Figure 1 Comparison of California baseline and Sonoma Mountain Village emissions

What these scenarios show is that the LEED ND approach, focusing on building efficiency and reducing car dependence could deliver an 18% reduction in emissions from a baseline case. Whereas at SOMO, which aims to influence behaviour through physical measures (e.g. limited car parking space), service provision and incentives, the savings for an average resident could be increased to 55% and for a keen resident nearly 75%. It is important to note that the SOMO plan does not achieve true sustainability on a carbon basis, particularly when examined by itself, because it relies on changes to larger societal systems such as the electrical grid, manufacturing, shipping, government, and farming. Nonetheless the carbon reductions at SOMO are as good as any that can be achieved in the US until these wider societal changes are made.

Table 1 Summary of Per Capita CO<sub>2</sub> Emissions at SOMO

|                  | Tonnes CO <sub>2</sub> | Reduction from baseline |
|------------------|------------------------|-------------------------|
| Baseline         | <b>15.10</b>           | 0%                      |
| LEED Platinum ND | 12.45                  | 18%                     |
| SOMO             | <b>6.94</b>            | 54%                     |
| One Planet       | <b>3.84</b>            | 75%                     |

## Overview of SOMO One Planet Action Plan

Codding Enterprises worked with BioRegional North America to develop the One Planet Action Plan for Sonoma Mountain Village (SOMO), which was reviewed and endorsed by BioRegional's One Planet Steering Group in August 2007. It is the basis for the endorsement of Sonoma Mountain Village in Rohnert Park, California as an official One Planet Community®. The plan, and the ongoing work that it governs, reflects the enormity of the challenge we face in enabling a one-planet Ecological Footprint for the residents, workers and visitors of this 1,900-home mixed-use community in a country where the footprint of the average resident is 5.3 planets.

The complete One Planet Action Plan is an internal technical document. However, a summarized public version of the plan is available at <http://www.sonomamountainvillage.com/pdf/090721MediaSAP.pdf>

## Current Status of Project

- Completed the state-mandated Environmental Impact Review process at the end of 2009. In mid-2010, the Final EIR was approved along with the Final Development Plan, the Planned Development Zoning District, changes to the city's General Plan to allow mixed-use development and a Development Agreement. Collectively, these documents represent the full project entitlements for the master plan.
- 358,000 s.f. of buildings have undergone retrofit; 342,000.s.f. of existing buildings still to be renovated. At this time, Sonoma Mountain Village is functioning primarily as a business park with some 700+ workers now on-site
- Due to dramatic depression of real estate in California, home-building at SOMO has been delayed until 2012-13. This market-driven delay will slow progress on sustainability targets *related to residential development* for the next couple of years.

## SOMO Site Plan



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## Progress Review and Recommendations

### How to read this document

Each Principle section indicates whether Codding are on track for meeting headline targets (Key Performance Indicators), the main activities that took place from 2008 through 2010 and plans for the programme in the coming year.

Many of the targets in the SOMO One Planet Action Plan are set to be achieved by 2020, however, targets met early will be replaced by improved targets and Codding will continue developing and improving the performance of the site beyond 2020 through to 2050. The philosophy of the One Planet Action Plan recognizes the long-term commitment from Codding.

The One Planet Action Plan is based on 2005 world population targets.

#### Key



Target exceeded or met ahead of deadline



Target met



Significant progress on agreed timeline



Early progress – may not have immediate milestones; consider including in plans for the coming year



Not yet on track; needs serious attention



Urgent action needed to avoid breach of One Planet endorsement

 **Zero Carbon**

**Key Performance Indicators**



*The PV array at SOMO*

Provide all electricity use on-site (including large commercial loads and temporary construction power) from onsite solar ●

Eliminate carbon impact of the data centre by 2012 ★

Purchase carbon offsets annually for any energy use in excess of that produced onsite – include Sonoma Mountain Village business-related travel and transportation. ●

Buildings will have 100% of cooling, heating energy and hot water supplied by on-site renewable energy. ●

Create a standard metering plan and lease language for new tenants such that everyone pays for their own energy use. ●

**Key activities and achievements in 2008-2010**

- Continued production of zero carbon renewable energy at the site with a 1.14 MW photovoltaic array; plans are now in place to double that capacity, and construction has begun on a second megawatt.
- The existing/retrofitted buildings on-site are connected to the existing efficient chilled water and hot water central plant and district energy loop. Variable speed drives on pumps and cooling tower fans, efficient primary pumps and a new energy management system have been introduced to make the district energy loop more energy efficient. A partial retrofit of the heating system piping is underway to allow the eventual reduction in hot water temperature (currently not possible because of failing Victaulic couplings).
- At the time of this review, approximately 60% of all electricity used on-site is from onsite solar. Commercial tenants include Comcast, AT&T, Coddling Steel Frame, DC Power, Stellar Energy and Coddling Enterprises. The installation of the second megawatt of solar power on Buildings 1300 and 1500 is expected to correct this shortfall in renewable energy production.
- The developer celebrated completion of SOMO’s public Environmental Impact Review (EIR) - an in-depth process mandated by the State – in 2009. The EIR found the Project’s incremental contribution of GHG emissions to be “less than significant”. SOMO is the first large neighborhood project to achieve this distinction in California.

- As part of the EIR, Coddling commissioned the preparation of a Climate Change Technical Report by consulting firm Environ – the first time a report of its kind was developed, and wasn't recommended or required by the CEQA process. The Study included per capita impacts like people travelling off-site, impacts of roads and airports and waste-water treatment. Utilizing the One Planet metric for the total footprint of residents, the EIR is the **first** in California to use per capita carbon footprint, setting an important precedent for measuring the carbon impact of neighborhood development in the State that can serve as a model for other projects. Before reductions from green lifestyles programs, the Climate Change Technical Report included in the EIR estimates GHGs will be 2.2 tons per capita per year for all direct emissions (energy use in buildings, fuel use in vehicles), certain indirect emissions (embodied energy in the water/sewer system, roads and transit systems and building construction) and for land use changes relating to changes in soil and plants. The impact of consumption of goods and food are notably absent from the CEQA review process.
- The completion of SOMO's Zero Carbon Home Guidelines that all builders working on the SOMO site must adhere to. The guidelines are somewhat similar to the Passivhaus standards, and set targets for exceeding the 2005 State Title 24 Energy Code by 30% (existing) and 50-80% (new construction).
- A standard metering plan is now in place, and was used for new tenant DC Power.
- Completed retrofit of 35,000 s.f. of existing buildings for a long-term lease, and earned a LEED-CI Platinum rating. All retrofit projects are subject to the City of Rohnert Park's Green Building Ordinance, but only a handful will go through individual LEED certification because of the high cost and limited value for short-term leases, for warehouse and similar spaces.
- Coddling are using LEED-EB as a guideline for maintenance processes on-site.
- Coddling have developed plans and some systems are in place for a fully carbon neutral data centre using Green-E Certified renewable energy certificates from new off-site wind power. Facility not yet rented, delaying fit-out.
- Coddling moved their corporate HQ to a retrofitted building at SOMO and are using significantly less energy on a per square foot and per capita basis than prior to occupation (see table below)

#### Coddling Corporate Carbon Emissions

| Tonnes CO <sub>2</sub> /yr | 2005 | 2006 | 2007 | 2008 |
|----------------------------|------|------|------|------|
| <b>Direct emissions</b>    | 615  | 507  | 593  | 651  |
| <b>Indirect emissions</b>  | 785  | 746  | 536  | 595  |

- Review of desirability of gas cooking was completed. Through interviews with cooking schools and food preparation experts, the review found:
  - only a small percentage were willing to switch from gas ranges to electric cooking
  - induction cooking is problematic to the average family (replacing cookware, learning curve to how to cook on them; expensive)

- o biogas cooking may be best carbon-neutral option
- EPA Climate Leaders Program now accepts real estate developers thanks to Coddling’s efforts (just one example of Coddling’s unique and highly progressive ‘developer advocacy’ action philosophy)

**Summary of review**

Clear progress has been made towards the zero carbon target by 2020, with the existing PV array providing the bulk of the carbon reduction while energy-efficient retrofits contribute to demand reduction. The performance of the PV roof is monitored by Sunpower; since installation in November 2006 the 1.14MW array has generated 4.41GWh. A second megawatt on the rooftop of another existing commercial building is planned for completion in early 2011.

Coddling Construction are well on track to ensure that all of their construction power is delivered from solar photovoltaics by 2011.

Setting up the data centre to be supplied by new wind power and harvesting the waste heat from the facility is a big step to guaranteeing that that facility will be zero carbon. Achieving this build-out ahead of the medium term goal is excellent progress. The innovations introduced to the SOMO Data Centre to reduce energy consumption, for example the chiller-free cooling, are of special note.

One of the strategies included in the One Planet Action Plan for SOMO which has *not* been met is the purchase of carbon offsets for their business energy use and activities for 2008. BioRegional appreciate the economic downturn has slowed Coddling’s development program at SOMO and as a result the \$15,000 allocated for offsets may be invested at a later date to increase the installed capacity of onsite renewable energy. The emissions inventory below was prepared by Environ as part of the Climate Change Technical Report in the EIR described above. For the second set of categories (residential buildings, non-residential buildings, mobile sources, municipal services, area sources and renewable energy), the emissions included are from annual in-use operations. These operational emissions are a conservative estimate in that they do not assume reductions over time, which at SOMO are inevitable.



| Source                            | GHG Emissions                   |               | Percentage of Annual CO <sub>2</sub> e Emissions |
|-----------------------------------|---------------------------------|---------------|--|
|                                   |                                 |               | (%)  |
| Vegetation                        | tonnes CO <sub>2</sub> e total  | -1,991        | NA   |
| Construction (Non-Building)       |                                 | 7,282         | NA   |
| Construction (Buildings)          |                                 | 6,542         | NA   |
| <b>Total (one time emissions)</b> |                                 | <b>11,833</b> | <b>NA</b>  |
| Residential                       | tonnes CO <sub>2</sub> e / year | 0             | 0%   |
| Non-Residential                   |                                 | 0             | 0%   |
| Mobile                            |                                 | 11,270        | 95%  |
| Municipal                         |                                 | 596           | 5%   |
| Area                              |                                 | 0             | 0%   |
| <b>Total (annual emissions)</b>   |                                 | <b>11,866</b> | <b>NA</b>  |
| <b>Annualized Total</b>           |                                 | <b>12,162</b> | <b>NA</b>  |

### ***SOMO Plans for 2011***

- In December 2009, SOMO signed a contract with Stellar Energy to provide an additional 1.00 MWe AC solar photovoltaic array. Work begins on this project in late 2010 and should be completed by early 2011.
- SOMO will start paying down its carbon debt in April 2011; assuming tenant growth is matched by the expansion of PV arrays at SOMO, Coddling should be able to pay down much of that accumulated debt through onsite solar generation.
- Prepare a cost benefit analysis of SOMO energy solution, including review of central heating/cooling technologies versus Apollo. Break down predicted energy use by phase and contribution expected from planned renewable energy solutions to achieve zero carbon by 2020. This should also include a review of financing opportunities and impacts to legal structures etc (Homeowners Association).
- Provide BioRegional's review team with official phase 1 rating from LEED ND pilot assessment

### ***Key Recommendations by BioRegional for 2011***

- Provide clearer documentation of energy efficiency upgrades to buildings and systems on the site.
- Need to monitor the difference on a monthly basis – how much comes from the grid vs. on-site renewable sources.
- Define long term operational plan for technologies beyond 2020, to include upgrade and replacement options



## Zero Waste



97% reduction in construction waste ●

70% of operational waste to be reclaimed or recycled ●

Adaptively reuse 700,000 sf of existing buildings ●

Multiple storage areas where reclaimed materials (including furniture, piping, insulation, panelling, ceiling tiles, concrete) with a first use inventory system for designers to use before they begin their design ●

### **Key activities and achievements in 2008-2010**

- 95% of construction waste generated recycled for the Business Cluster / incubator building
- 98% of construction waste generated recycled for the Comcast LEED-CI retrofit
- Codding engaged Sonoma County Waste Management (SCWM) over innovative pricing schemes
- Asphalt and concrete storage has been improved to ensure they are kept separated for reuse
- All onsite buildings have been adapted for reuse.
- One of the tenants of the incubator units has significantly reduced their operational waste – with only 5% going to landfill
- Jobsite training provided for construction staff on recycling, reuse, deconstruction
- Codding prepared the first draft of CSI 01505 construction waste management
- A very large international company leasing space at SOMO did not have a standard that their offices recycle; Codding insisted they develop a corporate standard. The adopted international standard for recycling was rolled out at the end of 2008 across the company's multinational operations.

### **Summary of review**

There has been continued work on ensuring that construction waste is minimized. The business incubator building retrofit achieved 95% diversion; the Comcast retrofit achieved 98.6%. Effective storage of reclaimed and deconstructed materials is now in place. Designers and builders must follow the Codding Standard Specifications which require use of reclaimed materials from on-site sources first, alongside pervasive use of easily recyclable materials. The program has been so successful that the inventory has been largely used up in retrofitting the existing buildings.

Innovative construction systems are being used on an ongoing basis, most notably Coddling Steel Frame which produces panelized wall systems in an on-site, solar-powered factory with no waste.

Coddling team members prepared the first draft of SCI Waste Management Standard in 2009, adopting and improving upon those standards provided by the Construction Specifications Institute's framework process for requiring all contractors to recycle jobsite waste and achieve high diversion rates. The standard is legally binding and creates a system of damages if contractors do not comply, and is helpful in estimating tonnage in instances where contractors only have waste volume numbers.

There has been less success maximizing operational recycling and minimizing waste from tenants at Sonoma Mountain Village. The Sonoma County Waste Management agency was invited to cooperate with SOMO in setting up a pilot program to increase landfill diversion rates from the site by instituting new pricing policies, but the agency declined to participate and it is not envisaged that their position will change in the next few years. SOMO have entered discussions with the one onsite retail tenant about packaging, but as yet there have been no results from this, and *there is no composting service as yet for businesses*. Some of the experiments in waste diversion at SOMO have not been successful, which is to be expected in a process of innovation; one tenant was required to hire their own waste pickup as a disincentive, but the end result is an extra truck coming onsite.

It is clearly early days in the reduction of operational waste target. However, long-term reductions are one of the most significant challenges in the One Planet Communities program. Considerable attention at this stage is needed to ensure that contracts with tenants reflect the Zero Waste goal; for future tenants, services in line with the Zero Waste goal should be in place before they move in. It is therefore encouraging to see that Coddling have begun the process to engage with commercial tenants, helping one to significantly increase their recycling rates. But more can, and must, be done, and BioRegional will be looking for demonstrable improvements in this area in 2011.

### ***Key Recommendations by BioRegional for 2011***

There is a significant gap between the notable success of the Zero Waste program in construction and relatively slow progress in Zero Waste operations for existing tenants.

With the delay in home construction, Sonoma Mountain Village is functioning primarily as a business park with some 700+ workers now on-site, and will continue to grow 2 or 3 more years before residents come on-site. BioRegional therefore *strongly recommend* accelerating the development of the Zero Waste initiative at SOMO to begin to model exemplary operations for a One Planet business park.

Specific recommendations include:

- The most recent One Planet Action Plan for SOMO includes a Key Performance Indicator for 2008 of 10.6 lbs of commercial solid waste sent to landfill per 1,000 square feet per day, reducing to 7.6 by 2012. We recommend that Coddling begin tracking these figures for commercial tenants at SOMO on at least a biannual basis and put in place appropriate measures to bring waste to landfill by weight to within this range of 7.6-10.6 lbs
- Provide and require participation in a composting program for existing and new tenants
- Appoint an 'eco-concierge' to write a plan for creating a culture of zero waste amongst existing workers, and to engage directly with the operations managers of SOMO's various tenants to reduce their waste

- Develop recycling plans using stopwaste model for retail and business units
- Continue to reduce and reuse construction waste and keep register of materials
- Develop leasing requirements for future retail tenants around packaging



## Sustainable Transport



82% reduction in transit carbon emissions by 2020, down to 1tCO<sub>2</sub> per year per capita.



*SMART rail will be located a 10 minute walk away from SOMO*

### **Key activities and achievements in 2008-2010**

- The planning process for SOMO employed LEED-ND and new urbanist principles to provide a plan for reduced street widths and to make all homes fall within a 5 minute walk of the town square. The plan furthermore provided for a 1:1 ratio of jobs to housing, which should have significant positive impacts on transportation behaviors.
- After a previous defeat in a 2006 referendum, a proposed local sales tax - vital to realizing plans for a regional Sonoma Marin Area Rail Transit (SMART) - again went before Rohnert Park voters in November 2008. Thanks in part to Codding's \$40,000 contribution to lobbying efforts, the sales tax was approved in the 2008 election, paving the way for passenger train service to Sonoma county residents inside 5 years. A SMART train station will be located within a 10 minute walk of the SOMO town square, making SOMO a transit-oriented development (TOD). This is another example of Codding's 'developer advocacy' action philosophy.
- In similar 'developer advocacy' activity, Codding have engaged with local authorities in a negotiating process to permit narrower streets and alleys at SOMO (another example of Codding's 'developer advocacy' action philosophy)
- Codding has the largest biodiesel production plant in California, which is already providing fuel for construction vehicles. 70% of feedstock is soy; 30% of feedstock is castor bean. A filling station is planned for commercial sale of biodiesel.
- Transition to electric utility carts for use by tours, maintenance, landscape and commercial garbage and recycling services has begun.
- Codding have completed a draft plan for alternative fuel shuttle to link the new SMART station to Sonoma Mountain Village as part of a broader shuttle loop to also include Sonoma State University – the largest employer close to SOMO. The concept is to ramp up shuttle trips as residents occupy SOMO. A tentative agreement between Sonoma State University, SOMO, and the SMART Train Authority has been reached. The agreement is expected to be ratified and funding identified over the next 2 years.

- In February 2009 Codding set up shower and secure bicycle storage and locker rooms for all tenants, available only to cyclists.
- Engaged first with City Car Share, then ZipCar to encourage them to set up in the suburbs. There is an open invitation for Codding to approach ZipCar with a unique proposal; however a partnership is unlikely to be established for some time.
- Completed sustainable transport site plan
- Sonoma Mountain Village lobbied to be the vehicle to grid pilot program by local utility PG&E; the Google Campus, with electric vehicles and plug points already on-site, was selected.
- Of regional transportation significance is the re-siting of a SMART train station near another Codding property in nearby Santa Rosa. In August 2009, community groups approached Codding to ask for helping in making the case to move a planned train station out of the Jennings Street industrial area to Guerneville Road (a busy road about one-third mile from Codding's property, Coddington Mall). The rationale was to get the station very close to four existing bus lines, expand ridership from the much higher number of residences and businesses nearby, and generally make the station more accessible to people arriving by bicycle and car. Codding agreed to help make this case, and funded planners and designers to present the case throughout 2009. In June 2010 the SMART committee announced it had selected the Codding-endorsed Guerneville Road location.

### ***Summary of review***

Sustainable transport is clearly a massive challenge in California, and the situation in suburban Sonoma County is problematic. BioRegional has verified significant efforts by Codding to pave the way for emissions reductions by future residents. Codding's lobbying efforts to ensure that the Sonoma Marin Area Rail Transit (SMART)<sup>1</sup> line will be operational by 2014 is a cornerstone of these efforts, and continued adherence to a highly "walkable" masterplan - with 20mph limits on streets to encourage cycling on all streets, plus bike lanes on main streets - has been verified. Together these factors make SOMO a "transit-oriented development", with the potential to massively reduce the car dependency of SOMO. Accompanying efforts exploring electric vehicles, biodiesel and car share systems complement this success.

This is an area when continual effort and innovation is going to be required if the ambitious targets are to be met.

### ***SOMO Plans for 2011***

- Exploring early support to undertake projects such as
  - Continue to push for shuttle service;
  - Building a Class 1 bicycle path early in the project's phasing to connect to the nearby train station and on to a regional bike path network that would parallel the train route and go to all the stations. A grant could help get that started before homes get built;

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<sup>1</sup> SMART Strategic Plan 2009. Available from:

<http://www.sonomamarintrain.org/userfiles/file/Final%20SMART%20Strategic%20Plan%20-%2006-17-09.pdf>

- Build a parking garage that connects seamlessly with bus-lines, creating a suburban transit hub within a block of SOMO's town square.

***Key Recommendations by BioRegional for 2011***

With the delay in home construction, Sonoma Mountain Village is functioning primarily as a business park with some 700+ workers now on-site, and will continue to grow 2 or 3 more years before residents come on-site. BioRegional therefore recommend the development of a green transportation education and planning program at SOMO, perhaps as part of a larger 'eco-concierge' initiative, to help tenants explore sustainable alternatives to single-occupant automobile commuting to the site. This would set an important precedent for future residential activity and also help establish SOMO as the national model for sustainable retrofit of America's poorly planned business parks.

There are also on-going concerns over the parking ratios. This is a delicate issue - suburban California is more car-orientated than almost anywhere on the continent, and parking restrictions are not likely to be popular (especially with retailers). Nevertheless, more progressive parking ratios and policies are likely to be crucial to the success of car sharing clubs and to the overall target of reducing carbon emissions to 1 ton per person from automobile transportation. Current and future retail tenants could be brought in as partners in transportation planning.

Specific recommendations include:

- Appoint an 'eco-concierge' service to create a green transportation plan for the business park, and to engage directly with the operations managers of SOMO's various tenants to encourage cycling and put in place car-pooling and car-sharing alternatives.
- Undertake a review of car parking strategies, numbers and types of car parking, inviting input from BioRegional and ideally from transportation planners with experience in low-parking strategies.
- Undertake a review of the benefits of the biodiesel facility. There are concerns a using soy and castor bean oil as a feedstock in the production of biodiesel may not be a good environmental option because of its ecological footprint and the competition created for food producing land. More suitable fuelstocks are typically those grown on marginal land or waste cooking oil. The availability of more sustainable locally available fuelstocks could be explored. One option is food processing by-products like chicken skin, readily available nearby the plant; however this is also supporting an unsustainable industry.
- Continue to lobby for alternative fuel commuter shuttle described above
- Engage further with car share companies. If it is not possible to bring an existing car-sharing company to the site, we recommend that Codding incubate a new car-sharing business out of SOMO, tailored the unique requirements of transitioning thousands of future SOMO residents from seven tons of personal annual transportation CO<sub>2</sub> emissions down to just one ton.



## Sustainable Materials



*Coding Steel Frame system manufactured onsite*

Manufacture at least 20% of materials onsite in a solar powered factory



Issue standard specification for materials guide



Complete an inventory of existing materials for reuse



Track the embodied carbon in materials and activities

### **Key activities and achievements in 2008-10**

- The first draft of the Coddling Standard Construction Specification guide has been completed – and offers a comprehensive guide for how tenants can make improvements and fit out their properties. Includes bans on urea formaldehyde, soft vinyl, plus chemicals listed under the European Community REACH Regulation in categories 4, 5, and 6. REACH deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances, and is more progressive than any regulations enacted in North America.
- The Coddling Steel Frame system is being manufactured in a solar-powered on-site factory and has been used effectively in retrofitting existing commercial buildings on-site, and in the sustainable construction of other buildings in the region, including a Whole Foods grocery store. The company has refined its manufacturing process so that it now uses 40% less steel than a conventional steel frame approach. Over a quarter of all building materials to be used at SOMO will be manufactured on-site with this system. A recent BioRegional study (commissioned for a project in a far hotter climate) found the Coddling Steel Frame product to significantly outperform standard concrete construction in terms of embodied carbon (though these savings were less significant once compared with low carbon concrete containing 50% cement replacement PFA).
- The first use inventory of reclaimed materials has been a huge success, with the majority of reclaimed materials already re-used in the retrofit of the existing buildings. For example, 30 tons of asphalt and concrete were reused as part of the LEED-CI Platinum retrofit.
- Engaged consulting firm ENVIRON to undertake an initial analysis of embodied carbon for the project as part of a larger GHG inventory, although the embodied carbon analysis was not admissible in the Environmental Impact Report under California CEQA.

- Coddling have set up an accounting tool for tracking the embodied carbon of all items incur cost to the company. However the accounting tool has only been populated with all fuels (gasoline, petrodiesel and biodiesel), concrete and steel so far.

### ***Summary of review***

Progress in this area appears to be exemplary, with significant quantities of materials being reused, a draft of the Standard Construction Specification has been completed and the zero carbon steel frame factory is operating and impacting sustainable construction in the broader region.

More work should be done tracking embodied carbon in categories other than fuels, concrete and steel; however, BioRegional recognize that such efforts are not pressing at the moment. The basic accounting tool is in place and can be further populated when Phase 1 home construction commences. Coddling have been working with BioRegional to verify the carbon savings of the steel frame system, which are impressive when compared to standard concrete especially if end-of-life reuse or recycling are factored into the analysis, but as yet any savings compared to a traditional timber building have not been confirmed. This is an area where more work should be done.

### ***SOMO Plans for 2011***

- The Sonoma Mountain Village Design Standards are under continuous development with the next major stage planned to happen between June 2011 and February 2012, the approximate timeline for completing the project's Design Guideline and Standards process.
- Engage architects to design model homes as a sample of home types. The unfinished designs (e.g with no detailed elevations or floor plans) will be used in planning and permitting and allow Coddling to better understand the package of low-energy materials to be used at SOMO.
- Revise the One Planet Action Plan to reflect adjusted numbers for % of materials manufactured on-site (should be higher than the Key Performance Indicator in the OPAP)
- Continue to develop materials inventory and investigate further how inventoried materials can be utilized in construction
- Continue to take important materials reuse actions in operation, including concrete crushing – the resulting aggregate is used onsite for base under new concrete flatwork.
- Continue to stockpile and plan for public art to be created with reclaimed materials by local artist<sup>2</sup> (see culture & heritage)

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<sup>2</sup> Example of local green artist <http://greenmeme.com/>


***Key Recommendations by BioRegional for 2011***


- When design commences for new home construction, begin in a verifiable way to track the 5 or 6 biggest impact materials (wood, concrete, steel, roofing materials, drywall) and activities during construction (e.g. the carbon impact of tradespeople driving to the jobsite).
- Continue to develop standards for healthy materials


## Local and Sustainable Food




*Plans for a year round farmers market to provide fresh, local and seasonal food*

Provide a year round farmer's market in the square 

Recruit a sustainable grocery store 

Recruit a sustainable restaurant 

Survey a sample of residents to determine the percentage of local food 

### **Key activities and achievements in 2008-2010**

- SOMO is now host to its first sustainable restaurant. In 2009 local caterer Sally Tomatoes moved to the SOMO Event Center, where it offers local and sustainable food and drinks in a cafeteria and nightclub format.
- A location has been identified and programmed on north side of town square and in the promenade for the farmer's market, with two locations, one fair weather and one rainy weather.
- Established a Community Supported Agriculture program for Coddling employees to test the concept that will be set up for SOMO
- Coddling has opened dialogue with potential grocery store tenants
- Coddling has begun talking to experts like Alice Waters, the progenitor of the slow food movement, and other coop projects to ascertain opportunities for school gardens and other sustainable food programs at SOMO
- Organic and fair trade coffee, cooperatively-owned coffee service has been sourced by Coddling for office use
- Undertaken a thorough energy audit of Sally Tomatoes, which resulted in a halving of their energy use in the kitchen.

### **Summary of review**

Meeting the key performance indicator for sustainable food at SOMO will be challenging, even within the context of a progressive local food culture in California. If it can't be achieved in California, it can't be achieved anywhere! Sustainable food at SOMO is possible with strong local CSA (Community Share Agriculture) movement, early interest from local farmers, homebuyer interest in backyard gardening, and with Alice Waters just 30 miles away (the founder of the slow food movement internationally) with her local in-season restaurant dating back to 1970s.

Sustainable food is a challenging issue, because there are so many diverse factors at play. It is also an issue that needs to be tackled with great sensitivity to avoid alienating residents by appearing to restrict their choice of a fundamentally basic human need or challenge deeply-held cultural values. Awareness-raising must be undertaken early and thoughtfully, and a full range of approaches must be explored to help encourage more sustainable diets.

Codding have started this process by setting up the CSA scheme for their staff, by incorporating vegetable gardens in the latest masterplan revision, and have also worked with the Sally Tomatoes restaurant onsite to encourage them to feature more local and organic produce. Some experiments have not worked; a food origin labelling system at Sally Tomatoes was dropped after a month. It is important the Codding team look at creating strategies for encouraging the workers already onsite to choose more sustainable diets. BioRegional are encouraged that Codding has opened up discussions with local grocers and Alice Waters.

### ***SOMO Plans for 2011***

- **Continue to engage with local community groups and tenants to explore interest in organizing onsite community food growing spaces in central locations that will be able to function long-term**

### ***Key Recommendations by BioRegional for 2011***

With the delay in home construction, Sonoma Mountain Village is functioning primarily as a business park with some 700+ workers now on-site, and will continue to grow 2 or 3 more years before residents come on-site. It is therefore recommended that the development of a sustainable food program at SOMO to help tenants provide healthy, local diets for their employees.

Specific recommendations include:

- Engage an 'eco-concierge' service to create a sustainable food plan for the business park, and to engage directly with the operations managers of SOMO's various tenants to extend the Community Supported Agriculture program for Codding employees and related food strategies to other occupants of SOMO. Explore 'green' vending machines stocked with more sustainable options for food and beverage consumption. Codding should aim at a minimum to ensure that organic, fair trade coffee and teas are available to all tenants by 2011.
- Sally Tomatoes have been verified to provide catering in a sustainable manner *upon request*; however, we advise that Codding work with the restaurateur to increase the marketing and frequency of their sustainable food offering so that the choice to buy a sustainable lunch at SOMO is available every day.
- Continue to forge links with local food coops and further seek to secure interest from local grocer
- Explore ways to replicate the sustainable food canteen that was established at One Brighton to provide construction workers on the site with healthier, more sustainable lunches




*Rainwater collection for irrigation*

Irrigate only with non-potable water



Exceed stormwater runoff standards (Commitments made)



Minimum 50% reduction in drinking water use in all retrofitted spaces relative to national Energy Policy Act of 1992<sup>3</sup>



### **Key activities and achievements in 2008-2010**

- Ongoing updating and revising of the extensive SOMO Water Plan.<sup>4</sup>
- Codding has committed in the draft Development Agreement with the City of Rohnert Park to the performance criteria for stormwater onsite, including decrease in the rate of run-off and an increase in water quality (e.g. reduction in total suspended solids) and other low-impact development standards.
- Codding will continue to lobby the local government to permit use of rainwater and greywater in buildings. Three years of lobbying efforts on greywater culminated in the passage of a law allowing greywater use for irrigation for all types of homes in August 2009.
- Phased out use of chemicals in property management; innovative development of hot saltwater sprayer to kill weeds onsite.
- Use of low-flow fixtures and toilets in the retrofit of existing buildings

### **Summary of review**

As California has experienced 3 consecutive years of drought it is becoming increasingly clear that the best practice standards that are being proposed for SOMO are actually the minimum standards that all developers should be aiming for.

A 60% reduction in water use is planned with efficiencies built in such as waterless urinals, dual flush toilets, sinks and low flow lavatories. Reclaimed water will be used for all landscape irrigation. Bioswales, permeable surfaces, and rainwater capture will help with plans to retain over 4 million gallons of water on site for reuse.

<sup>3</sup> Exceeds achievements of most LEED Platinum homes.

<sup>4</sup> <http://scwatercoalition.org/images/pdf/CoddingWaterPlan.pdf>

The water plan will enable a net reduction in water use from the old allocation attributed to Agilent, c.10%, while adding 1,900 new homes to the site.

The Coddling Standard Construction Specification stipulates the low flow appliances that will be mandatory in all new homes, and these standards are sufficiently ambitious. For example:

- Including toilets at 3.8 litres per flush/1.9 litres per flush
- showerheads at 5.7 litres per min
- dishwashers, washing machines included
- CIMIS-controlled efficient irrigation (bubblers, drip, sub-surface, micro-spray, etc).

### ***SOMO Plans for 2011***

- Continue lobbying for a standard for fire suppression systems to use reclaimed water.
- Continue to lobby for toilet flushing to be permissible using greywater within city/state regulations; explore alternatives

### ***Key Recommendations by BioRegional for 2011***

- Develop rules and regulations for use of pesticides, fertilizers, herbicides and car washing practices to protect area water resources



## Land Use and Wildlife



Offsite conservation to mitigate development footprint



20 acres of high biodiversity zone created and protected on-site



Integrate biodiversity into the urban areas



### ***Key activities and achievements in 2008-2010***

- The riparian corridor along the western edge of the site has been created and protected; cleanup, landscaping and replanting still to be done.
- First habitat mitigation measure completed; Coddling have negotiated land purchase of 35 acres of land for open space at the edge of Rohnert Park, on Formschlag Lane in Penngrove, to be placed into conservation easement in perpetuity.
- A very detailed ecological assessment has been completed as part of the EIR process. Biologists visited the site and performed an assessment for species classified as threatened, endangered or concerned. Three species of concern were identified and special studies were done on those species.
- Ongoing conversion of plantings to native and drought resistant vegetation across the site
- Eliminated 'up-lighting' on site by capping streetlamps, following exemplary LEED-ND guidelines.
- 4-acre nursery now onsite growing slow-growing native trees and shrubs for future planting at SOMO.
- Coddling have removed barbed wire fences and guard shacks from the perimeter of the site to make it more inviting for neighbors; the site is now being used more by people.

### ***Summary of Review***

As an urban edge site, SOMO has a greater opportunity for a mix of urban, rural, and natural zones than most One Planet Communities. Coddling's demonstrable commitment to offsite mitigation (evidenced by the purchase of 35 acres of habitat for conservation) is exemplary, demonstrating how intensive development in one area can help ensure that the project as a whole has a net benefit for biodiversity in the local area. The total commitment to conserve an area of land equal to 50% of the size of the site (72.5 acres).

The public version of the One Planet Action Plan also clearly lays out onsite habitat creation commitments: 10% of the total site (20.1 acres) restored/protected as high biodiversity zone by creating, restoring and expanding native habitat, including setbacks and protection from development in perpetuity; 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 ; and 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.

Increasing the biodiversity and conservation value of the project is a slow and steady process and a solid foundation has been laid, through the restoration of the riparian corridor. However, BioRegional finds that Coddling could be doing more at this stage to prepare the medium and high-biodiversity zones described above in the north sector of the site, which is scheduled for improvement during Phase 1.

The Action Plan for the site includes long-term management plans, green roofs and strategies to encourage residents to manage their backyards in such a way as to encourage biodiversity. These actions will all be necessary to ensure that the site fulfils its potential for wildlife and conservation and these strategies need to be developed further in the near future.

### ***SOMO Plans for 2011***

- Section 4 hearing with Fish and Wildlife Department to establish what the government believes is an appropriate mitigation for land use. Review land use plans, suggest aiding species offsite etc. will deeply inform further onsite and offsite conservation planning.
- Continue conversion of landscape to low-water species.
- Continued research into how to sell homes with slow-growing drought tolerant plants and parks
- Investigate how to unlock 41 acres of the southern parcel of land to grow agricultural food before eventually being turned into parks and development during Phase 2 and 3. The land is low quality for agriculture (clay with no topsoil) but could be used to grow fibres and sunflowers.
- Proposing to create tiger salamander habitat area on the 35-acre mitigation zone on **Formschlag** lane.

### ***Key Recommendations by BioRegional for 2011***

- Update the One Planet Action Plan to reflect the more clearly expressed biodiversity zones and acreage commitments outlined in the public One Planet Action Plan for habitat
- Complete ecological assessment and begin work on developing 10 year strategy for managing on site habitats and buffers
- Intensify efforts to develop medium and high-biodiversity zones in the northern sector.



## Culture and Heritage



*An eco trails programme will be launched in 2012*

Launch EcoTrails programme in 2012

Create a community-oriented culture

Provide a One Planet Center on the Town Square



### **Key activities and achievements in 2008-2010**

- SOMO has been established as a major green destination in Sonoma County, with 3-5 events each week at the existing Event Center that deal with environmental themes (last year alone, 200 events). The Event Center always gives priority to groups with environmental and social sustainability missions, and has in many ways become a kind of community center for NGOs and environmental groups (e.g. the Hispanic Chamber of Commerce, Sonoma County Conservation Action, etc.)
- Codding is in early stages of important community outreach work to develop a digital story map that will capture the living memory of SOMO. The project is intended to detail public input on project and how that feedback has led to changes. It will document the early and recent history of the site, establishing themes of the site's history and how those themes relate to the new sustainable community and public spaces like the proposed town square and public art projects.
- Codding has met with local historians and modern Coast Miwok Indians to help document the story of how the Coast Miwok Indians interacted historically with the Sonoma Mountain Village site and surrounding region. Codding have leased the group rental space on Codding property, and helped them to find space to grow vegetables and some traditional ancestral foods on the property to help counteract the diabetes epidemic at the Graton Rancheria reserve.
- Local high school art students were commissioned to create an on-site piece of artwork and installed on-site.

### **Summary of Review**

Creating a community-oriented culture is always a real challenge when creating a community from scratch. BioRegional find Codding's progress in this principle to be exemplary, particularly in leveraging its existing assets to create a culture of sustainability onsite, and through its commitment to document the history of the site.

Thought is also being given to engaging with the outside community – but the real challenge will be putting in place systems and processes that create a sense of community for the first residents that arrive.

### ***SOMO Plans for 2011***

- Further expansion of the Event Center as the center of community life, including improvements to the facility and grounds. Continue to push Sally Tomatoes to go further.
- New programs to make nature visible, following the lead of places such as Portland where the installation of green stormwater infrastructure has considerably and visibly enhanced park spaces. Codding are to develop a plan for SOMO based on learning from Dreiseitl waterscapes, finding ways to celebrate the movement of water that go beyond aesthetics e.g. flood control, water retention, low maintenance etc. An outline plan for the whole site is to include commitments to raingardens, low-impact development and best practices from such exemplary projects as the University of Maryland and UC Davis.
- 2010-11 Decide upon architectural motif for SOMO to reflect historic and contemporary architectural influences
- Establish a clear community engagement protocol for SOMO

### ***Key Recommendations by BioRegional for 2011***

- Demonstrate clear progress on plans for the One Planet Center in 2011, developing more specifics about how the Center can be provided for first occupancy in temporary space if the new facility is not yet ready. Some space and programming must be available at first occupancy to provide a center for delivering 'one planet lifestyles' services to incoming residents. Related planning for One Planet Lifestyles programs need to commence 6-9 months before first occupancy.



## Equity & Local Economy



*Binding agreement with local labor, environmental, and affordable housing groups*

Establish non-profit green business incubator (Sonoma Mountain Business Cluster) with goals to assist 100+ startups to create 2,000+ jobs



25% affordable housing, exceeding municipal requirements



4,400 new jobs (700+ jobs now on-site and climbing)



Binding agreement with local labor, environmental, and affordable housing groups



### **Key activities and achievements in 2008-2010**

- Increased job creation at SOMO, with 700+ jobs now onsite in commercial buildings and a successful green business incubator ([Sonoma Mountain Business Cluster](#)). In 2009, almost 100% of all new leasing activity in the municipality of Rohnert Park occurred at SOMO, making it the city's largest source of new jobs. The project is attracting green jobs to the area; in November 2009 SolarNet, one of the nation's largest suppliers of solar components, announced that it is moving its headquarters to SOMO. [[Press coverage](#)] SolarNet expanded its office and warehouse operations at Sonoma Mountain Village in 2010. We have also found cases where conventional tenants at SOMO have been influenced by the One Planet ethos at their new workplace to establish new or improved sustainability goals for their on-site operations (Comcast, for example, has been inspired to change its vehicle maintenance program to reduce use of chemical cleaners and to implement a new service vehicle routing system to minimize fuel use). By attracting jobs - particularly green jobs - to Rohnert Park, SOMO is helping to compensate for the loss of 2,500 local high-tech manufacturing jobs when the original owners of the SOMO site, Agilent, closed their factory.
- Codding have established a non-profit green business incubator ([Sonoma Mountain Business Cluster - SMBC](#)) with goals to assist 100+ startups to create 2,000+ jobs. With over 20 small business tenants now in the facility, the program has been a tremendous success. The incubator provides space as well as centralized services to startups (such as administrative, legal, and business planning assistance).
- The California State Business, Transportation and Housing Agency has named the Sonoma Mountain Business Cluster one of six Innovation Hubs in California. The purpose of the iHub program is to promote regional collaboration and commercialization of technology to stimulate job growth. The Business Cluster will act as a regional center to collect information and support innovative tech companies, and gives it preferential funding for job recovery programs.

- A detailed development agreement (the Community Benefits Agreement) has been completed between Sonoma Mountain Village and a coalition of local labor, housing and environmental groups called the Accountable Development Coalition. The Agreement stipulates the use of union labor and living wages, construction of affordable housing and environmental requirements. The development agreement has been praised in the media for its “far reaching” impact on local business practice. [\[Press Coverage\]](#)
- The Community Benefits Agreement described above also enshrines a new target for affordable housing which exceeds both the municipality’s requirement as well as the initial key performance indicator set in the One Planet Action Plan (25%). The new target ensures that 30% of all housing at SOMO will fall within a range of affordability options, guaranteeing that at all times a minimum of 15% of homes are affordable and deed restricted, and 15% are affordable by design. Codding have revised their low income housing plan accordingly, and have also met with four Housing Associations concerning the delivery of affordable housing programs.
- A co-housing group to be located at SOMO has been initiated.
- SOMO has adopted the gold standard of University of Maryland for universal design
- Codding have investigated the feasibility of hosting healthcare centre
- Codding have converted all sugar and coffee in their corporate headquarters to fair trade, and furthermore sent materials to tenants advertising a local company that provides fair trade coffee and sugar.

### ***Summary of Review***

SOMO has clearly demonstrated tremendous leadership in key areas: affordability, accessibility, employment standards and job creation. The approach to supporting small businesses is particularly impressive, and highlights the holistic approach to sustainability that is being taken at SOMO. The focus on bringing jobs into the community to help kick-start the shift away from being a ‘bedroom community’ should have wide-ranging benefits, in terms of reduced transport and a more cohesive and integrated community. The strategy also enables Codding to engage with those business moving onto the site as commercial tenants to encourage equitable employment practices.

### ***SOMO Plans for 2011***

- Universal access to be fully incorporated into site-level planning.
- Research circular local economies involving retail businesses and services. For example, SOMO is planning to host prototypes from the California Advanced Laser Institute, which explores new applications for super-fast lasers. Around these prototypes Codding hope to create a local innovation economy that feeds startups with suppliers, buyers, university students, and have already enlisted 3 companies and are pursuing matchmaking activities and seed money. The initiative is a partnership of 8 different groups including Sonoma State University, the City of Rohnert Park, and the Sonoma Mountain Business Cluster.

- Draft Creeds, Covenants, and Regulations (CC&Rs) for SOMO are to be prepared in 2011 – a standard document required by state that enshrines rules about how the site is to be operated and governing the behaviors of occupants and home-owners. An official CC&R document must be printed and available before the first homebuyer signs a deal. The history of these documents is that they are normally counterproductive to sustainability goals and are highly restrictive (e.g. no clotheslines, mandates colors to paint houses, at night you must pull your blinds, etc.) The SOMO CC&R document will explicitly mandate that sustainable practices or features like clotheslines and vegetable gardens are allowed. It will furthermore disallow unsustainable practices, such as chemicals for use in backyard gardens.

***Key Recommendations by BioRegional for 2011***

- The Sonoma Mountain Business Cluster is clearly an exemplary initiative. Its success should be documented and highlighted as a model for other initiatives across the continent that are exploring starting up green business incubators.
- Update the One Planet Action Plan with the new affordable housing numbers enshrined in the Community Benefits Agreement.
- Develop a plan for outreach to disadvantaged groups.
- Help Sally Tomatoes to standardize on fair trade products so that they are always used.



## Health & Happiness



Provide services and facilities onsite that meet local needs



Integrate health infrastructure into the design



Create facilities for all age groups, including teenagers



### ***Key activities and achievements in 2008-2010***

- Coddling has integrated 'fitness infrastructure' into the masterplan, designating locations for soccer fields, bike paths, an outdoor gym, etc.
- SOMO is becoming an important locus for fitness related activities:
  - The Tour de California cycling race has hosted its overnight stop at SMV for 3 years in a row, with over 700 cyclists camping on fields onsite. This has generated collateral interest in SOMO from other health, fitness, and cycling events which are now using as a starting point or staging ground.
  - Criterion bicycle races organized by Norcal Sport are now doing circuit time trials on ring road around site.
  - Several hundred young students attend the on-site martial arts studio.
  - A local lacrosse league uses SOMO's playing field.
- SOMO is demonstrating its commitment to lifelong learning:
  - Twice a week, the Osher Lifelong Learning Center holds all its classes at the SOMO Event Center. This national group offers classes on college campuses across country, serving a senior population by providing college experience for retired people. The local program is affiliated with Sonoma State University.
  - Linkages are being explored to with Sonoma State University, including alternative fuel shuttle buses or and a bicycle path greenway (see Transport), as well as a lifelong living centre at SOMO.
- SOMO has invested in creating a safer environment for occupants:
  - Leasing language for tenant contracts prohibits certain toxic materials, such as adhesives.

- Street crossings have been reviewed for child safety and site safety audit completed for walking path to off-site amenities such as school and parks. Need for Signalized crossing identified at Camino Collegio and Manchester Avenue.
- Codding have changed out all parking and pathway lights to white light a) to save 65% of lighting energy and b) improve color rendition, improving sense of safety by enabling pedestrians and cars to enjoy better visibility at night.

### ***Summary of Review***

Health and happiness of the residents and employees should be a natural outcome of the strategies put in place to deliver the nine proceeding principles. But as the understating of happiness improves the need for a clear strategy for promoting health and wellbeing, both physical and mental, becomes more obvious. Strategies such as supporting Rohnert Park's 'every home near a park' vision and the encouraging of cycling will all help support this.

The original One Planet Action Plan makes it clear that surveys will be used to gauge resident's happiness, but exactly how that is to be done has not been decided. Codding should ensure that this strategy is in place by first occupancy so that the program can establish a reasonable baseline of health and happiness indicators.

### ***SOMO Plans for 2011***

- Advance plans for health infrastructure on-site; identify targeted space. Initiate further discussions with potential operators.
- Multi-modal path planned out across site, along with pedestrian and fitness circulation.
- Continuing conversations with an exciting prospective tenant, an art house movie theatre
- Further development of strategies for stormwater management to create a more park-like feel at SOMO. Codding are working with the City to allow a new Tree Plan (with green infrastructure as a significant part of SOMO's Water Plan) – City standards will require change.
- Codding have hired a leading mechanical engineering group, Johnson Controls, to study air quality issues for the site. Some tenants have improved air quality to 50% above ASHRAE standards, while others merely meet the ASHRAE standards. Johnson Controls are investigating the energy required to provide additional outside air to these latter tenants relative to the cost of energy and impacts such as carbon.
- Advance research is planned for use of turf for recreational facilities versus synthetic surfaces, exploring a passionate debate in the sustainable landscaping movement (fertilizer, irrigation requirements, and off-season vs. impacts and maintenance of artificial field)

### ***Key Recommendations by BioRegional for 2011***

- Ensure that planning for the One Planet Lifestyles program (which touches all ten principles) commences at least 6-9 months before first occupancy in close partnership with BioRegional.
- Advance plans for a place for teenagers to use that is interesting and fun within the constraints of 'attractive nuisance' laws and issues of insurance, etc.

- Further explore how to involve community groups in the project. This should feed into design considerations for increasing a sense of safety.
- Improve monitoring in post-occupancy fit out by tenants.

## **Outreach and Corporate Advocacy: Addressing SOMO's share of 'societal footprint'**

### ***Key activities and achievements in 2008-2010***

- After a previous defeat in a 2006 referendum, a proposed sales tax - vital to realizing plans for a regional Sonoma Marin Area Rail Transit (SMART) - again went before voters in November 2008. Thanks in part to Codding's \$40,000 contribution to lobbying efforts, the sales tax was approved in the 2008 election, paving the way for passenger train service to Sonoma county residents inside 5 years. A SMART train station will be located within a 10 minute walk of the SOMO town square, making SOMO a transit-oriented development (TOD).
- Codding Enterprises is a Founding Member of a key new advocacy organization, the California Infill Builders Association, as can be verified by visiting [www.infill-builders.org](http://www.infill-builders.org) and clicking on "Who We Are". The California Infill Builders Association represents builders and developers of urban areas whose work often focuses on the transformation of abandoned and neglected properties. The Association educates industry and civic leaders, government policy-makers and the public about the economic, environmental and social quality-of-life benefits that distinguish well-designed infill development.
- Codding Enterprises loaned Geof Syphers' time to help establish Applied Solutions. Applied Solutions is a non-profit organization that was founded by a handful of local governments who saw the value of coordinating their efforts to have a meaningful impact on the future of our nation's economy. The organizations goals are to 1. Generate an economic resurgence in America employing the collective leadership of local governments to accelerate efficiency in the design and planning of projects and through the aggregate impact of the local government bipartisan voice. 2. Develop innovative financial instruments and tools to enable counties and cities to leverage strained resources. 3. Achieve development success through deployment of next generation projects; projects that reduce financial risk, increase and stabilize economic viability and provide an ROI measured through: jobs created, clean energy generated water saved and reused, growth of local economies, gains in energy security through increased self sufficiency, recognition and influence of local government action and leadership engaged and leveraged by state and federal leaders and processes. You can also review the organization's website at <http://appliedsolutions.org> to find material about Sonoma Mountain Village, which is used as a case study by Applied Solutions.
- Involved in the formation of State legislation on climate change and land use; Senate Bill 375, LUSCAT member, CEQA Show how a developer can influence policy
- Member of the California Attorney General's focus group (Building Smart and Green) for reducing GHG emissions relating to land use development

- Codding wrote the first draft and significantly contributed to developing: CSI 01505 – construction waste management: Jobsite Waste Recycling Plan
- Codding is the first developer in the EPA Climate Leaders programme and one of the first 100 companies in the US to join
- Assembly Bill 811
- Supported the Assembly Bill 811 (financing of energy efficiency improvements); Codding used it as a model through Applied Solutions.
- Has engaged and supported local business through providing facilities such as Sonoma Mountain Village Business Cluster
- Codding has undertake considerable research into how SOMO can encourage a sustainable food culture
- Linked with Waldorf Schools with a view to providing a site for a Waldorf High School at SOMO
- Hosting the Applied Solutions Feb 2009 workshops

### ***Summary of Review***

The range and depth of Codding's advocacy for more sustainable development is truly impressive and provides an exemplary model for developers world-wide to follow. As the One Planet Communities programme matures it is becoming clear that to deliver a truly sustainable community a developer needs to act at three levels:

- Building highly efficient buildings in a community that encourages sustainable living
- Providing on-going management services that enable sustainable lifestyles
- Lobbying and engaging with national and local government to change the laws that block more sustainable development, and to encourage them to also reduce the impact of their own operations (the shared services and infrastructure that an individual can not influence)

### ***Plans for 2011***

- Through the California In-Fill Builders Association, continue to work with regulators at all levels to remove barriers to in-fill and sustainable development.
- Continue to lobby local and state government on issues and remaining barriers at SOMO, for example use of greywater
- Continue lobbying for a standard for fire suppression systems to use reclaimed water.
- Continue to lobby for toilet flushing to be permissible using greywater within city/state regulations; explore alternatives

## PRIORITY RECOMMENDATIONS

This review is the first of many for Sonoma Mountain Village. The advancements that have been made are significant, and distinguish the project as the most ambitious on the continent with its broad commitment to social, economic, and environmental sustainability. However, there is still much work to be done. The one planet challenge will be especially difficult to achieve in the American context, where per capita CO<sub>2</sub> emissions are higher than any other G8 country.

### Towards a One Planet Business Park

With the delay in home construction, Sonoma Mountain Village is functioning primarily as a business park with some 700+ workers now on-site, and will continue to grow 2 or 3 more years before residents come on-site. This unforeseen delay creates an opportunity for Coddling to refine and focus on its existing operations and property management, and to collaborate with BioRegional in the provision of an 'eco-concierge' service for commercial tenants. One broad opportunity would be to bring the "Coddling University" program, which offered sustainability induction and advice to Coddling staff, to the broader base of occupants at SOMO. We recommend that Coddling develop a program to 'induct' tenants into the One Planet Program in the same way that construction workers would be inducted into the program, and encourage tenants to undertake their own One Planet Action Plans. Most importantly, *Coddling should establish clear minimum standards for commercial occupancy in a One Planet Business Park in waste management practices, transportation to and from work, and food consumption. A proactive program, perhaps modelled on experiences with 'eco-concierge' services from other One Planet Communities, should be put in place to engage with incoming and existing commercial tenants on an ongoing basis to bring their occupancy in line with the best-in-class performance expected of a One Planet Community.*

BioRegional recommend that Coddling focus on these priority areas between now and commencement of home construction:

#### Zero Waste

Appoint an 'eco-concierge' to write a plan for creating a culture of zero waste amongst existing workers, and to engage directly with the operations managers of SOMO's various tenants to reduce their waste

#### Sustainable Transport

Appoint an 'eco-concierge' service to create a green transportation plan for the business park, and to engage directly with the operations managers of SOMO's various tenants to encourage cycling and put in place car-pooling and car-sharing alternatives.

Engage further with car share companies. Some commentators have suggested that the large ZipCar company is less interested in sustainability than their marketing would suggest; may be more strategic in the long run to partner with non-profit City Car Share. If it is not possible to bring an existing car-sharing company to the site, we recommend that Coddling incubate a new car-sharing business out of SOMO (similar to what was done at BedZED).

 **Local & Sustainable Food**

Engage an 'eco-concierge' service to create a sustainable food plan for the business park, and to engage directly with the operations managers of SOMO's various tenants to extend the Community Supported Agriculture program for Coddling employees and related food strategies to other occupants of SOMO. Explore 'green' vending machines stocked with more sustainable options for food and beverage consumption. Coddling should aim at a minimum to ensure that organic, fair trade coffee and teas are available to all tenants by 2011.

Sally Tomatoes have been verified to provide catering in a sustainable manner *upon request*; however, we advise that Coddling work with the restaurateur to increase the marketing and frequency of their sustainable food offering so that the choice to buy a sustainable lunch at SOMO is available every day.

 **Land Use and Wildlife**

Intensify efforts to develop medium and high-biodiversity zones in the northern sector.

 **Culture and Heritage**

Demonstrate clear progress on plans for the One Planet Center in 2011, developing more specifics about how the Center can be provided for first occupancy in temporary space if the new facility is not yet ready. Some space and programming must be available at first occupancy to provide a center for delivering 'one planet lifestyles' services to incoming residents. Related planning for One Planet Lifestyles programs need to commence 6-9 months before first occupancy.

 **Health & Happiness**

Ensure that planning for the One Planet Lifestyles program (which touches all ten principles) commences at least 6-9 months before first occupancy in close partnership with BioRegional.

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Serious design of the sustainable lifestyles program should commence roughly 1 year prior to first occupancy. Although a great deal of work needs to be done in this area, the recovery of the California housing market should set the timetable for further lifestyles design.

We recommend that Coddling work with BioRegional to overhaul the SOMO One Planet Action Plan in 2011 to reflect new assumptions, strategies, achieved or modified milestones and timetables, taking on board the recommendations of this review.

# Appendix

## About One Planet Communities

In 2001, BioRegional came up with a way of describing sustainability which has caught on around the world. We used carbon and ecological footprinting to show that our current way of life in developed countries is unsustainable. The world's population is rising rapidly and ecological footprinting shows we are already consuming 25 per cent more renewable resources every year than the planet can replenish.

If everyone in the world lived as we do in the US then we would need **five planets** to support us. Of course we only have one. BioRegional developed "one planet living" as a vision of a sustainable future, and a framework to help us achieve this.



 Zero Carbon

 Zero Waste

 Sustainable Transport

 Local & Sustainable Materials

 Local & Sustainable Food

 Sustainable Water

 Natural Habitats & Wildlife

 Culture & Heritage

 Equity & Fair Trade

 Health & Happiness

## The ten principles of one planet living

One planet living is based on ten guiding principles of sustainability which provide a framework to highlight the sustainability challenge in a given situation, and to develop and present solutions.

BioRegional have helped apply the one planet living framework to large projects involving government, communities and companies. The principles keep partners working towards a big-picture of long-term environmental and social improvements. These principles act as a "green DNA", embedded in every business plan, building design, and construction or procurement contract.

## One Planet Communities

One Planet Communities is a network of neighborhoods that are national models for making *truly* sustainable living easy, attractive and affordable to ordinary residents, using the one planet living framework and ten principles. The program uniquely uses per capita ecological and carbon footprinting and performance metrics for tracking improvements in household sustainability beyond those areas traditionally monitored by green building systems (e.g. water, electricity) to include commuting, food, waste, and social issues such as health, equity, local economy, and culture.

One Planet Communities are informed by lessons learned at the multi-award winning BedZED – an urban eco-village with 50% social housing which BioRegional co-founded and helped complete in 2002. According to Urban Land Magazine, "BedZED's environmental achievements

suggest that neighborhood-scale sustainable development can go much further than has been imagined in the United States.”

## About BioRegional

BioRegional Development Group (BioRegional) is an entrepreneurial charity which invents sustainable products, services and production systems, and initiates the development of sustainable communities. We deliver practical solutions to help us to live within a fair share of the earth’s resources by setting up new enterprises and partnerships around the world. We are skilled in designing and managing neighbourhoods to make sustainable lifestyles convenient and practical.

Established in 1994, BioRegional is one of the UK’s most experienced organizations working in the field of sustainability. We have a track record of delivering successful sustainable development projects in our local community, nationally and internationally. BioRegional lead the One Planet Communities programme, working on projects including Barangaroo in Australia, Jinshan in China, and Masdar City in the United Arab Emirates. BioRegional have developed a number of other projects and initiatives which demonstrate One Planet Living in action, including the award winning BedZED eco-village with the Peabody Trust where energy, water and car use are cut by more than 50%. BioRegional has supplied B&Q with locally produced charcoal and firewood for 14 years through an innovative system which allows local producers to supply national retailers. This local product reduces CO<sub>2</sub> emissions associated with transporting the product from producer to store by 85% compared to imports.

Since 1994, BioRegional projects and the enterprises and companies which BioRegional has helped to establish have won 22 awards in the UK and six international awards for outstanding practice. Recent awards include:

- 2009 Skoll Foundation Award Winner (grant of \$750,000 awarded)
- 2009 UN Habitat Award for Green Infrastructure at Jinshan, China
- 2007 Building Magazine’s ‘Sustainable Consultant of the Year’
- 2006 Ashen Sustainable Energy Award Winner

BioRegional North America was founded in 2006 to bring the One Planet Communities program to North America, and is guided by a Board of Directors comprised of some of the most experienced green architects and real estate developers on the continent.



# One Planet Living

The ten One Planet Living principles provide a framework to examine the sustainability challenges that we face, helping to develop appropriate solutions that allow us to live and work within a fair share of our planet's resources.

|                            |   |   |
|----------------------------|---|---|
| Zero carbon                |    | making buildings more energy efficient and delivering all energy with renewable technologies      |
| Zero waste                 |    | reducing waste arisings, reusing where possible, and ultimately sending zero waste to landfill    |
| Sustainable transport      |   | encouraging low carbon modes of transport to reduce emissions, reducing the need to travel        |
| Sustainable materials      |  | using sustainable products that have a low embodied energy  |
| Local and sustainable food |  | choosing low impact, local, seasonal and organic diets and reducing food waste                    |
| Sustainable water          |  | using water more efficiently; tackling local flooding and water course pollution                  |
| Land use and wildlife      |  | protecting and expanding old habitats and creating new space for wildlife                         |
| Culture and heritage       |  | reviving local identity and wisdom; supporting and participating in the arts                      |
| Equity and local economy   |  | inclusive, empowering workplaces with equitable pay; support for local communities and fair trade |
| Health and happiness       |  | encouraging active, sociable, meaningful lives to promote good health and well being              |

## About Codding Enterprises

<http://www.somoliving.com/>

Under development by Codding Enterprises, SOMO is the first One Planet Community in North America, and only the fourth in the world. Sonoma Mountain Village is the new business model for Codding Enterprises, recycling a former high-tech campus to create 1,900 new homes and restore 3,000+ jobs for a profitable and responsible future.

Hugh Codding, founder of Codding Enterprises, began building California homes in the 1930's. He created one of the first mixed-use communities by building offices atop retail stores in Santa Rosa. The 1950's and 60's brought the first large-scale shopping centers to the region, Montgomery Village and Coddingtown Mall.

Under the next generation of leadership, Brad Baker, CEO and President and Lisa Codding, COO have created a vision to build deeply sustainable, mixed-use communities and invest in companies to create a profitable and responsible future. The company envisions development to have a restorative impact on both nature and cities.

Today, Codding Enterprises, headquartered at SOMO, controls over two million commercial square feet with approximately 80 employees within Codding Enterprises, Codding Maintenance, Codding Construction and Codding Steel Frame Solutions.

**BioRegional**

**solutions for sustainability**

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