Saving the World

Omar Torres, AFP/Getty Images

A couple of winters ago, being the quintessential zoning attorney, I was curled up in front of the fire at my mountain cabin reading a good development code.

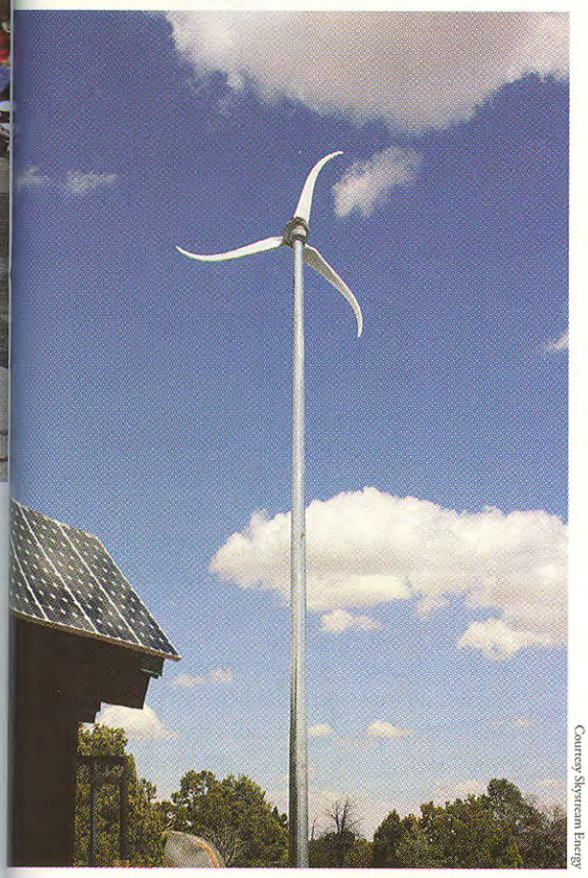
It had all the latest bells and whistles that a progressive modern code should have: a form-based TND residential district, hillside protection performance standards, gateway design overlays tied to the city's recently updated comprehensive plan, illustrative tables, flow charts, and pretty graphics. I was proud of it—one of the best my firm had produced. But I had a gnawing feeling inside thanks to environmental guru Lester Brown.

I had just finished reading Brown's troubling book, *Plan B: Rescuing a Planet Under Stress and a Civilization in Trouble.* In it, Brown paints a dark picture of Earth's future unless we as a society make some big changes in the way we live and do business. He documents how oil production is peaking while world demand

Through Zoning

The sustainable community development code comes to the rescue.

By Chris Duerksen



Courtesy Skystream Energy

The effects of climate change are felt everywhere, including Mexico City. Last January women there demonstrated in the streets against the rising price of corn, which has been linked to U.S. demand for ethanol. Closer to home, planners should consider codes that allow wind turbines and solar panels in residential neighborhoods.

is expected to increase by 50 percent by 2030, and how China will demand more food by 2030 than the entire world produces today. He warns of another species extinction event, this one linked to global warming and man's destruction of habitat by development. Brown reports that a 2005 random analysis of newborn umbilical cords in the U.S. detected 287 chemicals, 180 known to cause cancer and 208 to cause birth defects.

What, I thought to myself, would this state-of-the-art zoning code do to address these critical issues? Sadly, I concluded, very little. It might nibble around the edges of habitat protection by preserving trees and river buffers or help reduce carbon dioxide emissions that contribute to global warming by encouraging mixed use development and pedestrian mobility. But overall, there was precious little in it addressing climate change, energy conservation and production, community health, food supply, safety, and other critical challenges. Our code devoted almost a dozen pages to nonconforming uses and nothing to solar and wind energy. Something was out of whack.

It dawned on me that the wonderful flavors of zoning regulations we have to sample and draw upon—Euclidean, form-based, performance, hybrid—all have their strengths, but all have serious blind spots when it comes to sustainable development and sustainable communities. Worse yet, I thought, was that if zoning codes did not evolve dramatically, they would become irrelevant. Zoning attorneys suffer enough without being accused of irrelevance. Thus was hatched the idea of what I call the sustainable community development code. The idea is simple: Make sure development codes directly address sustainability issues like energy conservation and production—for example, by removing impediments to compact residential wind turbines or requiring subdivisions to be laid out to take advantage of solar power.

Definition, please

At this point, it is useful to step back and define key terms—like "sustainability" and "sustainable development." Thomas Jefferson said it in a way that appeals to me: "Then I say the earth belongs to each generation during its own course, fully and in its own right, but no generation can contract debts greater than can be paid during the course of its own existence." A more modern definition of a sustainable community was offered by the Brundtland Commission, which studied sustainability in the 1980s: "[Sustainable developments] meet the needs of the present while ensuring that future generations have the same or better opportunities."

By these definitions, it is fair to say that few of our communities can claim to be sustainable, though many are trying. As a father of two young men, I worry that we are not giving our children the same opportunities that our generation had and that we are undermining that most cherished American value: choice. Simply put, unless we clean up our houses, our children will not have the same choices we have enjoyed.

We must act now—there is no time to lose. Polar ice is melting at an alarming rate. We are beginning to run out of fossil fuels just when China and India are creating enormous new demands. A global population surge will gobble up enormous amounts of food just as our land base is being diverted to fuel crops. Witness the tortilla riots in Mexico City caused by skyrocketing corn prices in the U.S. linked to ethanol production. High grain prices have also contributed to a huge surge in milk prices—46 percent worldwide since November 2006 (a rise one newspaper headlined as "udderly amazing"). On the health front, obesity continues to soar in western countries—in 2004, it was estimated that 60 percent of the U.S. population and 15 percent of our children were overweight or obese—with dire health consequences and costs. In 1960 we spent about five percent of our GNP on health care, but by 2005 that had increased to 16 percent—$2 trillion in all.

Zoning to the rescue?

But what can a local zoning code do about these huge global issues? Plenty! Ask any local elected official what their most powerful and effective tool is to shape and protect their community and most will say, "our zoning code." A recent issue of *Time* magazine devoted to global warming provided a list of 51 steps the average person can take to save the planet, including 13 pertinent to land use and zoning regulations, like "ditching the McMansion" and installing compact wind turbines.

Local action is key. While the federal government seems to be in denial, mayors and local governments are leading the way in implementing sustainable policies and plans. If local governments do not act, they risk being preempted by state governments—already in California and Nevada the state legislatures have partially stripped cities and counties of their powers to regulate solar and wind power devices.

So what is wrong with the existing zoning models? While each type has its strengths, all have glaring weaknesses when it comes to sustainability. Euclidean zoning can protect neighborhoods by keeping out incompatible uses, but it can also stifle mixed use developments that may help reduce auto traffic and air pollution. At the same time, it can contribute to sprawl by forcing uses apart and limiting density.

Form-based regulations have admirably promoted mixed use development and pedestrian mobility, but often ignore natural resource issues or favor design over the environment—"design without nature" according to some critics. Indeed, one leading new urbanist spokesman recently suggested that wetlands laws be weakened because they do not allow us to build "the places we love," as he put it. This at a time when Louisiana is looking to spend $25 billion to recreate wetlands to protect that state's cities from another round of devastating storms and floods.

The answer is to build on the best attributes of these other code approaches, but address a far wider range of issues like energy, climate change, food security, and health. The sustainable code must be tailored, and it must help shape new development to live in harmony with nature rather than trying to trump it.

Some details

How would a sustainable code work and what would it look like? The sustainable community development code of the future is beginning to take shape under the auspices of the Rocky Mountain Land Use Institute at the University of Denver School of Law. This code will follow three paths to sustainability:

- Removing obstacles: Most modern codes create barriers to sustainability, often unintentionally. For example, small wind turbines and solar panels are often prohibited by residential zoning regulations, height controls, or design standards.
- Creating incentives: Some sustainable technologies are relatively new and experimental—like green roofs. Zoning codes can foster increased density and other incentives to encourage use of such technologies.
- Enacting standards: While removing obstacles and creating incentives will be important, no zoning code can succeed without mandatory regulations that require certain actions or prevent harm. As Teddy Roosevelt once said, a smile and a six-shooter sometimes work better than a smile alone. For example, protective regulations may be essential to preserving trees that help sop up carbon dioxide.

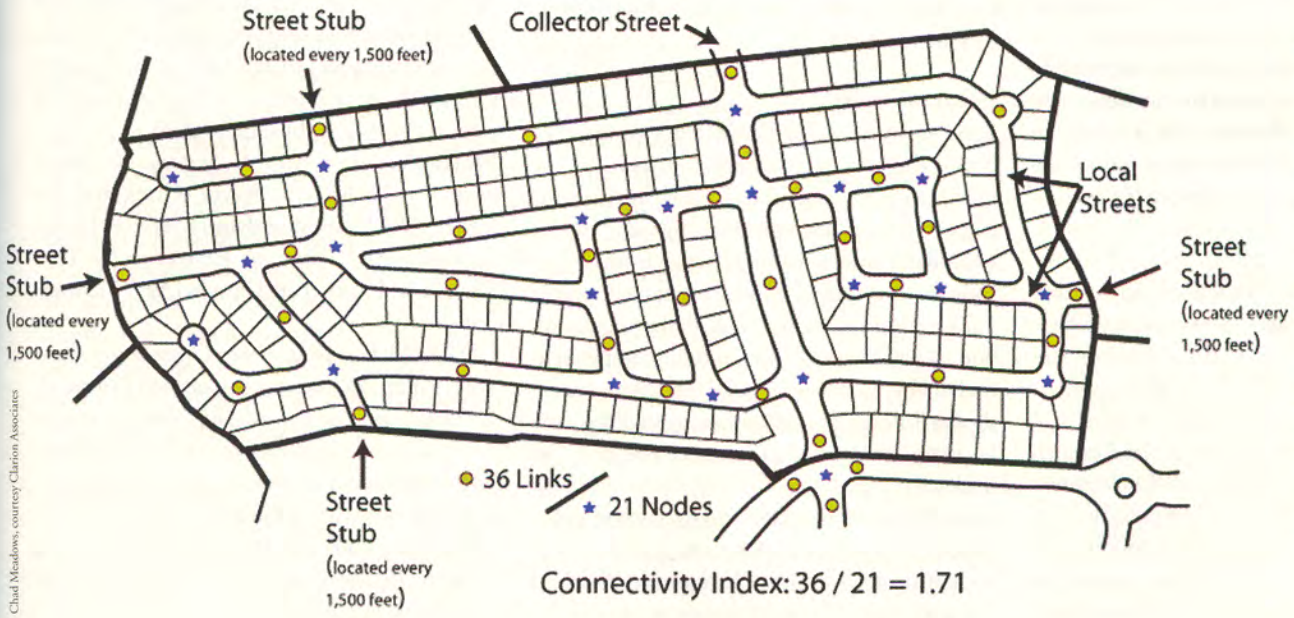
How might these three approaches play out in the context of key sustainability issues like energy conservation and production, climate change, food security, and health and safety?

Saving energy

While fossil fuels and nuclear power will undoubtedly continue to supply most of our energy needs in the near term, alternative fuels like solar and wind power are quickly gaining ground. A federal research lab estimates that wind power could realistically provide 20 percent of the nation's energy needs. Using current technology, a microturbine with six-foot blades on a 50-foot pole could supply all of the energy needs for two homes in a moderate wind area. Passive solar and solar panels offer similar promise.

Unfortunately, when the Joneses go solar, planners are often the ones to feel the heat. In California, zoning restrictions on residential rooftop solar panels led the state to prohibit local governments from denying solar energy panels solely on aesthetic grounds. Local planners can get ahead of the game by reexamining their accessory use and design standards for residential areas to make sure small-scale solar and wind power devices are not unduly restricted.

Courtesy Williamson County Tourism



Chad Meadows, courtesy Clarion Associates

A diagram of a neighborhood in Franklin, Tennessee, shows how linked together the community is. The city scores proposed new developments using a numerical connectivity index. Above: Walkers and joggers on the Pinkerton Park Walking Trail in Franklin.

Bruce Darrell, www.foodurbanism.blogspot.com

Solar and wind power devices need not be ugly. Already companies are producing solar roof panels that are almost indistinguishable from ordinary shingles, and compact wind turbines are not much bigger than the average house box fan. Yet most zoning ordinances prohibit their use out of hand or indirectly through height regulations or aesthetic standards.

Local zoning regulations can also help promote solar power by making sure buildings have access to the sun. After all, light access was one of the powerful rationales for adopting zoning ordinances back in the early 1900s.

During the energy crisis in the 1970s, Colorado and some other states adopted legislation requiring local governments to protect solar access at the site level. Boulder, Colorado, is one of the few cities in the state that still has such a regulatory regime in place. It assesses every residential building application to ensure that new homes do not encroach on the solar envelope of neighboring parcels. In urban areas where planners are promoting taller, denser developments to support transit and limit sprawl, protecting solar access will be an interesting juggling act.

Ambitious jurisdictions will go beyond protecting solar access building by building—they will require developers to consider solar access in laying out entire subdivisions. Western cities like Cheyenne, Wyoming, were laid out over 100 years ago with wide streets canted at an angle to take advantage of the bright western winter sun. Already subdivisions in such widely disparate locations as Drake Landing, Alberta, and Davis, California, are being designed so that each lot receives maximum solar exposure. A few cities like Fort Collins, Colorado, and Multnomah, Oregon, have enacted regulations requiring that a specified percentage of lots in new subdivisions—20 to 30 percent—must be oriented to take advantage of solar. Do not be surprised to see other communities going further, following the lead of Aspen, Colorado, which assigns an energy budget to new developments and imposes an energy fee if the budget is exceeded.

Climate change

Local zoning regulations are also being used to combat climate change. New urbanists have made a major contribution to local development codes by promoting mixed use developments that reduce reliance on the automobile, thus cutting back carbon dioxide emissions. Research shows that a compact mixed use development can reduce auto use by five to 15 percent.

A good first step for local governments is to create districts that remove hurdles to mixed use developments. They can do much more, however. Portland, Oregon, has created a powerful incentive for green roofs that can soak up carbon dioxide emissions (and reduce stormwater runoff) by giving developers a height bonus for installing them on commercial buildings. Similarly, Austin, Texas, gives bonus points toward meeting commercial design standards for developments that use "cool" roofs.

Tree preservation regulations, which have become increasingly common over the past 20 years, will be even more important as local officials recognize that protecting and planting trees is one of the keys to rein in skyrocketing carbon dioxide levels.

Do not be surprised to see more and more American cities requiring developments to be "carbon neutral," as European cities are reportedly already doing. The concept is similar to the "no net loss" offset idea being applied to wetlands. In this approach, the total amount of carbon emissions projected from a development (additional traffic, use of energy in producing building materials) must be offset, for example, by planting trees.

Food security

Food security and self-sufficiency promise to become a critical sustainability issue in the near future. In 2006, the U.S. for the first time imported more food products by value than it exported. Food increasingly comes from distant sources, the average food item traveling over 1,500 miles in this country. With the population booms in China and India and the competition for land by agricultural-based fuels like ethanol, there is little doubt that food security will become an issue for developed nations, not only for underdeveloped ones. To feed their citizens at reasonable cost and reduce energy consumption related to food transportation, pioneer cities are setting goals for local food production and self-sufficiency. Toronto hopes to supply 25 percent of its fruit and vegetable production from within city limits by 2025.

The problem is that planners (like most everyone) see urban communities as food consumption areas and rural areas as food production sources. Urban agriculture and husbandry are either not addressed or outright prohibited in most places—but that is beginning to change. A growing list of cities including New York and Chicago allow raising of animals and fowls for noncommercial purposes. Having a few chickens poses no public health issues, but take a tip from a Kansas farm boy: Be sure to

Resources

In print. Lester Brown's book, *Plan B: Rescuing a Planet Under Stress and a Civilization in Trouble,* was published in 2006 by W.W. Norton. APA publications that address climate change include *Smart Growth in a Changing World,* edited by Jonathan Barnett, and the August/September 2007 issue of *Planning.* For a report on green zoning ordinances in the U.S., see "Building Green: Onus or Bonus?" in the April issue of *Zoning Practice,* published by APA.

More. *Planners Guide to Sustainable Development* (PAS 467) by Kevin Krizek and Joe Power (APA Planning Advisory Service, 1996); *Environmental Planning Handbook* by Tom Daniels and Katherine Daniels (APA Planners Press, 2003).

CD-ROM Training. *Green Community Planning* (American Institute of Certified Planners); *Contemporary Zoning and Codes: Best of Contemporary Community Planning 2004* (APA Education and Lincoln Institute of Land Policy).

Coming soon. Model provisions for a sustainable zoning code will be available this spring from the Rocky Mountain Land Use Institute: www.law.du.edu.rmlui.

Chris Duerksen

An old car gets new life as a garden in Toronto—part of the Community Vehicular Reclamation Project put on by a local group called Streets Are For People. Above: Sustainable development codes don't prohibit use of open space and public lands; they encourage it.

prohibit roosters unless neighbors want an early morning wake-up call.

Those vast expanses of vacant lots in cities also have enormous potential for urban gardens. Surveys show that Chicago has over 70,000 vacant lots and Detroit 60,000. Not only can these lots help provide healthy food at low cost to city dwellers, but as the national Urban Agriculture report observed, urban agriculture has a "regenerative effect . . . when vacant lots are transformed from eyesores—weedy, trash-ridden dangerous gathering places—into bountiful, beautiful, and safe gardens that feed people's bodies and souls."

Zoning regulations can help push this transformation. Think of all the tot lots that have been created to satisfy local open space requirements. Why not allow urban gardens as an alternative or require mixed use developments to buy one of those vacant lots and make it available for local food production? Far-fetched? Planning history teaches us otherwise. Witness the Mormons, who embraced one of the most sophisticated town planning laws in the world as they settled the West—they required each home owner to plant two fruit trees to help make their communities self-sufficient.

Health and safety

My grandmother would often tell me that if you had your health, you had everything. As a young invincible teenager, that refrain puzzled me no end; it seemed so unambitious. Now as I approach 60, I know exactly what she meant. Having your health, enough food to eat, and a decent job is about 90 percent of the game of life. But the signs are troubling for the richest nation in the world when it comes to health and safety of its population.

The U.S. just fell out of the top 40 countries in the world when it comes to life expectancy. No surprise there in view of the troubling national statistics about obesity, diabetes, and other ailments. The public health community is telling us diets or surgery will not get us out of this crisis. They are joining with planners in calling for healthier and safer communities. Safety is a handmaiden of health. As we witness the consequences of building in harm's way—the grim lessons of Katrina and the wildfires in the West—national leaders are finally waking up to the value of good planning.

Strong zoning and design standards can pave the way for healthy communities by requiring connectivity among developments. One study found that counties with higher residential densities and smaller block sizes had residents who walked more, had lower body mass index, and were less likely to be obese or have high blood pressure.

Many communities are taking on the challenge. Franklin, Tennessee, a progressive suburb of Nashville, has adopted a numerical connectivity index for new developments, as have Orlando and San Antonio. Franklin requires a minimum number of connections both within new subdivisions and to surrounding developments.

Development standards can also help preserve access to public lands. That access is increasingly being cut off by new projects, especially in the West. Losing it can have significant health consequences because city and town dwellers have less room to exercise and fewer opportunities for stress-reducing recreation.

By requiring new master planned communities and residential developments to lay out safe pedestrian routes to schools, commercial centers, and public buildings, planners can put a stop to grim statistics like this: The major cause of death among Hispanics in Los Angeles is traffic accidents—not in cars but as pedestrians because of lack of sidewalks and safe walking routes. Many Americans say they would like to walk or bike to work if it were safe and convenient, yet one-fourth of all walking trips are made on roads with no sidewalks or wide shoulders.

The time is ripe

Sustainability encompasses many other issues: housing, wildlife habitat protection, water conservation, and transportation—almost to the point of being overwhelming. Believe me, however, people are ready for the sustainable development code. While rooftop gardens on cars like the one I saw in Anchorage may be a stretch, the average Joe and Jane Homeowner and elected officials are asking—no, demanding, "What can we do?"

There has never been a more exciting time to be a planner and to make the world a better place, which after all is why most of us chose this career path. But some planners I speak with, both in small and large communities, seem beleaguered. They say they are swamped with day-to-day demands, leaving them little time to think about the big picture. The solution? Pursue what I call the low-hanging fruit strategy—go after the easy wins at the local level.

Getting started has great power and genius. But be smart about how you come out of the starting gate, for example by using menus of standards instead of just command and control zoning regulations that give developers few options.

Begin by trolling through your existing code and removing obstacles to sustainability like those described here. Add optional mixed use zoning districts and sugar-coat them with incentives so they are easier to use than the standard Euclidean single-use zones. Allow for urban gardens as an optional way to provide open space. Take a cue from Austin, Texas, or Boulder, Colorado, and adopt menus of sustainable options (green roofs, showers in office buildings to promote bicycling to work) that allow developers to pick and choose how they will meet commercial or residential design standards.

And don't forget that a successful sustainable development code will have its roots in a sustainable community plan that lays a strong foundation based on thoughtful, thorough deliberation and citizen engagement, not quick three-day charrettes.

Building sustainable communities is the great challenge of our lives. To paraphrase Marjorie Stoneman Douglas, that great protector of the Everglades: This is a test. If we pass it, we may get to keep our planet. The sustainable community development code can play a key role in passing that test.

Chris Duerksen is a land-use attorney and managing director of Clarion Associates, a growth management consulting firm with offices in Colorado, North Carolina, Florida, Ohio, Illinois, and Pennsylvania. He thanks James Van Hemert of the Rocky Mountain Land Use Institute for his insights in developing the Sustainable Community Development Code concept. Research was conducted by Darcie White, AICP, Erica Heller, and Jeff Hirt of Clarion Associates; Joe Holmes, a law school student at UCLA, also contributed to this article.