THE CLEVELAND ECOVILLAGE

Inside

A day in the life of the future Eco Village

Oberlin's green building

Principles of ecological design

Eco Village resources

Good words

We must face the fact that what we are seeing across the world today is war, a war against life itself.

Our present systems of design have created a world that grows far beyond the capacity of the environment to sustain life into the future.

The industrial idiom of design, failing to honor the principles of nature, can only violate them, producing waste and harm, regardless of purported intention.

If we destroy more forests, burn more garbage, drift-net more fish, burn more coal, bleach more paper, destroy more topsoil, poison more insects, build over more habitats, dam more rivers, produce more toxic and radioactive waste, we are creating a vast industrial machine, not for living in, but for dying in.

It is a war, to be sure, a war that only a few generations can surely survive.

—William McDonough

What is the use of a house if you haven't got a tolerable planet to put it on?

—Henry David Thoreau

Older cities like Cleveland are now being redeveloped, and it is vital that this regeneration take into account ecological design and long-term sustainability.

The Cleveland EcoVillage project aims to demonstrate how urban neighborhoods can be good for people and good for the earth.

An early progress report on pages 3-9, with color centerfold of conceptual plan.
Greening Cleveland

As a native of Greater Cleveland, I am painfully aware that my home town doesn’t exactly have a reputation for being on the environmental cutting edge. So I’m extremely pleased to publish this special issue featuring our Cleveland ECOvillage project. This project is still in its infancy, but it shows promise of becoming a national demonstration of the best ideas for regenerating urban neighborhoods. It’s already attracted federal funding. And our lead partner in the project, the Detroit Shoreway Community Development Organization, is one of the most capable and supportively network-based development groups in the city.

With such a strong start—and along with the many other positive environmental initiatives happening in Cleveland—it may not be long before the “Forest City” earns a new reputation as the “Green City” or the “Sustainable City.” That’s a reputation we could live with for a long time.

EcoCity on the Web

During the past few months, EcoCity Cleveland has been phasing in a new Internet Web site at www.ecocleveland.org. Eventually the site will have all the back issues of our journal, interactive mapping capability as part of our own bioregional Plan project, a frequently updated Bioregional Calendar, and much more. We hope it will become an essential resource for citizens of the region.

Thanks

We have many people to thank for assistance during the past few months. A donation from Herbert Crouch is enabling us to seed subscriptions to all of the county commissioners in the seven-county region. (Giving subscription gifts to public officials is a great way to support EcoCity Cleveland and spread our influence!) We also appreciate a grant from the Cyrus Eaton Foundation to support the publication of our Citizens’ Bioregional Plan project, as well as grants from the Nelson Talbott Foundation and the Raymond John Wean Foundation. And in the category of “unusual but appreciated gifts,” we’d like to thank Trinity Cathedral in Cleveland for a special offering from its Blessing of the Animals service and the Beastie Boys rock group for donating a portion of ticket sales from a concert in Cleveland last summer. (The Beastie Boys, we might add, are recently named “Artists of the Year” by Rolling Stone magazine. Our donors are the best!) One of our advisory Board members should be noted: George Espey, executive director of the Lorain County environmental group Seventh Generation, a good friend to Roberts Wold, who had represented Friends of the Black River. We thank Roberts for serving.

Finaly, it’s been awhile since our last issue. We appreciate the patience of our readers.

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Inside Strategy

Cities can be good for people and good for the earth.

Faith in real cities

This special issue is rooted in an unexpected faith in cities—a faith that cities are good for people and good for the earth.

This faith is unexpected because people often have the opposite view—that cities are the home of humanity’s darker impulses and most wasteful behaviors. Cities are unstable consumers of resources and waste producers of pollution. They exert tremendous ecological pressures on the rest of the planet.

But cities also present opportunities. By concentrating population in compact areas, they can help conserve the land. By developing sophisticated treatment systems, they can minimize the waste pollution of millions of people. By promoting compact neighborhoods and public transit, they can reduce housing costs and dependence on the automobile. By facilitating trade and social interaction, they promote the flowering of human culture.

In many ways, then, cities can be the places where the most people can live full lives with the least impact on the earth. Indeed, we have to make this so because the majority of the world’s six billion people will soon live in urban areas. We have no choice but to make cities as ecological as possible.

In Northeast Ohio, older industrial cities such as Cleveland have declined, bottomed out, and started to redemblip. In this process of regeneration, we have a chance to adopt different design principles. Instead of industrial-age design principles based on the domination of nature and the endless consumption of fossil fuels, we can adopt ecological design principles that help us work with natural systems and the renewable cycles of solar energy.

To succeed, we need to regenerate cities from the inside and from the outside. Inside of cities, we must reinvent great neighborhoods. On the edges of metropolitan areas, we must reduce the suburban sprawl that sucks life from the urban core.

The Cleveland ECOvillage project, a partnership of EcoCity Cleveland and the Detroit Shoreway Community Development Organization, is part of the inside strategy. It aims to demonstrate how an urban neighborhood can be redeveloped using the best ecological thinking. It focuses on an existing neighborhood, a “real” place. In contrast, many of the eco-village projects popular around the world are somewhat utopian. They involve well-off people building their solar farms together in a remote and scenic location. Such projects often demonstrate important ideas and technology, but most of the rest of the world can’t live like that. The real challenge is to build sustainable communities where most people now live—in places like Cleveland, Ohio.

Mission

EcoCity Cleveland is a nonprofit, nonprofit, educational organization. Through the publication of the EcoCity Cleveland Journal and other programs, it will stimulate ecological thinking about the Northeast Ohio region (Cuyahoga Bioregion), and to an Ecocity Network: a strong local group working on urban and environmental issues, and promote sustainable ways to meet basic human needs for food, shelter, productive work, and quality communities.

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EcoCity Cleveland O Winter 1998-99

What is an ecovillage?

Robert Gilham, in his book Ecovillages and Sustainable Communities, offers this definition and explanation:

An ecovillage is a human-scale, full-fledged settlement in which human activities are harmoniously integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future.

Humanscale refers to a size in which people are able to know and be known by the others in the community, and where each member of the community feels he or she is able to influence the community’s direction.

In this sense of settlement, all the major functions of normal living—residence, food provision, manufacture, leisure, social life, and community—are plainly present and in balanced proportions.

The idea that human activities be harmoniously integrated into the natural world would bring the “sense” into the ecovillage. One of the most important aspects of this principle is the ideal of equality between humans and nature. The ecovillage aims to test in a meaningful attempt to dominate nature but rather find their place within it. Another important principle is the ecological use of material resources, rather than the linear approaches (dig it up, use it once, throw it away forever) that has characterized industrial society.

The principle of support for healthy human development recognizes that ecovillages are, after all, human communities, and without genuine human health at the heart of all these considerations, they are unlikely to be successful. Healthy human development involves a balanced and integrated development of all aspects of human life (material, emotional, mental, and spiritual). This healthy development needs to be expressed not just in the lives of individuals, but in the life of the community as a whole.

The sustainability principle—that the community can and must live within its local ecological future—fosters a kind of balance on ecovillages. Without it, it would be easy (or at least easier) in the short-term to sacrifice community sustainability. But it is possible to develop policies and strategies that seem to be harmoniously integrated into nature and to be full-featured, but that are in some not-so-visible ways lost (the capital accumulated) in other parts of the society, or dependent on unsustainable alternatives elsewhere, or not inclusive of a major aspect of life (such as childhood or old-age).

The sustainability principle brings with it a profound commitment to fairness and new perspectives—other parts of life, other parts of the world, human and non-human, and toward all future life.
Step by step to a Cleveland EcoVillage

The organizational process of an ecovillage project is as important as the environmentally-friendly technologies employed. The Cleveland EcoVillage features an interesting partnership between an environmental organization and a neighborhood-based development organization. Here is how the project evolved.

By David Beach

The original motivation was simple enough. By the mid-1990s Cleveland was starting to experience significant redevelopment, but little of that development was taking the environment into account. It was mostly conventional development—conventional construction methods, conventional styles of housing and stores. Rare, a few projects incorporated better-than-normal insulation to save energy.

Another project featured houses with front porches set close to the street to create an attractive public space for pedestrians. But no project had taken all the available ideas for environmentally-friendly development and put them together in one place. And that was a missed opportunity to develop in a more thoughtful, sustainable way.

It seemed like the neighborhood development groups—who were doing heroic work to stabilize communities and turn them around—might want to incorporate ecological designs into their projects, but they were constrained by time and resources. Given the city's tremendous needs, the groups were under pressure to crank out the new housing units as fast as possible.

Perhaps, then, environmental groups, who have lots of ideas and information, could become partners with the neighborhood groups, who have nuts-and-bolts development experience. Together, perhaps they could garner the additional resources to change the nature of development in the city.

If a comprehensive "ecovillage" development could happen in Cleveland, it would be noteworthy indeed. It could help show the world how older, industrial cities could become more sustainable. It could become a model for urban regeneration.

Getting started

That was the thinking of the staff of a number of Cleveland-area environmental and citizen groups in late 1995. We had been meeting to talk about the Regional Environmental Priorities Project (REPP), an initiative of Case Western Reserve University to rank the most serious environmental problems facing Northeast Ohio. We looked at the REPP's top priorities—suburban sprawl and...
The urgent need for ecocities

The search for a new vision for cities has even more urgency now. In 2000, only 1.6 million people, one tenth of the world’s population, were city dwellers. By shorty after 2000, in contrast, half of the world’s 3.2 billion people will live in urban areas, a projected 1.4 billion increase in numbers. The challenge for the next century will be to increase the environmental conditions of cities sustainably while reducing the demands that they put on the earth’s finite resources.

—from State of the World 2002 by the Worldwatch Institute

I became interested in cities not because I love cities, but rather because I began to understand them. In particular, I recognized two things now that I didn’t realize before. First, if we want our cities to be environmentally sustainable, we must have a transitional lifestyle. Second, although we may want to develop a new kind of city, we may not have the opportunity to do so. Few neighborhoods are wealthy enough to develop a green city on their own. Thus, we need the assistance of experts to help us transform our cities into ecocities.

Lorain Avenue near W. 65th: The old commercial arteries of Cleveland can offer an efficient mix of land uses in a walkable environment.

...a walkable meaningful community that is self-sustaining and affordable.

EcoCity Cleveland O Winter 1998-99

EcoVillage goals

An ecovillage is defined as a human scale, full featured neighborhood which simultaneously integrates human activities into the natural world, supports healthy human development, and can be successfully conflated into the indefinite future.

An ecovillage articulates the concepts and principles of sustainable ur ban development at the neighborhood scale, expressing these principles as they are appropriate for that particular life style. While the greenway an ecovillage will be built and evolve will be determined by its inhabitants in partnership with the broader community, a fully-developed ecovillage will:

• Demonstrate to the broader community how ecological systems (water, energy, habitats) can be made sustainable at the neighborhood scale.

• Institute closed loop resource flows, meaning that the resource and energy inputs and outputs of the village will be understood and, to the degree possible, wastes would be reprocessed into products and energy.

• Emphasize both diversity and connection among social groups, people, cultures, incomes and races.

• Emphasize direct and opportunities on the buy side, as well, creating a diversity in housing function (single family, multi-family, collaborative) and style (town houses, apartment, detached, mixed with commercial, office and community spaces).”

• Seek a balance of public and private spaces. A lack of public spaces makes cities less livable. Quality public spaces are a basic human need.

• Emphasize uncommon and buildings at a human scale to increase the conviviality or livability of urban spaces. Attempt to create human interaction and conversations through the design of the buildings.

• Emphasize and educate the community toward ecological stewardship and restoration. The village will allow inhabitants to enhance urban green space, minimize waste, and restore environmentally degraded urban habitats for people and other species.

• Create a more healthy community, free from pollution and diseases that harm the most vulnerable people.

• Improve the ambient environmental quality in the neighboring, including air and water quality, the amount and types of green spaces, and the condition of housing and overall aesthetic qualities.

• Offer opportunities for inhabitants to fulfill their potential by integrating physical, emotional, and social development, job training and skill building.

• Use local resources and expertise when possible. Use local building materials, locally-inspired architecture, adapt buildings to local climate changes and settings. Draw on the knowledge of local experts and the knowledge of community members to plan, realize, manage and manage the land and buildings.

• Empower neighborhood residents to articulate and participate in decisions that affect their neighborhood.

—Wendy Kellogg, 1995 College of Urban Affairs

LORAIN AVENUE

RTA's W. 65th Street Rapid Transit stop: Little used today, it could be redeveloped as the center of a transit-oriented village.
The grant went to Detroit Shoreway, and in January 1999 the organization hired David Comicelli as ecovillage project manager. Comicelli formerly was environmental education director of Seventh Generation, the Lorain County environmental group, and assistant director of the Center for the Environment at Case Western Reserve University. He also served as director of economic development of the City of Oberlin. He has a master's degree in urban studies from the University of Akron.

In the coming months, the project staff will work toward a number of objectives:

- **Development around the Rapid Station:** We will work with RTA on the design for a redeveloped W. 65th Street Rapid station and development adjacent to the station. RTA staff have made it a priority to cooperate with the ecovillage project and take a broader view of how a transit stop can be linked to a neighborhood.

  Development work could also include street design improvements to create more pedestrian-friendly public spaces, as well as housing developments near the Rapid station.

- **Neighborhood organizing:** We will continue to develop broad-based support for the project and foster public involvement. This will include a community advisory committee, neighborhood meetings, informational displays, newsletters, and information on EcoCity Cleveland's Web site (www.ecoecleveland.org).

- **Technical organizing:** We will form a technical advisory committee of leading experts in ecological design and green building, and then we will begin developing programs for urban gardening, habitat restoration, energy conservation, and environmental education.

- **Funding:** We will continue fundraising from local and national sources, and we will promote creative financing mechanisms, such as location-efficient mortgages and energy-efficient mortgages (special mortgages that give homebuyers credit for the money they save from reduced transportation or energy costs).

### A home for new ideas

We believe that the Cleveland EcoVillage project has tremendous potential. It can become an interdisciplinary place where many new ideas—and many partners—can find a home. It can demonstrate the best thinking about neighborhood redevelopment, ecological design, and sustainable communities.

It might even give Cleveland a new reputation as a green city—a city that takes less from the earth and gives more to people.

For more information:
- David Comicelli, Cleveland EcoVillage project manager, Detroit Shoreway Community Development Organization, 6516 Detroit Ave., Cleveland, OH 44120, (216) 961-4242, e-mail: ecovillage.cleveland@gmail.com
- David Blasch, EcoCity Cleveland, 2841 Scarborough Rd., Cleveland Heights, OH 44118, (216) 972-3007, e-mail: eco.cleveland@gmail.com

### EcoVillage as laboratory

This spring semester, undergraduate environmental and urban studies students will contribute their energy and skills to the Cleveland EcoVillage project. Two classes at the Lewis College of Urban Affairs at Cleveland State University, led by Prof. Wendy Kellogg and Roberta Stahlschner, will complete a baseline inventory and history of neighborhood conditions in the EcoVillage planning area for the Detroit Shoreway Community Development Organization.

The students will gather information on both the ecological (geology, hydrology, vegetation, etc.) and social (cultural, economic, infrastructure, land use) characteristics of the neighborhood in the EcoVillage planning area.

They will also document the historic development of the neighborhood during the 19th and 20th centuries, particularly as development changed the area's environmental conditions.

This "environmental history" will help answer a number of questions about the neighborhood:
- What were ecological conditions prior to urbanization?
- What vegetation and habitat existed prior to urbanization?
- What animal species lived in the area?
- Did the EcoVillage area historically have any streams, lakes, or wetlands?
- From where did early residents get their drinking water and to where did they dispose of waste?
- How did development of infrastructure—water and sewer lines and streets and highways—change the physical geography of the area?
- How does the EcoVillage run as a sustainable community?

### Why do it?

Cleveland is now being redeveloped, and it is vital that this regeneration take into account ecological design and long-term sustainability. This project can create a model for other neighborhoods in Cleveland and for other cities across the nation. We can start to put Cleveland on the map as a "green city." And by improving the quality of urban life, we will reduce pressures for wasteful urban sprawl.

### Who are the partners?

The Cleveland EcoVillage project is a partnership between one of Cleveland's leading neighborhood-based development organizations, the Detroit Shoreway Community Development Organization, and an environmental research and planning organization, EcoCity Cleveland. In addition to those groups, the project will involve the Greater Cleveland RTA, private developers, the City of Cleveland, other neighborhood development organizations, and other environmental organizations.

### What is the location?

The EcoVillage planning area centers on the W. 65th Street Rapid station and surrounding neighborhood on the west side of Cleveland. It is an ethnically diverse community with residents of low to moderate incomes. Development opportunities include the Rapid Station, adjacent commercial strip, nearby church campuses, and vacant lots for infill housing. Existing homes and businesses could be rebuffed.

### What design concepts are being considered?

The EcoVillage can become a transit-oriented village, with mixed-use developments centered on the Rapid Station, higher density housing in proximity to transit, and pedestrian/bike links throughout the neighborhood. Innovative housing concepts, such as cohousing, are also being considered.

### What environmental programs might be included?

In addition to new development, the EcoVillage could include neighborhood programs for recycling, urban gardening, habitat restoration, environmental education, development of environmental businesses, and more. It could also promote changes in building codes.

### What are the funding sources?

Initial planning for the EcoVillage has been supported by the George Gund Foundation, the Katherine and Lee Chilcote Foundation, and the Cleveland Cityworks program. Funding for a project manager has been provided by U.S. EPA.

### What has the project accomplished to date?

In the past two years the Cleveland EcoVillage project partners have completed a feasibility study and site selection process that evaluated potential sites throughout the City of Cleveland. Once the W. 65th site was selected, the partners spent a great deal of time cultivating support in the neighborhood—meeting with local block clubs, churches, the city councilman, other city officials, and RTA staff members. In December 1997, a design charrette was held in the neighborhood to solicit ideas for the project's conceptual plan. The firm of City Architecture was hired to help develop the conceptual plan. The most of the essential groundwork has been completed, the partners have hired a full-time project manager.

### W. 65th station design meeting May 6

The Greater Cleveland RTA and the Cleveland EcoVillage project will host a public meeting on May 6 to solicit input on design options for the reconstruction of the W. 65th Street Rapid Station. The meeting will be held at 7 p.m. at St. Colman's Church (corner of W. 65th and Madison Avenue). RTA officials and the station design team from MIA Architect will attend, and the meeting will be facilitated by staff of the Project for Public Spaces, an organization that specializes in creating pedestrian-oriented streets and parks.

For more information about the CSU classes, contact Wendy Kellogg at 216-687-5265 or wendy@wolfcsuohio.edu.

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**EcoCity Cleveland Winter 1998-99**
A day in the life of
the Cleveland EcoVillage,
June 1, 2010

Julie woke early with sunlight on her face. She loved waking up in her new bedroom. It was so light and airy that she often felt like she was floating. It wasn't a large bedroom. In fact, her townhouse would probably be described as "cory" in a real estate ad. But it felt large and open because of the abundant windows and skylights.

When she had moved into the development, the realtor had bragged about the windows and the building's passive solar design. At the time, she hadn't understood what that meant, but now that she had lived there for a year she had seen how her townhouse respected the sun. Windows and overhangs were precisely oriented to let in sunlight in the mornings and evenings, and also during the winter months when the sun was low in the sky. At noon the sunlight on her face. She loved waking every morning.

Her school was different, too. It was called the Kirtland Ecology School (named after Jared Peter Kirtland, the 19th century Cleveland-area naturalist). It was a charter school within the Cleveland Public Schools and had a customized Montessori curriculum based on environmental stewardship and neighborhood development. The students planted organic gardens, studied math and measurement on construction sites, and learned geography by studying the migration routes of songbirds. In May the fifth-grade students went on a field trip west of Cleveland to witness the spring warbler migration along Lake Erie. Josh was amazed to see 48 different birds, and he proudly checked them off in his field guide. Although Kirtland School was just three years old, it was already gaining a reputation for motivating kids to achieve. Scores on state proficiency tests were as high as scores at many suburban schools.

Many other students were involved in the neighborhood. Indeed, the Eco Village had become a living laboratory for all kinds of projects and research activities. High school students had developed a recycling and composting program that had cut the neighborhood's waste stream in half. Urban planning students from Cleveland State University had helped plan bikeway and pedestrian routes. NASA scientists were testing hydrogen fuel cells and photovoltaic panels as power supplies for public buildings. Business students were helping to recruit companies to the Eco Village's eco-industrial park in which the waste-by-products from one plant became the valuable feedstocks of another.

And Cleveland Public Power technicians were monitoring energy use. They had an Internet Web site that tracked the neighborhood's electricity consumption hour by hour, along with how many tons of air pollutants that energy efficiency measures were preventing. Currently, Eco Village residents were using about half the power per capita of a conventional neighborhood. Additional savings were on the way as more of the older homes in the neighborhood received state-of-the-art energy retrofits financed by the municipal utility. The retrofits included insulation, high-efficiency furnaces, and super-efficient windows. The windows were produced by a local company that employed many city residents, so the neighborhood's energy dollars were being invested in the local economy rather than sent out of state to purchase power. Julie was reminded of the energy and money savings as she flipped on the bathroom light (a water-conserving showerhead drawing water from a solar hot water heating system on the building's roof). The combination of the townhouse's smart solar design, super insulation, and high-efficiency appliances made her utility bills so low that at first she thought there must be some mistake.

But now she was enjoying the savings. She kept part of the money in her pocket as extra disposable income. And another part went into her mortgage. In fact, a big reason that she was able to afford a beautiful, new home was the innovative financing package offered in the Eco Village. Not only did a portion of her home's energy savings help qualify her for a bigger mortgage, but so did a part of her transportation savings. By living in a neighborhood with such good transit service, she didn't need a car. And that put thousands of dollars back into her pocket. As a result, she could afford more house in the Eco Village than she could anywhere else. Of course, it had taken her a while to get used to the idea of a car-free lifestyle. But it was amazing how it could work if you lived in a compact neighborhood with stores close by. If she couldn't find what she needed in the shopping court built over the Rapid station, she could hop on a community circulator bus and quickly get to other shopping areas. And the West Side Market was just one stop away on the Rapid.

If she needed to carry a lot of groceries or wanted to go somewhere that was hard to get to by bus, she could always rent a car. There were so many car-free people in the Eco Village that a co-op rental business had developed. Julia could walk down to the corner and pick up a car for a day or for a couple of hours. Anything from a small compact to a minivan was available, including electric vehicles that reduced pollution. It was a lot cheaper to rent a car for the few times she really needed one than to own one all the time. And she was glad to give up the worries of car ownership and maintenance.

After dropping Josh off at school, she mailed a letter at the new post office that had been conveniently located next to the Rapid station. Outside the post office was an attractive plaza surrounded by other shops and a day care center. Above the stores were three to five stories of terraced apartments. With the transit, retail, services and housing all mixed together, the plaza was a center of activity all day long. Old-time residents told Julia that the old W. 65th Street Rapid stop had once been a decrepit and dangerous place that people avoided. Now it was a lively, fun place, and
As Julie headed for the boarding platform, she ran into Maria, a member of her new "supper club." The organizers of the EcoVillage had been very good at linking residents together and creating a sense of community. In addition to lots of meetings to plan new developments and educational programs for the neighborhood, there were computer networks for bartering goods and services and for matching people up to share meals. As a single parent, Julie had grown weary of rushing home to cook supper every night. So she had joined a cooking group with three other residents on her block. Julie cooked on Monday evening and the others took turns on Tuesday, Wednesday and Thursday.

Tonight it was Maria's turn, and she asked if Julie had ever tried "tostones," a dish of fried green plantains that was popular in Puerto Rico. Julie laughed and said she'd try anything. There were so many different kinds of people in the EcoVillage that she was learning something new every day. The diversity was built on her block. Julie cooked on Monday evening and the others took turns on Tuesday, Wednesday and Thursday.

Although cohousing wasn't for her, Julie was getting used to the idea that it was often better to share a public amenity than to try to buy everything privately. For instance, she had always dreamed of having a big house and yard. But now she realized it was much nicer to have access to public parks and green space than to spend time taking care of a lawn. It was more convenient to walk two blocks to swim at Zone Recreation Center than maintain her own pool. And it was just as good to have a plot in the community garden as it was to have her own land. What she really wanted was access, not ownership.

That evening after work, since she didn't have to cook supper, she was able to go on a bike ride with Josh. They followed the pedestrian and bike paths that wound through the EcoVillage. They crosseb busy Lorain Avenue where a "traffic calming" project slowed down the traffic and made the street safe for people. And they continued along the nature trail by Zone Recreation Center and on to the Walworth Run bike trail, which in turn linked the EcoVillage to the Ohio & Erie Canal National Heritage Corridor trail farther to the east. Someday, she told Josh, they were going to ride their bikes all the way to Akron!

It had surprised her at first, but she never felt unsafe while riding around the neighborhood. So many people were out enjoying the streets and trails and front porches that she felt neighbors were always looking out for her. If she needed a favor, there were a dozen people she could call within a block. In contrast, she had always felt isolated out in the suburbs. Her previous place had been in a big apartment complex and had had a view of parking lots and garages. She had gotten to know many of the cars in the lots but not her neighbors, who had been a transient, rootless bunch.

Julie put Josh to bed and went out on her third floor balcony to enjoy the evening. She watered her plants and looked out over the neighborhood. She could see a dense mix of terraces and rooftops. Farther to the south she could see lines of cars streaming along I-90. She pitied the people with long commutes home.

To the northwest, she could see the sun setting over Lake Erie. She wasn't high enough to see the lake itself, but she knew it was there. She had gotten to know where the sun set and rose. It was the first time in her life that she had paid much attention to such things. Her new home had given her the precious time to notice the world, time to feel connected to a place.

She smiled. It would soon be the summer solstice. A year ago she hadn't had a clue about the longest day of the year. But people in the EcoVillage were talking about it and were planning a big celebration.

The EcoVillage was like that. There were lots of celebrations. Summer solstice. Winter solstice. Ethnic holidays. The groundbreaking for a new energy-efficient house. The completion of a habitat restoration project.

She and more residents were learning about the earth, the natural systems that sustain life, and how to make cities work for people. They were understanding not only that a compact, urban neighborhood can be a wonderful place to which to live, but that it can be the best place for most people to live sustainably and reduce their impact on the earth.

It was hard work. It involved experimentation, new ideas, and imagination. Plans didn't always work out. But it kept moving forward. And it made Julie feel that she and her new home were part of something good and important.
CONCEPTUAL VIEW

CLEVELAND ECOVILLAGE

DETROIT SHOREWAY COMMUNITY DEVELOPMENT ORGANIZATION

ARCHITECTURE
Green building

Ecovillage development will require us to think deeply about the impacts our buildings have on people and on the earth. We will need ecological building methods, as well as new ways to arrange buildings and public spaces to form communities.

By Jim LoPee

The City of Austin, TX, has introduced the first city-endorsed "green building" program in which anyone building with government funds must demonstrate how they have:

- Made appropriate use of the land.
- Made efficient use of limited natural resources.
- Enhanced human health for builders and homeowners.
- Used non-toxic, local materials to assist the local economy.
- Preserved plants, animals, endangered species and natural habitats.
- Protected agricultural, cultural and archeological resources.
- Reduced total lifetime energy usage.
- Made the structure economical to build and operate.
- Demonstrated recyclability.
- Created a building that has a positive effect on occupants in the working or living space.

A builder in Chicago is now building homes for moderate-income families that have 2,000 square feet of living space, and he guarantees that they will heat for less than $200 per year or he will pay the difference. He has not paid out a penny yet.

The City of Austin and the Chicago builder are the upand in the move toward "green building." On the downside, the National Association of Home Builders Research Center (NAHB) has completed a study on waste at building sites and found that the typical builder spends $511 per house for construction waste disposal, which includes 790 pounds of solid wood scraps, 458 pounds of manufactured wood, 46 pounds of sawdust, 154 pounds of cardboard, 1,788 pounds of drywall scraps, 155 pounds of plastic, 202 pounds of asphalt roofing scraps, 133 pounds of masonry materials and 21 pounds of paper.

These illustrations clearly demonstrate that homeowners can take many positive steps to create an environmentally friendly house, but there is still much to be done. It is also very clear that until you, the homeowner, decide that you want a "green building," it is not likely to be built. On the other hand, it is also clear that once you do demand it, builders have been able to respond and produce a product that is not much more expensive to build and, in almost every case, is far less expensive to operate and maintain.

**Strategies**

If you are seriously interested in "green building" techniques—whether for new construction or rehab—there are four basic strategies to keep in mind. You should be searching for practitioners who can provide them in your project.

- **Optimum-value engineering:** While engineering principles have always been used in the design of housing, there has always been a tendency to overbuild and to not effectively use materials in many instances. For example, wood frame walls are built with studs as the vertical members and wooden plates on the top and bottom to hold the structure together. The current practice is to use two or more plates on the top. We now know, however, that if the floor-framing members can rest right where the studs are, it is not necessary to have more than one top plate. This change can save hundreds of feet of lumber and actually helps reduce heat loss through the walls.

Another example: Most wood building materials come in increments of two feet. If your plan calls for a wall that is 39 feet long, you will be wasting one foot of wood. If you make the wall 40 feet, you can use a whole board and add some living space.

- **Reduced total lifetime energy usage:**
- **Made the structure economical to build and operate:**
- **Demonstrated recyclability:**
- **Created a building that has a positive effect on occupants in the working or living space:**

Thus, it is possible to design and engineer a solid house, while dramatically reducing the waste products produced.

- **Energy-efficient building:** You can build a house that heats for $200 a year if you seal the building envelope (the exterior walls, ceilings and floors of the structure), insulate the building envelope so heat loss is reduced to a minimum, install ductwork that is not leaky, and effectively ventilate the structure so there are sufficient air changes for good health (without unnecessary air changes that lose the heat you paid to generate). In such a house you need a far smaller heating system, which requires much less fuel to achieve a desired level of comfort. And such a house is cheaper to cool as well. The technical know-how to produce such housing and retrofit existing housing is available right now.

- **Ecological building materials:** This involves choosing building materials that use the least energy to manufacture or produce, are most likely to be recyclable or are already recycled, and are produced from an easily renewable resource.

Would you believe that the construction of homes using bales of hay to form the sidewalks is becoming a common construction practice? Hundreds of them are appearing all over the country because hay is readily available in every part of the country. Moreover, hay is cheap to produce, the simple act of harvesting is the manufacturing process and there will always be a supply of hay. When covered with a wire mesh and coats of stucco, hay bales produce a house with insulation R-values in the walls as high as 50. The walls...
What is green building?

A green building is very practical: the building techniques minimize energy usage and destruction to the environment. A green building ideally:

- Make appropriate use of land.
- Make efficient use of limited natural resources.
- Enhance human health for builders and homeowners.
- Use nontoxic, local materials to avoid the health cycle.
- Preserve plants, animals, endangered species, and natural habitats.
- Protect agricultural, cultural, and archeological resources.
- Reduce total lifetime energy usage.
- Be economical to build and operate.
- Demolish recyclably.
- Have a positive effect and increased productivity on occupants in the working or living space.

From the brochure for the Green Building Conference '97 in Austin, TX.

Checklists for a sustainable building

- Make appropriate use of land.
- Use water, energy, labor, and other resources efficiently.
- Enhance human health.
- Strengthen local economies and communities.
- Conserve plant, animals, endangered species, and natural habitats.
- Protect agricultural, cultural, and archeological resources.
- Be resourceful.
- Be economical to build and operate.

From a Primer on Sustainable Building.

Oberlin College's amazing green building

A place that teaches

Last September, Oberlin College broke ground for a new environmental studies center—and not just any building, but a building that will be a working laboratory for environmental education and one of the most advanced examples of ecological architecture in America.

Named the Adam Joseph Lewis Environmental Studies Center after one of the principal funders, the 14,000 square foot building was designed by William McDonough, dean of the school of architecture at the University of Virginia. McDonough has a worldwide reputation as a visionary green designer (see his "Hannover Principles" for ecological design on page 18). Also contributing to the design were Amy Lewins and Bill Browning from the Rocky Mountain Institute and other leading experts in the fields of ecological engineering and landscape architecture.

The building will be a place that teaches. Its design concepts will help students learn ecological competence and mindfulness of place, environmental technologies, analytical skills in assessing full costs and other parts of the country, the implications of our choices so that the overall building size—and, therefore, the overall level of energy usage and impact on the environment—can be reduced.

Whether you are building a new home or are thinking of making improvements to your existing home, paying attention to green building concerns will produce a better building, make a healthier and more effective living space, and contribute to the sustainability of our natural resources.

Where can you start looking in Northeast Ohio for help with green building? Unfortunately, we have a long way to go to reach the level of resources available in a place like Austin, TX. In other parts of the country, the driving forces behind such efforts have been environmental or climatic concerns, such as water shortages, soil conditions, very cold or very warm or very humid weather. We happen to live in an area with plenty of water, a temperate climate and cheap natural gas. A building scientist visiting this area once remarked, "You guys can get away with a lot here because you are not dealing with that type of extreme; if you wait long enough the problem will go away." A bit overstated perhaps, but it means that anyone wishing to make strides in green building is not going to find much help in official governmental channels or through building industry organizations in this area....

Jim LaRoe (also "The Homesteader") is a local expert on home repair and remodeling. He was formerly the education director of the Housing Resource Center in Cleveland. This article was originally published in Earth City Cleveland's Greater Cleveland Environmental News.

EcoCity Cleveland § Winter 1998/99

Mechanical systems

- Geothermal wells: Heating and cooling is derived from closed-loop geothermal wells. Water circulates through closed-loop pipes to water source heat pumps located in each space throughout the building. In addition, two larger heat pumps serve the ventilation needs for the main building and the auditorium. Each heat pump is controlled individually, allowing the unit to either reject or extract heat from the circulating water as needed. This reduces energy use by enabling simultaneous heating and cooling within the building.

- Air conditioning: Provided through radiant coils under the concrete slab.

- Fresh air: 100 percent fresh air for ventilation is provided in all occupied spaces. Return air is passed through a heat recovery unit before it is exhausted.

- Raised floor: A raised floor is employed at the first floor workspaces and on the second floor. This allows for future changes in space use and installations. Air moving under the floor can be used to condition the space, creating a positive pressure relationship that helps to protect the building from outside pollution.

Solar design

- Photovoltaic panels: 3,700 SF of photovoltaic (PV) array on the main south-facing curved roof will provide electrical energy for the building. Anticipated advancements in PV efficiencies should meet or exceed the building's energy demand (64,000 kWh) within five years. Roof attachment detail allows for upgrades as advancements are made in PV technology.

- Sun Plaza: The Sun Plaza maps the solar year; shadows cast...
by a green roof is marked in the Sun Plaza form.

- **Building orientation:** Building is elongated along east-west axis to optimize passive solar performance. A view-overflow terrace provides shading on the south elevation.

- **Daylighting:** Daylighting is provided for all interior spaces, reducing lighting loads. Direct solar gain is collected through south-facing glass in the atrium and work spaces.

- **Thermal mass:** Thermal mass in concrete floors and exposed interior masonry walls retains and re-radiates heat.

### Energy efficiency

- **Natural ventilation:** Building orientation takes advantage of prevailing breezes. Operable windows in all occupied spaces allows for natural ventilation. Atrium ventilation introduces air at low levels and exhausts convective air flows.

- **HVAC system:** Mechanical ventilation systems are used throughout, including natural convective air flows.

- **Roof Insulation:** R-30 to R-40 roof assemblies.

- **Envelope wall design:** R-21 continuous masonry cavity walls, featuring pressure- and air-sealed rainscreen assemblies, with air barriers.

- **Integrated building controls:** Advanced, central controls for mechanical, security, fire, and Living Machine systems.

- **Energy efficiency:** Lighting: 0.9 watts/lux of continuous light provided. Windows: Glazing to represent the most advanced in thermal insulation and shading.

- **Indoor air quality:** Low-VOC materials, paints, and adhesives are specified throughout the building.

- **Exposed ceiling structure:** eliminates unnecessary ceiling plenum, creating openness.

- **Construction procedures:** Careful review of product submittals, and proper ventilation during construction, construction sequencing to limit exposure of materials to toxins.

- **Complete HVAC testing:** Balancing, commissioning before occupancy.

- **Maintenance protocals:** Established cleaning processes and practices after building occupancy.

- **Material selection:** Durable, low-maintenance materials are used throughout, including exterior walls (brick), interior walls (unpainted concrete masonry units), and steel structure.

- **Recycled content:** Steel (framing), aluminum (roof, windows and curtainwall frames), ceramic tiles (bathroom, toilet partitions).

- **Certified forest products:** All wood is supplied from certified sustainably-managed forests, as determined by the wood supplier and certification body.

- **Energy efficiency:** Lighting design: 0.9 watts/lux of continuous light provided. Windows: Glazing to represent the most advanced in thermal insulation and shading.

- **Indoor air quality:** Low-VOC materials, paints, and adhesives are specified throughout the building.

### Re weaving human presence in the world

Three years ago we began the effort to design a building for the Environmental Studies Program. We intended to create not just a place for classes but rather a building that would help to redefine the relationship between humanity and the environment— one that would expand our sense of ecological possibilities.

By being asked:

- *Is it possible to design buildings which purify their own wastewater?*
- *Is it possible to build without compromising human and environmental health somewhere else or at some later time?*

- **Landscape:**

  - **Urban landscape:** A microcosm of the hardwood forests common to Northern Ohio.
  - **Aquatic landscape:** A pond and wetland retains, processes, and cleanses stormwater and run-off from adjacent areas.
  - **Social landscape:** The Sun Plaza, North Plaza, paths, and walks provide places for gathering, circulation, learning, and leisure.

- **Food growing:**

  - **Natural wastewater treatment system:** Powered by sunlight, serves as a research and teaching tool. Designed to handle 2,000 gallons per day, the Living Machine is a resilient system due to its mechanical simplicity and biological complexity. It replicates and accelerates the natural purification processes of ponds and marshy environments. Diverse communities of bacteria, algae, microorganisms, plants, trees, snails, fish, and invertebrates form a self-sustaining system in tanks and living bio-filters. Rainwater is used for non-potable "graywater" use throughout the building.

  - **For more information on the Oberlin building, see the college's Web site at www.oberlin.edu.**

### Declarations for ecological communities

**The Big Sur Declaration**

At a conference in 1994, members of the International Ecological Design Society issued the following declaration.

- **Ecological design re-integrates the needs of human society within the dynamic balance of nature. It calls for an ecological revolution as fundamental as the industrial revolution.**

- **Traditional forms of agriculture, architecture, engineering, and technology have not proven themselves sufficient to maintain human health or the integrity of ecosystems.**

- **We, the international Ecological Design Society, call for a regenerative ecological design stance and craft, which honors the following principles:**

  - **Trace the ecological footprint:** Set up the books for a full ecological accounting, evaluate design by their environmental impacts over their complete life cycle.
  - **Live off solar income:** Increase the renewability of energy production, and the efficiency of energy use until we can provide for our needs from our own solar income.
  - **Maintain biodiverse and the local, regional, and global ecological economies that support it:** We take the preservation of species, representative ecosystems, and ecologically viable landscapes as a primary design principle.
  - **Reduce the ecological footprint:** Immediately begin a design protocol to establish the most self-sustaining and least stressful lifestyle of our time.
  - **Waste equals food:** Create restorative natural cycles in which all waste is cradle to cradle, one process becomes food for the next.
  - **Work with whole systems:** Design is keeping in mind the possible degree of internal integrity and coherence.
  - **Design must follow, not oppose, the laws of life:** For instance, forest management and food production systems must be designed to respect the natural processes in which they are embedded.

- **From Ecological Design by Sim Van Der Ryn and Stuart Cowan**

- **Sustainable design is not a new building style. Instead, it represents a revolution in how we think about design, construct, and operate buildings. The primary goal of sustainable design is to lessen the harm poorly designed buildings cause by using the best of ancient building approaches in logical combination with the best of new technological advances. Its ultimate goal is to make possible offices, homes, even entire subdivisions, that are not producers of energy, food, clean water, breathable air, beautiful human and built environments.**

- **From A Primer on Sustainable Building, Rocky Mountain Institute**

The society is the next step in the evolution of our urban environments: built to fit its place, in cooperation with nature rather than in conflict, designed for people to live whilst keeping the cycles of atmosphere, water, nutrients and biological activity in healthy balance, empowering the powerless, getting food to the hungry, leading peace rather than to the battlefield, creating a place for everyone, in every land, for all time.

—Paul Dowsland, *Urban Ecology of Australia*
The Hannover Principles

The Congress for the New Urbanism views disadvantaged in urban cities, the spread of sprawl sprawl, increasing separation by race and income, environmental destruction, loss of agricultural lands and wilderness, and the erosion of society’s built heritage as one integrated community-building challenge. We stand for the metropolitan region’s use to support a regional and urban economy that benefits people of all incomes. Affordable housing should be distributed throughout the region in a balanced manner to address the needs and aspirations of the present and future. It is hoped that the Hannover Principles will inspire an approach to design which may meet the needs and aspirations of the present without compromising the ability of the planet to sustain an equally supportive future.

1. Insist on the rights of humanity and nature to co-exist as a healthy, supportive, diverse and sustainable condition.

2. Recognize interdependence. The elements of human design interact with and depend upon the natural world, with broad and diverse implications at every scale. Expand design considerations to recognizing even distant effects.

3. Respect relationships between spirit and matter. Consider all aspects of human settlement including community, dwelling, industry and trade in terms of existing and evolving connections between spiritual and material consciousness.

4. Accept responsibility for the consequences of design decisions upon human well-being, the viability of natural systems, and their right to co-exist.

5. Create sustainable, long-term value. Do not burden future generations with requirements for maintenance or vigilant administration of potential costs of the careless creation of products, processes, or standards.

6. Eliminate the concept of waste. Evaluate and optimize the full life-cycle of products and processes, to approach the state of natural systems, in which there is no waste.

7. Relate to natural energy flows. Human design should, like the living world, derive its creative forces from perpetual solar income. Incorporate this energy efficiently and safely for responsible use.

8. Understand the limitations of design. No human creation lasts forever, and design does not solve all problems. Those who create and plan must practice humility in the face of nature. Treat the natural and man-made, not an inconvenience to be evaded or controlled.

9. Seek constant improvement by the sharing of knowledge. Encourage direct and open communication between colleagues, peers, manufacturers, and users to link long-term sustainable considerations with ethical responsibility, and to establish the integral relationship between natural processes and human activity.

These principles force a rethinking of building and construction practices. For example, here are some implications for materials and water.

**Materials**
- Buildings should be designed to be flexible enough to accommodate many human purposes, including living, working, or craft, thereby allowing the materials to remain in place while serving different needs.
- Materials should be considered in light of their sustainability; their process of extraction, manufacture, transformation, and degradation through proper resource management; and biodiversity on a global and local scale. All materials should be considered in terms of their embodied energy and characteristics of toxicity, potential off-gassing, finish and maintenance requirements.
- Products should not be tested on animals.
- Recyclability and recycling of materials is essential. But recycled materials should not be encouraged if they are the result of a product designed for disposability. Provision should be made for the disassembly and re-use of all products by the manufacturer if necessary. The recyclability of entire structures must be considered in the event that building fails to remain in place while serving different needs.
- Materials should be chosen to minimize hazardous chemicals.
- Solid waste left after maximal provision must be dealt with in a sustainable manner. In nature, waste equals food. The aim is to eliminate any waste that cannot be shown to be a part of a naturally sustainable system.
- Life-cycle analysis of all materials and processes is important. Life-cycle assessment is a process in which the energy use and environmental impact of the entire life cycle of the product, process, or activity is cataloged and analyzed, encompassing extraction and processing of raw materials, manufacturing, transportation and distribution, use, and final recycling, and return to the environment.

**Water**
- Water use must be carefully accounted for throughout the entire design process.
- Water sources must be protected from contamination and careful consideration given to efficiency techniques at every step.
- Potable water consumption should only be used for life-maintaining functions.
- Water from aquifers, rainwater, surface run-off water, grey water, and any water use for sewage transport or processing systems should all be considered within a cyclical concept.
- Waste water must be returned to the earth in a beneficial manner. Organic treatment systems should be considered.
- No ground water contamination should result from any use of water resources related to the construction operation of any of the projects facilities.
- Design should consider rainwater and surface run-off water as a possible resource for inhabitant and building systems.
- Design should minimize impermeable ground cover.
- Grey water can be treated and applied to practical or natural purposes suitable to its characteristics.
- Water use in any process-related activity shall be put into recreation, and toxic chemicals or heavy metals should be minimized. All discharges of process-related water shall meet drinking water standards.

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**Design for Sustainability**

by William McDonough Architects

EcoCity Cleveland 2019 98-99

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Charter of the New Urbanism

1. The neighborhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form the basis for the New Urbanism criteria to take responsibility for their maintenance and evolution.

2. Neighborhoods should be compact, pedestrian-friendly, and mixed-use. These criteria generally emphasize a single, simple use, and should follow the principles of neighborhood design when possible.

3. The metropolitan region is a fundamental economic unit of the contemporary world. Governmental cooperation, public policy, physical planning, and economic strategies must reflect this new way of life.

4. The metropolis is a collaborative region that encompasses the elderl y and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.

5. Within neighborhoods, a blend of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community.

6. Transit corridors, when properly planned and coordinated, can help organize metropolis structure and revitalize urban centers. In contrast, highway corridors should not displace investment from existing centers.

7. Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.

8. The economic health and harmonious evolution of neighborhoods, districts, and corridors can be improved through good design. Design criteria should be established in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or cycle to them.

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Building
The
at the expense of accessibility and openness. Neighbors to know each other and protect their communities. Pedestrian.

physical definition of streets and public spaces as places of shared use.

Sustainable development is one of those rare ideas that could promote actions that expand economic opportunity, improve society superior to today's society, and is about doing things in ways that work for the long run because

Sustainable development is one of those rare ideas that could promote actions that expand economic opportunity, improve society superior to today's society, and is about doing things in ways that work for the long run because

5. Streets and squares should be safe, comfortable, and interesting to the pedestrian.
6. Architecture and landscape design should grow from local climate, history, and building practice.
7. A primary task of all urban architecture and landscape design is the horizon safe, comfortable, and interesting to the pedestrian.
8. It makes it a reality for our children and grandchildren.

Preservation
Equity. Sustainable development promotes equity between

The Greater Cleveland Ecovillage is that it includes the input of the stakeholders who will be affected by decisions. Long-term impacts and consequences. Sustainable development requires the use of a long-term horizon for decision-making in which society pursues long-term goals. ECOVILLAGE


The Neighborhood Works newsletter by the Greater Neighborhood Neighborhood, 2115 W. North Ave, Chicago, IL 60647 (770) 784-0090.

SEED Ohio (Sustainable Energy for Economic Development), 2109 Rockingham Rd, Suite 207, Cleveland Heights, OH 44118, (216) 321-4325.

Organizations beyond Northeast Ohio
Austin Green Building Program, 1801 Austin Avenue, Austin, TX 78757.

Center for Local Education and Renewable Energy Resources, 1801 Austin Avenue, Austin, TX 78757.


The Great Green Development criteria. Decisions must consider and account for:

"The Greater Cleveland Environment Building: Caring for Hope and Diversity by David Becht, Eco-City Cleveland.
A Green City Program for San Francisco Bay Area Cities and Towns by Marc Lerman, 1995.


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Church in the City forums

The Cleveland Catholic Diocese continues its Church in the City Forums series with the following programs:

- March 25—Environmental impacts of urban sprawl: Jim Livingood, Lake County Community College. Speakers include Daniel Eby of the Yale University School of Forestry and Environmental Studies and Rev. Charles Lee of the United Church of Christ.
- April 8—Cultural implications of Church in the City: 7 p.m. at Oberlin College. Speaker will be M. Shawn Copeland of Marquette University.
- April 16—Health and human services and the Church in the City: 8 a.m. at Ursuline College. Speakers include Mary Jo De Young, Case Western Reserve University and Michael Spain of the University of Cincinnati Day School.

City Club forums on sprawl/environment

The City Club of Cleveland, 859 Euclid Ave., will present the following speakers on questions of sprawl and the environment:

- March 30—Will Rogers, president of The Trust for Public Land, in the victory against sprawl on Sunday, March 29
- May 21—William Hardesty, former mayor of Indianapolis and fellow of the Urban Land Institute, on revitalizing cities in America.

For lunch reservations, call the City Club at 216-621-0842.

Earthfest ’99

Join thousands of Greater Clevelanders at this year’s Earthfest celebration, 9 a.m. to 5 p.m. at Cleveland Metroparks North Chagrin Reservation. For more information, call 216-521-2434.

April 14

- Monthly meeting of the Bicycle Advisory Sub-committee of the Northeast Ohio Regional Sewer District, 7 p.m. at the Rock and Roll Hall of Fame. For more information, call 216-671-9059.
- Earth Day celebration at the Lorain County Metro Parks Black River Reservation, 10 a.m. to 2 p.m., at the Days Dam entrance at 31st Street and Norfork Avenue.
- Bioregional Plan public meetings

What could northeast Ohio look like if we stopped sprawl, stopped cutting our cities, and protected our open spaces and farmlands? City Cleveland's Bioregional Plan project is trying to answer such questions with a new vision for sustainable development patterns in the region.

A draft of the plan is now complete, and citizens are invited to attend the following meetings to review the plan and provide feedback.

For more information, call 216-521-2434.

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The owner's manual for the bioregion!

For nearly 20 years, EcoCity Cleveland's David Beach has been writing about urban and environmental issues in Northeast Ohio. Now, with the help of other local experts, he brings his years of experience together in one comprehensive resource.

The Greater Cleveland Environment Book...
- An introduction for the environmental novice.
- A reference for serious activists.
- A personal invitation to discover the bioregion.
- An inspirational guide for everyone who cares about the future of Northeast Ohio.

Available at bookstores or directly from EcoCity Cleveland.

$14.95 cover price ($19 with sales tax and shipping)
340 pages, trade paperback, illustrated
ISBN 0-9663999-0-0

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