

Livable Communities @Work

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Environmentalism and Smart Growth: Forging a New Consensus

This paper is the second in a new series published by the Funderson's Network for Smart Growth and Livable Communities that focuses on the practical aspects of how we create smarter, more livable communities for all. The series, *Livable Communities @ Work*, highlights successful strategies, explores tensions created by competing issues, and generally helps spur informed debate on critical topics. Rachel Peterson¹, a writer, researcher and consultant, wrote this paper, and William Eisenstein², a doctoral student, researched it.³ The paper makes a case for why the environmental movement should support smart growth principles for developing ecologically healthy cities.

*PUBLISHER'S NOTE:*⁴ *With the population of the United States expected to grow by as much as 60,000,000 people by the year 2020, it is imperative that we consider the potential implications that this growth will have on our communities. In particular, the issues and strategies highlighted in this paper will be important considerations for policymakers, funders, and concerned citizens as we address ways to accommodate this growth. Will the land development that accommodates this growth be designed and built in such a way that it improves the quality of life, strengthens the vibrancy of our communities, improves community health, and redresses some of our current problems? Or will it continue to weaken existing communities, degrade our environment, and further separate us by race and class? As this paper makes clear, we have choices that will decide the answers to these questions. I hope this paper contributes to the thinking that can help us to make the right ones.*

Introduction

Environmentalists should support the growth and development of American cities. This apparently simple statement reveals a fault line within the smart growth movement. Today, a number of leading national environmental groups can certainly be found under the smart growth tent. But in local land use debates, when rifts over growth

break open, it is often environmentalists who balk in their support. In those cases, smart growth ceases to be a policy framework for changing the pattern of growth but instead becomes a call to battle against development altogether. No single actor is most at fault: purists within the environmental movement permit very little latitude for growth and change, while developers jinx the debate by casting their projects as "environmentally smart growth" even if their innovations fall well short of that ideal. Caught in the middle, local governments and city planners stick to the lowest-common-denominator formulas that offend the least. Ultimately it is the city, the region, and the environment that suffer. Infill projects are scaled down while development at the edge is encouraged. Cookie-cutter design is permitted, while opportunities to innovate with green design are missed.

The result is a soulless city, a sprawling region, and another catalyst that sends people in search of something different. What can convince them to stay? This paper explores part of the answer in the concept of eco-



logically healthy cities. But a healthy city turns out to be something other than what environmentalists expect. Far more than adorning with trees and plants, it is the density – the centeredness and uprightness – of cities that has become essential to nature's survival.

Persuading people that they can learn to love density is hardly arguing for a popular solution. This is an agenda that poses particular philosophical and practical challenges to environmentalists. Certainly, there is much to do to restore nature in cities, where the environment has already been altered to a large degree. The smart growth movement is now taking the next step, by learning and articulating how the elements of the built landscape – homes, offices, public spaces, parks, shops, and industry – by virtue of their location, design, operation, and urban character are helping to restore the environ-

ment. Environmentalists have yet to wholeheartedly embrace an urban agenda, but their ability to engage as supporters, rather than opponents, of city-building is essential to the future of the smart growth movement.

This paper is divided into five sections. First, it focuses on the trends of suburbanization and the environmental impacts of development. It then examines growth politics and the clashes between some environmentalist and smart growth ideals, as well as possibilities for a philosophical shift within the environmental movement. Third, it identifies strategies that can reduce the impact development projects have on the environment. It then cites projects and ideas that are demonstrating early success in building for human needs and natural restoration. Finally, it outlines opportunities for funders to help bridge gaps between the environmental and smart

The Trends: America is Still Suburbanizing

Development directly threatens land at the edge of cities, towns, and suburbs across America. Sprawl is associated with destructive impacts on the ecology, economy, and social cohesion of metropolitan regions that have been widely documented in recent years. Virtually all planners, analysts, environmentalists, and non-profit advocates concerned with growth agree in principle that the effects of sprawl on urban life have been profound: the increasing economic and social isolation of the inner city, the near-total reliance on the private automobile for transportation, the draining of municipal coffers for new infrastructure projects, the continuing segregation by class, and the irreversible destruction of agricultural and habitat lands at the urban edge.⁵

The quickening pace of sprawl during the 1980s and 1990s meant that the amount of urbanized land in the United States grew by 47 percent, while the nation's population grew by only 17 percent.⁶ While some major cities experienced a population rebound in the 1990s, The Brookings Institution reported in October

2002 that overall the national trend continued toward decentralization.⁷ And in a newer but increasingly familiar phenomenon, suburbs themselves grew unevenly: in the 1990s, 63 percent of suburbs grew, while the rest lost population or stayed the same.⁸ In all, growth occurred the fastest in unincorporated areas and the newest suburbs.⁹

The national trend of dispersion is affecting cities and older suburbs alike. A report for the Great American Station Foundation¹⁰ finds that many of the nation's maturing suburbs "are struggling to become cities in their own right. Suburban areas are increasingly diverse in race, ethnicity and income, and increasingly experiencing the travails of rapid growth. Suburbs are...increasingly challenged to become more than bedroom communities."¹¹ While in this a broad brush is used to compare cities and suburbs, many older suburbs are facing similar challenges of infill development and natural restoration as cities face, and their community vitality is equally at risk.

The Environmental Impacts of Development

Land is an all-or-nothing resource: once paved, it is irreversibly damaged. For this reason, environmentalists are concerned about the conversion of land, most typically open land or farmland, at the edge of cities and regions. The quantity of acres converted to development is of course directly linked to our patterns of growth. As the smart growth movement has clearly articulated, the more compactly one builds, the less land that is used. Further, the design of communities guides human behavior – again with consequences for the natural environment. In this section the impacts development has upon nature are examined, both on the land it uses and the behavior it spawns.

Fragments and Patches: Converting Land at the Edge

The loss of farmland and habitat to suburbanization has reached crisis proportions in the United States. The American Farmland Trust reported that in the 1990s the U.S. converted 6.4 million acres of farmland to developed use, a rate 51 percent higher than in the 1980s.¹² Cities tend to be located in lowland areas, close to rivers, deltas, and along coastlines, where the richest soils are found. Thus, a high proportion of the nation's most fertile farmland lies within commuting distance of major cities – land that is both highly valuable and at high risk of development. Fully 86 percent of our fruits and vegetables and 63 percent of our dairy products are now produced in urban-influenced areas.¹³ In regions like South Florida and Southern California, where high levels of biodiversity and large human populations exist side by side, suburban growth, agriculture, and habitat conservation are in direct competition for land.

Land conversion causes fundamentally negative changes to a given area's ecosystem by paving, fragmenting, and

introducing a higher level of human activity. As Ohland and Dittmar write in *Biodiversity and Smart Growth*, "Development causes the fragmentation of habitat and water resources, interrupts natural processes such as floods and fires, and ushers in an invasion of non-native species."¹⁴ Every act of fragmenting land only reduces nature's ability to provide ecological services that are increasingly being recognized as essential to both the economy and human life. The Heinz Center for Science, Economics, and the Environment, in its recent report, *The State of the Nation's Ecosystems*, examined indicators of environmental health in urban and suburban areas, finding higher than recommended phosphorus and nitrate levels in streams, higher than recommended ozone levels, and natural areas too patchy to support diverse wildlife.¹⁵

To get a sense of how a typical subdivision affects a local ecosystem, imagine 40 new homes built on 15 acres alongside a creek at the edge of your hometown. The road leading to the subdivision, the streets within it, and the driveways in front of every home are newly paved surfaces. The floor plan of each house, covered by a roof, occupies a few thousand square feet of land that was once open. Now imagine a typical summer rain falling on the new concrete and roofs. The water flows into the drainage system instead of soaking into the soil and recharging underground aquifers. The amount that does make it into the soil has picked up new pollutants from the roads where cars frequently drive, carrying the substances into the soil and the creek. Water is channeled by the new infrastructure and flows at a faster rate into the nearby creek, altering the habitat of the stream's organisms and the plants growing along its sides. The pollution accumulated by the runoff moves through the creek and into the lakes or bays that receive it.¹⁶

Services of the World's Ecosystems: *

Regulation of water, climate, gas	Water supply	Erosion control
Soil formation	Nutrient cycling	Waste treatment
Pollination	Biological control	Habitat
Food production	Raw materials	Genetic resources
Recreation	Cultural identity	

* From Costanza, Robert. 1997, "The value of the world's ecosystem services and natural capital." *Nature*. Vol. 387, May 15.

The Distance Between Points: Where the Pattern of Development Leads Us

America is now a primarily suburban nation: there are significantly more housing units in the suburbs (53 million) and non-metro areas (28 million) than there are in central cities (34 million).¹⁷ Fully 61 percent of U.S. housing units are single-family detached homes, usually built at densities of between four and ten units per acre.¹⁸

What does this mean? Perhaps the single most astonishing consequence of how suburban communities are designed is our near-total reliance on the car – a fact acknowledged by experts on all sides of the growth debate. The suburban street network is designed for car travel, rendering walking and bicycling to school, work, or the grocery store impractical and often dangerous. Numerous studies have shown that public transportation cannot be economically supported at these densities.¹⁹ Thus, we drive, and we directly diminish our own air quality: over 50 percent of the carbon monoxide, 30 percent of the nitrous oxide, and 25 percent of the carbon dioxide emissions in the United States are attributable to cars.²⁰ These substances cause smog and particulate pollution locally, and are almost certainly contributing to climate change on a global scale.

Typically, one-third of the land area of a suburban community is paved and impermeable to rainfall, degrading soil quality and changing water cycles, as described above. The oil and toxic substances that accumulate on roads from cars are polluting ponds, creeks, and lakes throughout the United States.²¹ The traditional suburban quarter-acre house lot and large lawn are usually filled with non-native plant species requiring large amounts of water and pesticides. In fact, lawn grasses now cover 20 million acres of the United States, more than any single commercial crop, including corn and wheat.²² Most of this grass is treated with a larger amount of pesticides per acre than agricultural fields.²³

Don't Cities Perform Even Worse?

It is certainly true that in cities, as in the suburbs, the natural environment is impacted by growth and development. The concentration of people and activity that defines cities means that nature's presence is diminished: paved surfaces, channelized creeks and streams, heavily landscaped parks without corresponding pockets of wild areas, scarce trees, plant life dominated by invasives, and a biologically homogeneous animal population – little wonder that it is hard for people to connect to nature.

Do Well-Designed Suburbs Exist?

The best examples of well-designed subdivisions are from developers associated with the "New Urbanism." A movement to design suburbs at a pedestrian, community-oriented scale, New Urbanism boasts successful projects in a number of states, and its principles are rippling through the broader development industry.

But while it is a welcome evolution in subdivision design, in practice many New Urbanist projects still have the harmful impacts of traditional suburbs. Some celebrated projects have created entirely new greenfield developments or even whole new towns, dominated by single-family homes, on previously undeveloped land. The projects laudably encourage walking inside the development, but residents must still rely on the car because of their distance from jobs, retail and transit. Many set aside land for protection, but any project located in a greenfield, especially in regions without an ecological conservation plan, still fragments and converts the land.

The lesson from this is not that New Urbanism is counter-productive, but simply that the location of any project is critical. And the Congress for the New Urbanism is refreshingly frank about the dilemma: "The decision about where to develop is a political one. CNU supports urban growth boundaries, which limit where development may take place...Nevertheless, farmland and wilderness are frequently developed...To be purists, [New Urbanists] can refuse to design for greenfield sites. However, that dooms the sites to almost inevitably becoming sprawl. Instead, many New Urbanists prefer to engage those sites. They protect as many as possible of the critical habitats, sight-lines, and other irreplaceable resources. For the developed area, they produce neighborhoods at eight, ten, even 50 units per acre, rather than the suburban standard of about three units per acre. The result is that many more areas are protected, and at the same time, the resulting human habitat is far superior to that provided by sprawl." (From www.cnu.org)

The compactness of cities, however, lends itself to a radically different consumption of resources. Numerous studies have found that as density increases, car use drops, water and energy delivery and use become more efficient, and air quality improves.²⁴

Most importantly, it is exactly the concentration of development in cities that allows nature to thrive. As Alexander Stille writes, “Density and verticality, the hallmarks of big cities, were once bad words in an ecologist’s vocabulary but are now seen as invaluable allies. By concentrating large numbers of people in limited areas, they leave substantial areas for forests, meadows, wetlands and the wide open spaces needed for many species to survive.”²⁵

Even though urban ecosystem studies are finding surprising levels of biodiversity – the New York region boasts 3,000 plant species and some of the East Coast’s largest wetlands that serve as sanctuaries for migrating birds – many people will continue to view nature in cities as compromised and impure. However, the existence of pristine environments unaltered by human beings anywhere on the planet has been called into question with recent research.²⁶

The Challenge of a New Philosophy

Along with concern for the natural environment, the foibles of modern life – time in our cars, climbing rates of obesity at all ages, the yawning differences in quality of life between the rich and poor – beg for a new philosophy and more nuanced politics that aim to restore urban life. If closeness to nature is one of the reasons that people move to the suburbs, then making nature more clearly present and accessible in cities could convince those same people to stay put. However, this involves more than creating parks and planting trees; it requires imaginative manifestations of urban nature, and a full commitment to the dense, vertical character of urban form.

These are pointed political and philosophical challenges to environmentalists. The movement that has spawned so much activism and philanthropy in support of conserving America’s wild places now must readjust, and support cities with equal fervor for the role they play in nature. We must believe in, and advocate for, the compact development of cities – appreciating not only that density *here* saves land *there*, but that density also creates great places to live. Unfortunately, the politics surrounding land use and development, in which many environmental groups are involved, have yet to make this leap.

Finding and Defining the Urban Ecosystem

Ecologists typically travel far afield to study nature in a “pristine” state, pursuing our deeply rooted belief that cities and nature are mutually incompatible. As the world has continued urbanizing and some experts have urged a fundamental rethinking of that divide, scientists have begun to turn their attention to the study of the urban ecosystem. By conducting urban canopy analyses, counting plant and animal species, mapping migration patterns, and evaluating soils, ecosystem scientists are searching out the natural life within heavily urbanized areas.

The current paucity of data leaves policymakers without sound information to understand how land use and development decisions benefit the natural environment – or even understand their impact. For that reason, the National Science Foundation launched the Long-Term Ecological Research (LTER) programs in Baltimore (www.beslter.org) and Phoenix (www.caplter.asu.edu) in 1996. Unique in their urban focus, the studies are gathering data about vegetation, land cover, soils, wildlife, and human activity over a 20-year period in order to “understand a major urban region as a biological system.”

Each initiative has dozens of research strands, ranging from first-ever bird counts in the neighborhood parks of Baltimore to an examination of the effects of political shifts in city councils and appointed commissions on water policy in Phoenix. In the short and long term, both projects explicitly aim to inform public policy decisions about urban planning, economic development, and neighborhood revitalization. In Phoenix, the LTER is being used in Greater Phoenix 2100, an effort to develop 100-year forecasts for the results of policy decisions being made today.

The Politics of Growth

As the pace of suburbanization has picked up across the country, so has the activism and sophistication of anti-sprawl citizen's groups. While people join the anti-sprawl movement for many reasons, the rhetoric about preserving the environment is one of the best for capturing and motivating a constituency. Flyers that show dramatic before and after photos of open land versus lanes of traffic or rows of houses are highly effective in getting out the vote. The agenda, first and foremost, is to stop development from converting more land.

Unfortunately, as the past decade of growth politics has revealed, an anti-sprawl stance is not necessarily a pro-smart growth stance. While anti-sprawl activists may not be the same people as the NIMBYs (not-in-my-backyard) who oppose infill development in specific neighborhoods, those projects are scaled down or abandoned altogether when little or no support is offered. And to the extent that anti-sprawl activists identify themselves as environmentalists, the movement's reputation for being against everything and for nothing only grows. Even worse, activists from zero population growth and anti-immigration groups have worked to link their agendas with the anti-sprawl movement. The fringe and politically outmoded rhetoric of these groups astonish many smart growth professionals, but they are remarkably successful in swaying local opinion.²⁷ And their alignment with the environmental movement makes it all the harder to establish and stand by a pro-infill agenda.

To their credit, as the smart growth movement has matured, many groups, including environmentalists,

have adopted a more nuanced stance toward development, noting that growth itself is not the issue, but rather the pattern in which it is built. Such groups agree there is a difference between low-density edge development and mixed-use, context-sensitive projects within existing suburbs and cities. This stance will help activists adapt to today's slowed economy, when small towns and suburbs looking to "spur development and increase the local tax base are turning away from growth restrictions."²⁸ But because the constituency that fights sprawl is not the same as the constituency that supports infill, this political reality means that two of the primary techniques urban planners use to manage growth – urban growth boundaries and gradual increases in density – rarely find community acceptance for being used in tandem.

Urban growth boundaries (UGBs) impose a regulatory limit on a jurisdiction's outward growth. UGB campaigns are primarily motivated by the desire to preserve open space, and supporters consider themselves environmentalists – and indeed, the number of UGBs now in place across the country is a major accomplishment of the local groups that form the backbone of the environmental movement.

As became clear in the smart growth movement's first decade, however, many local activists view the growth boundary as the only necessary permanent growth management tool. The need for new development *inside* the line is left to a vague future or is altogether disregarded.

But what should happen inside the line? As smart

Aren't There Limits to Our Carrying Capacity?

Advocates for slowing or even capping growth often draw on the concept of a region's "carrying capacity." They note that the natural resources that sustain us – clean air, fresh water, land, energy – have their limits, and population increases are straining them to the point of collapse. But when used to stall development, a reasonable idea becomes an unreasonable political tactic.

The point of a carrying capacity study would be to address the rates and amounts of what we consume, not how much our population is growing. In fact, a comprehensive study of carrying capacity using agreed-upon metrics could inform truly forward-thinking public policy. Such a study could act as a platform from which to campaign for governmental commitments and regulation to increase the efficiency of use without a proportional depletion of natural resources. New carrying capacity targets could be achieved through technological innovation – to save energy, water, and clean air – and compact growth patterns, to save land and decrease the amount we drive.

growthers like to joke, Americans equally detest sprawl and density. Suburban projects are blocked because they use too much land; infill projects are stopped because they are too dense. That density is broadly misunderstood is beside the point: our fears about it present perhaps the most significant stumbling block to true innovation in redeveloping our cities and making our suburbs more sustainable. In California, a state projected to grow from 34.4 million today to 45.8 million by 2020, and where the value of the agricultural base and the coastal ecosystems are acknowledged as among the most valuable in the world, densities have been dropping over the past ten years. A recent study by the University of California-Berkeley's John Landis shows that in San Francisco, one of the West Coast's most compact cities,

the average density of residential projects dropped steadily through the 1990s.²⁹

A gradual increase in density founded on principles of high-quality urban design, the reuse of land and buildings, and responsiveness to changing demographics is the other side of the UGB. It is an essential technique that cities and suburbs need to have at their disposal to alleviate the development stalemate. But this increase in density is not happening now, and will not happen without broad public support. Environmentalists, whose general agenda enjoys deep public traction, can be key in building this support – but it requires establishing and standing by a pro-infill, pro-density agenda.

Alternatives to UGBs

Communities face two important questions in relation to an urban growth boundary: First, how can UGBs be protected over time against changing political sentiments? And second, what about the property rights of the landowners outside the UGB?

Two transfer mechanisms show that growth management can be more than a boundary: policies can protect the rights of developers and property owners and at the same time encourage environmentally sound development patterns.

Transfers of development rights (TDRs): In a TDR program, the owner of a parcel of land which the local jurisdiction has placed off-limits to development can sell rights, or credits, to another entity that wants to develop property in a more appropriate place. The purchaser is then allowed to develop at a higher density (and thus at a higher profit) than the zoning for their parcel originally allowed. The development rights on the first parcel are thereby extinguished. TDRs permanently prevent development where it is not appropriate, compensate the owner of that property for their loss of land value, and allow higher density within already developed areas. A TDR program in Montgomery County, Maryland has slowed farmland conversion from 3,500 acres per year in the 1970s to 3,000 acres total in the 1980s. A total of 34,000 acres had been permanently preserved as of the mid-1990s. (See www.montgomerycountymd.gov/siteHead.asp?page=/mc/services/dep/index.html.) However, while many TDR programs have been established, few have been implemented to the level that planners originally hoped, primarily because developers do not always pursue the density bonus, in response to local market demand or in anticipation of local opposition.

Mitigation or conservation banks: These are used to preserve endangered species habitats. Public agencies or even private companies buy up blocks of habitat of a protected species. Developers seeking to build projects in other habitat areas for the same species are then required to pay the bank the value of the acres of habitat they are developing. When the mitigation bank is fully paid off another one is started. This mechanism has been widely used in California to ward off political conflicts between developers and endangered species protection. (See http://ceres.ca.gov/topic/banking/banking_report.html.)

Both environmentalists and developers view mitigation banks with some skepticism. Developers may end up facing longer delays for a development project than if they had simply sought permits via the usual routes, and environmentalists assert that although the banks preserve some habitat, in exchange they allow other land to be developed – often at the edge of communities that are struggling with growth issues.

The confrontational tactics with which citizen's groups are fighting sprawl do not lend themselves well to more nuanced approaches to growth management.

Specifically, using voter referenda to resolve development standoffs has been successful for UGB campaigns and stopping major projects. "Ballot box planning," as the phenomenon is called, occurs across the country, and while their targets for restricting growth are multiplying – recent initiatives in California urged height limits, downzoning, and urban growth limits, among others³⁰ – it is inappropriate and highly limiting to decide complex land use and development policy via yes-or-no questions. Is new suburban housing acceptable if it is sufficiently compact or is located close to major employment centers at the urban edge? Should new housing be restricted even if it results in making existing housing so expensive that working families cannot afford to buy a home? Is the aesthetic character of lower-density urban neighborhoods worth preserving, even if it means under-utilizing valuable urban land? What the public thinks – or whether people are even aware – of such difficult tradeoffs is impossible to ascertain from ballot box results.

Lastly, asking voters what they think sets up a false sense of self-determination. In most metropolitan areas in America, problems of air and water pollution, traffic, and unaffordable housing have leapt far beyond the ability of individual jurisdictions to affect them. One community's vote to restrict development will neither solve their own problems nor assist their neighbors.

The Result: A Dearth of Choice

This stew of growth politics has restricted outward sprawl in many places, but has also sparked an urban development crisis. NIMBYs, in their loud opposition, and environmentalists, in their silence, are consigning cities to local land use policy that hews to the familiar, favoring low-density housing, separate residential and commercial districts, an abundance of parking, and roads designed for heavy traffic. Some jurisdictions even boast charter amendments that ban the construction of apartment buildings. Policy limits building height to two or three stories, and demands setbacks from the street for large parking lots. As a result, innovation –

projects with reduced parking, higher than average densities, or graywater systems – is expensive, politically risky, and legally vulnerable.

The clamp on development also affects affordability. In places where both outward and infill growth are constrained by law and local politics, when housing demand goes up, housing prices are very likely to rise.³¹ Growth management can avoid that effect, The Brookings Institution reports: "Land-supply limiting effects of growth management need not lead to higher housing prices *if density increases*...infrastructure is available in a timely manner, and land use decisions are made roughly concurrent with market needs" (italics added).³² But again, these strategies depend on the support of diverse political constituencies, including environmentalists.

All of this adds up to a typical American city that offers very little in the way of choice. Seventy-five percent of the housing built in the U.S. today is single-family detached homes, even though 75 percent of the population does not live in a traditional parents-and-children household.³³ For many people, the choices are limited to a nondescript apartment building or a house far away from their job. Few Americans can choose to live without cars, because so many places are structured to require driving. Pedestrians and bicyclists must fend for themselves and transit riders cope daily with underfunded systems.

And so the politics of growth have environmental consequences that no one expected. Anti-sprawl activism and ambivalence about density have placed a clamp on development, a vise that limits supply, rendering many cities unaffordable. The few projects that are allowed are uninspiring, and for many, are emblematic of a soulless city. When the deteriorated conditions of urban schools, parks, transportation systems, and other elements are factored in, many Americans would simply prefer to make their home far from the aggravations associated with our cities. They are at once the customer base for the suburban development market, and the newest recruits to the anti-growth movement.

New Wrinkles in Growth Politics Limit Affordable Housing

The modern configuration of America's metropolitan areas has given rise to a new wrinkle in regional growth politics: sprawl may be occurring in one suburb while development is stymied in an inner-core neighborhood a few miles away. In Los Angeles, an affordable housing complex in the primarily Latino, working-class neighborhood of Boyle Heights is now facing local opposition. Complaints about high-density housing, fears of crime, and fears of new low-income residents have surfaced – and in a contemporary form of inter-class tension, many of the doubts are being voiced by Latino property owners who are themselves immigrants. But families are already living doubled-up and newcomers are still arriving, and the neighborhood is suffering from an insufficient supply of affordable housing.*

In Denver, no stranger to sprawl, scarce city land, low-density development patterns, and insufficient subsidy are combining in a looming affordable housing crisis. While some redevelopment is taking place – a former motel was recently converted to housing – the need for affordable subsidized and private-market homes is going unmet. In the meantime, working-class families are buying or renting in the more-affordable suburbs further away from Denver, and driving back to their jobs. “[People] have been pushed out due to market pressures,” said Jim Mercado, a housing official with the city of Denver. “That turns into a sprawl issue, an environmental issue, a community issue.”**

*Cardenas, Jose. 2003. “Residents, Developer Battle Over Housing Plans.” *Los Angeles Times*. February 18.

**Seibert, Trent. 2003. “Affordable-housing crisis on city leaders’ doorstep.” *Denver Post*. February 24.

The City and Nature

Thus we arrive at the immediate challenge for the environmental movement: Can environmentalists redefine nature and find its manifestation in the urban places where many of us now live? Many in the smart growth movement realize that finding the answers to this question is key to the future of American cities. In this section we present tools, including regional plans, bricks-and-mortar projects, and green infrastructure innovations, in which smart growth can be realized and which environmentalists can support.

The first flexible perspective we propose is viewing the elements of the built environment as indicator species: think of our homes, offices, transportation system, shops, and industry as underpinnings of metropolitan ecological health. If our *built* environment is diverse, innovative, flexible, and aesthetically pleasing – in other words, if it is full of choices – then people will want to make their home in the city.

It seems counterintuitive to consider bricks-and-mortar projects efforts to restore the natural environment. But as this paper has argued, a redefined environmental agenda must demonstrate an understanding of the connection between building *here* and saving land *there*. Just as important, the new environmental agenda must

demonstrate a knowledge of how great cities are created – both through the fine-grained techniques of urban planning and design, and through green innovations that are slowly transforming how cities function.

Transit-Oriented Development: The Cornerstone of a New Environmental Agenda

The rise of transit-oriented development (TOD) is proving that a new development pattern can take hold in American cities. In such projects, developers capitalize on mass transit nodes by building higher-density and more-profitable developments that require less parking. They are built for people to live close to transit, and many incorporate retail and office space. Rail stations are prime locations, because they are fixed in place and the huge parking lots that often surround them can be prime development sites. Transit-oriented projects and plans are underway in major cities throughout the U.S. that differ greatly in character, including Chicago, Washington D.C., the San Francisco Bay Area, and Dallas, as well as many smaller cities.³⁴

In the absence of widespread regional land use planning in the U.S., transit-oriented development draws a crucial link between transit and land use. But a glance at some of America’s largest cities, particularly those in

the south and west, shows that half the equation, an efficient and convenient public transportation system, is by no means guaranteed. Any local government seeking to mount a major TOD effort must find both resources for an increased investment in public transit, and land for higher-density projects.

It is hard to overstate the importance of design in building transit-oriented development projects with truly urban character, and avoiding becoming merely transit-adjacent development. Difficult to convey and highly

subjective, design is the factor that a TOD project depends on to help it vault three significant challenges: functioning well as a transit node, being a desirable place to live, and being accepted by the surrounding community. Local political leadership can play a crucial role in relieving the constraints typically imposed by planning and zoning codes, which often limit height, impose heavy requirements for parking, require wide roadways for car access, and set the project too far back from the street. The local government must also be frank with a skeptical public about these techniques, all

Regional Environmental, Transportation, and Urban Planning: The Riverside County Integrated Project

The control of environmental and urban planning is typically fractured among jurisdictions and agencies, often resulting in a host of plans for the same area that each focus on a single element or subarea. This is at best confusing; at worst, they may work at cross purposes.

Riverside County in Southern California is attempting to overcome this problem through the three-year, \$20 million Riverside County Integrated Project (www.rcip.org). Faced with a projected doubling of the population by 2020, and with the presence of more than 150 endangered, critically listed, or endemic species in the 7,295-square mile county's western edge, the county decided to prepare simultaneous environmental, transportation, housing and development guidelines. "Integrated" in the project's title refers to the use of three planning tools at once: a Multi-Species Habitat Conservation Plan, a Community Transportation Acceptability Process, and a General Plan Update.

The Multiple Species Habitat Conservation Plan is a tool created by the federal Endangered Species Act that seeks to ensure the survival of a species through compromises between private landowners and the U.S. Fish and Wildlife Service. Within Habitat Conservation Plans, landowners are granted permits to develop a portion of endangered-species habitat in exchange for guaranteed set-asides and management designed to help long-range recovery. The advantages: many species can be managed within a single plan, the plans typically span several decades, and the land is placed under permanent protection, avoiding constant regulatory oversight.

As for land development, HCPs create a predictable long-term growth plan and regulatory climate for investors and developers. This helps reduce the sometimes costly project delays and uncertainty associated with land development under traditional enforcement of the Endangered Species Act.

Thus, Riverside County's planners are tasked with accommodating 918,000 new dwelling units and converting a car-dominated transportation system to a multi-modal one, all the while protecting species using fundamental tenets of conservation biology – conserve the focus species and a diverse habitat, maintain large, contiguous blocks of habitat, and protect reserves from encroachment by non-native species. The draft plan was completed in Winter 2002.

Integrated regional planning at this scale offers great promise for environmental preservation and the design of cities and suburbs. It does, however, require committed participation and willingness to compromise, particularly between environmental purists wishing to shut down all development and developers seeking to avoid environmental mitigation. The process can often be stalled by insurmountable differences or high planning costs. When this happens, and the old fragmented approaches continue, all sides suffer.

of which add up to a denser project, by educating them about the creation of a sense of place.³⁵ Planners and developers trying to do the right thing need support from environmentalists who can connect the concentration of people and activity in one place to the preservation of land where it is inappropriate to build.

As noted above, development patterns induce behavior patterns, and projects in urban areas are no exception. Five stories of apartments next to seven stories of parking will not change anyone's reliance on the car – nor does it improve the city's aesthetics. Real environmental progress occurs when projects are designed with an assumption that the people living in them will own fewer cars and drive less. People will walk and bike if they can use facilities as simple as bicycle lanes, wider sidewalks, street trees, and benches and mini-parks.³⁶

One new resource coming online in 2003 to help address the issues highlighted above is the Center for Transit-Oriented Development. Sponsored by Reconnecting America, core partners in the Center also include the Center for Neighborhood Technology and Strategic Economics. This new organization is designed to help communities, developers and activists interested in bringing TOD to scale in a way that increases housing affordability and choice, revitalizes downtowns and urban and suburban neighborhoods, and generates lasting public and private returns.³⁷

Have Any Projects Worked?

There are as yet few domestic examples of transit-oriented, green, infill development of a truly urban character that brings the ideas discussed in this paper together. That said, “urban ecology” is achievable in individual building projects even if city and county governments are not aggressively pursuing them as broader policy. Ultimately, however, these concepts must be embraced by activists, politicians, and developers if they are to move beyond demonstration projects and become standard practice. Following are some hopeful models:

- In Santa Monica, California, the five-story, 44-unit Colorado Court opened in 2002. The building generates 92 percent of its own energy and of its heating and hot water with rooftop solar panels and a natural gas-powered micro-turbine generator. It recycles its own rainwater and is built from recycled materials. The units are single-room occupancies, for low-income residents and seniors. Winner of a National AIA Award for Design Excellence, the project is a collaboration between the Community Corporation and Santa Monica's Green Building Program. It is subsidized by the cities of Santa Monica and Irvine, Southern California Edison, and the California Energy Coalition. See <http://greenbuildings.santamonica.org/whatsnew/colorado-court/coloradocourt.html>.
- In Cleveland, Ohio, 20 affordable, green townhomes are on the market in the first phase of a major “Eco-

“This Site Has So Much Potential!”

Any city that has undertaken a major transit-oriented development (TOD) has experienced firsthand the challenges of financing, designing, and building a complex project. Many case studies have now been written about successful and failed projects, and the barriers TOD faces are well known: expensive and time-consuming urban land assembly, cleanup of brownfields sites, neighborhood opposition, unaccommodating planning and zoning regulations, impatient capital, and delicate market timing.

What about the projects that do get built but fall short of the ideal? Among other factors, recent studies find that TOD projects often fail to resolve the tension between their role as a transit node and their identity as a place to live: “The need for transit-oriented development to function as both node and place affects virtually every aspect of the station area, from physical layout and design to the appropriate development program...Parking is perhaps the clearest illustration of this [tension]. The way in which the seemingly mundane issue of parking is handled turns out to be one of the most crucial issues in transit-oriented development. Parking can become a political, financial, and design issue, and the goal of providing parking conflicts with place-related goals in many ways.”

Resolving these and other conflicts requires political patience and development savvy that many local jurisdictions lack. Thus, urban transit nodes that seem like obvious development opportunities to the casual observer may remain underutilized for decades.

Village” development. They are located within walking distance of the project’s centerpiece, a \$4 million redevelopment of the West 65th Street Rapid Transit Station, which was at one time slated for closure. The station is designed to match the architecture of the surrounding neighborhood and at the same time innovate through the use of green design and recycled materials. It will capture solar energy for heat in the heavy Cleveland winters and collect rainwater for watering the native landscaping. The new station is slated to open in Summer 2004. See www.ecocitycleveland.org.

- Battery Park City in New York, a higher-density residential and commercial area adjacent to the financial district in Manhattan, has established a site plan and guidelines for new buildings that are appreciably ahead of typical design, construction, and operation standards. 20

River Terrace, a green high-rise residential tower, the first of its kind in the nation, is now under construction and is slated to open in 2003. See www.batteryparkcity.org.

- At the ING Bank Building in Amsterdam, no desk in the nine-story, 540,000 square foot structure stands further than 23 feet from a window. As a result, the building uses no air conditioning at all and saves the bank \$2.5 million in energy costs per year.

It is important to note that all of these projects involve extensive subsidy and technical assistance from non-profit and public sources – perhaps inevitable for early innovators. As techniques prove successful and market demand is established, private developers and financial institutions will be drawn to these models.³⁸

Published TOD Design Guidelines

Congress for the New Urbanism, www.cnu.org
Reconnecting America, www.reconnectingamerica.org
Center for Transit-Oriented Development, www.transittown.org
Smart Growth Network, www.smartgrowth.org
Duany Plater-Zyberk & Co., www.smartcode.org

Greening the City

The presence of nature can be ineffable, but a sense of closeness to it is important to people of all classes, ethnicities, and backgrounds. Greening our cities clearly benefits the environment, and as we have argued throughout this paper, a revived connection to nature can also persuade people not to leave the city. In this section we discuss greening the infrastructure of cities via parks, water, and energy – only a sampling of the ideas now being tested in cities around the world. Not all of the methods discussed below will render nature’s presence obvious to all urban dwellers, but applied even subtly, these practices can ground a city’s identity and sense of place.

Urban Parks and Natural Areas

Parks and natural areas offer the most immediate connection to nature, but the perennial problem for greening any city is finding adequate space. Once again, building at higher densities serves an important purpose. Clustering development allows natural features – river floodplains, drainage areas, remnant forests, ripari-

an corridors, creeksides, and coastlines – to be left intact. In cities, these interwoven, multifunctional green spaces replace the private lawns and manicured freeway medians of the suburbs – and our understanding of their social, ecological, and economic benefits is only growing.³⁹

The Flow of Water

Flows of water are visible and delightful manifestations of urban nature, and the restoration of water bodies is a crucial means of healing the divide between cities and their ecology.

Development projects can help prevent water pollution through one basic strategy: the diversion of rainwater into grassy areas, underground cisterns, or wells after it hits the ground. Rainwater can thus absorb into the soil and be re-used, rather than run off into the city’s drainage system. Many public parks and sports fields are now being used for rainwater absorption.⁴⁰ Village Homes in Davis, California, and The Woodlands near Houston, Texas, capture 100 percent of their rainwater

More than Decoration: What Urban Parks and Forests Provide

Ecological health – Spaces for flora and fauna, home to basic elements for healthy ecosystem functioning.

Interaction with the built environment – Shade for buildings and concrete surfaces, reduction of air pollution, reduction of the heat island effect, contribution to urban design, alternative commute corridors.

Social space – Recreational and relaxation space, respite from the street, space for public events, contribution to community, sense of place, and identity.

Economic support – Provision of “ecological services”: flood control, groundwater treatment, erosion control, nutrient recycling, waste treatment, food production, boost in real estate values.

into the soil through landscaped drainage systems. In Los Angeles, TreePeople conducts design workshops to show how all types of buildings – residential, industrial, and commercial – can be retrofitted to reduce the excess and polluted rainwater they generate.⁴¹ Over a large enough land area, these measures can bring down the cost of downstream flood control and help restore streams to health.

Even sewage water can be treated in ecologically benign ways. In the 1980s the city of Arcata, California, pioneered the use of constructed wetlands to treat the city’s wastewater. The Arcata Marsh not only finishes cleaning wastewater to federally mandated standards before it is discharged into nearby Humboldt Bay, but is also a regional wildlife habitat visited by thousands of people each year.⁴²

Capturing and Generating Energy: Green Buildings

Buildings use over one-third of the energy consumed in the U.S. each year in their ordinary operations – comparable to the amount of energy consumed by transportation and industry.⁴³ But heating and cooling codes for office buildings and multifamily housing impose a narrow range of acceptable indoor climatic conditions, often making passive heating and cooling strategies untenable – even windows that open are ruled out in

new office buildings. There are four primary ways to reduce the energy use of buildings:

- **Solar orientation:** Use free heat and light from the sun as an asset rather than a cost to be managed by mechanical cooling systems. Since people spend so much time indoors, building design that maximizes natural daylight, breezes, sun warmth, and views also helps maintain a sense of connection to the outdoors.
- **Spacing and orientation:** Buildings can shade each other in sunny climates, share walls in cold zones, and allow natural ventilation in humid places.
- **Building materials:** Paint and structural materials can be used for insulation, ventilation, or nighttime warming, reducing or even eliminating the need for heating and cooling.
- **Trees, bushes and plants:** Vegetation reduces the energy consumption of buildings by shading them and by absorbing heat energy from the air.⁴⁴ Cities possess a largely untapped resource in thousands of acres of unutilized rooftops – perfect places for green spaces to absorb heat, or for solar or wind generators to pump renewable energy into the building.

What Funders Can Do

The environmental movement is slowly coming to terms with the question of *how* to grow. But as detailed in this paper, the challenges to a truly changed pattern of land use in American cities and suburbs are steep. Grantmakers can assist in a number of ways:

- Support planning efforts – smart growth, bioregional, or otherwise titled – that study and plan simultaneously for protection and restoration of ecosystems and compact, urban-centered growth.
- Support groups seeking to build political will and legal mechanisms for a new generation of growth management tools that incorporate both inward growth and outward limits. Encourage the participation of preservation-based environmental groups in such efforts.
- Support the development and use of community visioning tools geared for laypeople and non-native English speakers. Support groups that are using the tools in development debates as a way of helping local residents understand the potential benefits of a higher-density and mixed-use pattern of development.
- Support model projects. Assist in the pre-development phases, including community outreach and education, of model urban housing that incorporates an urban level of density, green building techniques, and by loca-

tion and design encourages walking, bicycling, and transit use.

- Support innovative investment funds and other types of investment vehicles that can help model projects get off the ground. Funds can be targeted to brownfield remediation, pre-construction costs, affordability set-asides, green design innovations, patient capital, and other financing gaps that now preclude many worthwhile projects. In addition to supporting model projects, investing in funds that address key financing gaps brings to bear all the resources of foundations on these solutions, instead of just the grant budget, while also providing strong probability for near-investment grade returns.
- Support groups working to revise local codes that determine the built environment, encouraging the re-examination of densities, building height limits, street widths, parking ratios, and other codes that bring about low-density development.
- Support the initiation of new ecosystem studies in major urban areas.
- Support advocacy groups working at the state and regional levels to promote laws and regulations that encourage environmentally friendly infill development.

Conclusion

Across America communities will continue to grow, and by many accounts the local debates over growth are becoming more polarized, not less. A new ethic in community planning is needed to incorporate new ideas and early models of success in transforming the urban environment. For policymakers, the key is to raise development standards above what is currently viewed as realistic – today's controversy can easily become tomorrow's

basis for a new consensus. For their part, developers should invest in innovation, making use of the ideas, materials, and design concepts that reduce development's ecological impact. And for our part, environmentalists must find meaning in a nontraditional concept of the urban environment and its unexpected manifestations in America's cities.

Endnotes

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2. William Eisenstein is a doctoral student at the University of California-Berkeley. Formerly, he was the assistant editor of *Urban Ecology* magazine.
3. The author wishes to thank the following individuals who served as peer-reviewers for the final draft of this paper: Bruce Nilles, Sierra Club-Chicago; Teifion Rice-Evans, Economic and Planning Systems; and Diana Williams, Urban Ecology.
4. This paper is published by the Funders' Network for Smart Growth and Livable Communities, whose mission is to strengthen funders' abilities to support organizations working to build more livable communities through smarter growth policies and practices. For more information, see www.fundersnetwork.org.
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 35. Many computer-generated images are now available to show step-by-step transformations of urban and suburban settings through gradual intensification of the built environment. To view the work of Steve Price, one of the first providers of these highly effective educational tools, visit www.urban-advantage.com.
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